Education at a Glance 2018

OECD INDICATORS



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BETTER POLICIES FOR BETTER LIVES

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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 its country's 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, Éric Charbonnier, Manon Costinot, Fatine Guedira, Corinne Heckmann, Karinne Logez, Axelle Magnier, Camila de Moraes, Simon Normandeau, Gara Rojas González, Daniel Sánchez Serra, Markus Schwabe, Giovanni Maria Semeraro and Roland Tusz. Administrative support was provided by Valérie Forges, and additional analytical support were provided by Agnese Gatti, Yaelin Ham, Michael Jacobs, Pauline Le Pape, Hanvit Park and Junyeong Park. 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 accomplished 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

Education's promise to all

We are all born equal, but we are not all born with the same opportunities. Some will be born to wealthy families, others will struggle to make ends meet. Some will grow up in an environment of conflict and turmoil, and will face the challenges of displacement and settling in a country that is not their own, others will benefit from a climate of social stability and prosperity their whole lives. Some will cope with a disability, struggling to learn to perform even basic tasks, while others may never realise the fortune of their good health. The conditions and social environments we are allotted at birth may seem as random as a lottery draw, yet they will define our starting position on the path of life by affecting not only the opportunities available to us, but also the social and emotional capital needed to ease our way.

"The direction in which education starts a man will determine his future life," said Socrates to Adeimantus in Plato's *Republic*. Indeed, education is the cornerstone of individuals' progression through life. No one would refute that every child, every human being, deserves the same opportunities to gain skills and progress through society regardless of their gender, socio-economic, ethnic or cultural background. Equity is indeed one of the fundamental values on which so many countries around the world have chosen to build their societies.

In addition to the strong moral and ethical grounds supporting the demand for equity, there is also sound evidence of the economic and social benefits of an inclusive society, as our Inclusive Growth Initiative has highlighted. Higher educational attainment leads to higher skills, which lead to higher lifetime earnings. The quality of education can be a strong predictor of a country's economic prosperity. Shortfalls in academic achievement are extremely costly, as governments must then find ways to compensate for them, and ensure the social and economic welfare of all.

The impact of skills inequality, however, extends much farther than a nation's economic wealth; it ripples out to all aspects of society such as, in poorer health, in a climate of violence or social unrest – all of which show how inequality can have long-term, and often tragic, consequences for individuals and communities. This is why the *OECD Framework for Inclusive Growth* emphasises investing in people and places that have been left behind, while supporting inclusive labour markets. Using a dashboard of indicators, the Framework identifies the mechanisms through which inequalities unfold, and offers suggestions on how countries can design and implement policies that promote opportunities for all. Fighting inequality in education is central to all these efforts.

Recognising these challenges, this year's edition of *Education at a Glance* focuses on equity in education. It shows that although educational attainment increased significantly over the past decade, inequities that start early tend to accumulate throughout life, first in education and then in the labour market, and through a number of channels: socio-economic status, gender, immigrant background and geographic location.

Among the channels of inequity considered, socio-economic status has the strongest impact on participation in education and learning, and on economic and social outcomes. Children without tertiary-educated mothers are less likely to be enrolled in early childhood education and care programmes. Although it is widely acknowledged that a child's cognitive development begins well before he or she reaches school age, governments still spend less on this level of education than on any other. Children from disadvantaged backgrounds are also less likely to pursue further education opportunities as inequalities build on each other throughout life. Those without tertiary-educated parents are more likely to enrol in vocational than in general upper secondary programmes and are less likely to complete those programmes. This, in turn, affects their participation in higher education, where the share of entrants without a tertiary-educated parent is small. Still, two in three adults from low-educated families attain a higher level of education than their parents, a sign that those from the most disadvantaged backgrounds are now acquiring more skills.

Participation in higher education today matters more than ever. About one in three children of manual workers is also a manual worker. Technological change, digitalisation and innovation have placed a significant premium on advanced skills, as lower-skilled jobs are being squeezed out of the market. Those who have attained only upper secondary education will earn 65% as much as a tertiary graduate, on average, perpetuating this vicious cycle over the next generations. On average, it takes around four to five generations for children of families in the bottom earnings decile to attain the mean level of earnings across OECD countries.

Gender differences also remain a reality despite the many efforts to reduce or eliminate them; but the dynamics play out differently in school and in the labour market. Boys are more likely than girls to repeat a grade, drop out of school, and not attain a tertiary education. However, despite their better performance at school, women still have worse employment and earning outcomes. This is partly the result of the different choices men and women make when deciding on a field of study. Although there have been widespread attempts to encourage gender diversity across different careers, women are still less likely to enrol in and graduate from high-paying fields at the tertiary level. For example, even though engineering skills are in high demand today, only 6% of women graduates complete an engineering degree compared to 25% of men. Cultural norms and preconceived notions of women's roles in life, absorbed during childhood, still influence these choices, often unconsciously.

Migration patterns are also profoundly changing our communities and education systems. Fostering a cohesive society depends on the capacity to integrate immigrants and ensure that they develop the skills required to contribute to the labour market and to their communities. However, first- and second-generation immigrants are less likely to enter and graduate from bachelor's or long first-degree tertiary programmes in countries with available data; and foreign-born adults are also less likely than their native-born peers to participate in formal and/or non-formal education throughout their lifetime.

At first glance, it appears Socrates's words ring true: those who start at a disadvantage are less likely to have access to a high-quality learning environment or acquire the skills or will to develop and grow in society. But more than a prophecy, these words are, in fact, a call to action for education systems, a reminder that providing a high-quality, nurturing learning environment can help narrow these opportunity gaps.

This is exactly the ambition framed by world leaders when they set out to define the Sustainable Development Goals for education. By committing themselves to ensuring "inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030, they set in motion one of the most comprehensive global education agendas ever attempted. Among the ten targets of this goal, target 4.5 is dedicated to equity and specifically aims to "eliminate gender disparities in education and ensure access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations". In addition to addressing gender disparities, the agenda invites countries to monitor equity along a range of other dimensions that are as relevant for developed countries as for developing countries.

Given the transversal nature of inequities in education throughout the 2030 agenda, this year's *Education at a Glance* marks a substantial contribution to all Sustainable Development Goals by dedicating its chapter on the Sustainable Development Goals specifically to target 4.5, providing an assessment of where OECD and partner countries stand on their way to achieving their equity objectives. Results show that achieving equitable participation in education and quality in learning outcomes remains a challenge for many OECD countries. The gender gap in the participation rate of adults in formal and non-formal education varies greatly across countries, with women in some countries, and men in other countries, less likely to participate. Disparities in achieving equity in learning outcomes are also stark: in all OECD countries, the mathematics performance of 15-year-olds is strongly associated with students' socio-economic status and the location, urban or rural, of their school. In most countries, this association has not weakened at all over the past decade

Every individual has a potential for greatness, and deserves the opportunity to grow, develop and contribute fully to society. Achieving equity in education will require a range of interventions through different policy mechanisms: targeting funding and resources for education to the most vulnerable; preventing grade repetition and encouraging those from minority backgrounds to enter mainstream education, with its greater opportunities; ensuring teachers are equipped with the right training and pedagogical knowledge to identify and support struggling students; and increasing access to and provision of affordable, high-quality early childhood education.

A lot has already been achieved in bridging some of the opportunity gaps our children face, but this edition of *Education at a Glance* reminds us that the path to achieving equity in education remains strewn with obstacles. We have the responsibility to ensure that personal or social circumstances do not impede students from realising their potential. This should be education's promise to all.



Angel Gurría
OECD Secretary-General

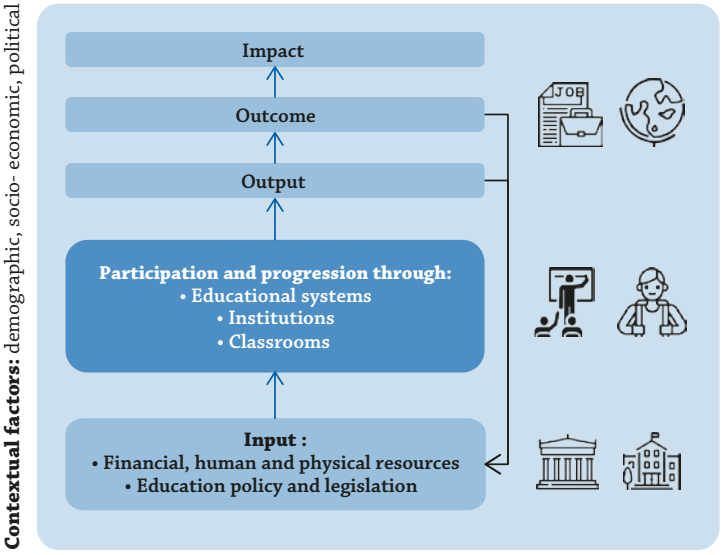
Introduction: The indicators and their framework

The organising framework

Education at a Glance 2018: 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 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 2018* 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 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 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.

Chapter 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 the 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, the levels of government at which decisions about education are taken and the pathways and gateways for access to secondary and 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 on a smaller number of countries that complement the findings presented.

The Sustainable Development Goal 4

In September 2015, world's leaders gathered to set ambitious goals for the future of the global community. Goal 4 of the Sustainable Development Goals (SDG) 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* is devoting for the second year 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*.

Equity in *Education at a Glance 2018*

As the selected theme for this year's publication, equity is at the forefront of *Education at a Glance 2018*. Equity in education means that access, participation and progression to obtain a quality education are available to all and that personal or social circumstances, such as gender, family or immigrant background, are not obstacles to achieving

A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

educational potential. Therefore, a large number of indicators in this year's edition analyse the participation and progression through education, as well as the outcomes of education across a number of equity dimensions: gender, parents educational attainment (often considered as a proxy for socio-economic status), immigrant background or country of origin, and subnational regions.

In line with this general focus of the publication, the SDG chapter in *Education at a Glance 2018* focuses on the status of Target 4.5 that aims to "eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations" by 2030.

The table below summarises the indicators and chapters of the publication that contribute to the analysis of equity in education across a number of equity dimensions.

Table A. **Indicators including an equity analysis in *Education at a Glance 2018***

Chapter	Indicator number	Indicator	Equity dimension			
			Gender	Parents' educational attainment	Immigrant background / country of origin	Subnational
Chapter A: The output of educational institutions and the impact of learning	A1	To what level have adults studied?	x	x	x	x
	A2	Transition from education to work: where are today's youth?	x		x	x
	A3	How does educational attainment affect participation in the labour market?	x		x	x
	A4	What are the earnings advantages from education?	x		x	
	A5	What are the financial incentives to invest in education?	x			
	A6	How are social outcomes related to education?				
	A7	To what extent do adults participate equally in education and learning?	x		x	
Chapter B: Access to education, participation and progression	B1	Who participates in education?	x			x
	B2	How do early childhood education systems differ around the world?	x	x	x	x
	B3	Who is expected to graduate from upper secondary education?	x	x	x	
	B4	Who is expected to enter tertiary education?	x			
	B5	Who is expected to graduate from tertiary education?	x			
	B6	What is the profile of internationally mobile students?				
	B7	How equitable are entry and graduation in tertiary education?	x	x	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?				
	C3	How much public and private investment on educational institutions is there?				
	C4	What is the total public spending on education?				
	C5	How much do tertiary students pay and what public support do they receive?				
	C6	On what resources and services is education funding spent?				
	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?				x
	D2	What is the student-teacher ratio and how big are classes?				
	D3	How much are teachers and school heads paid?	x			x
	D5	How much time do teachers spend teaching?				x
	D5	Who are the teachers?	x			
	D6	Who makes the decisions in education systems?				

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 the 35 OECD countries, 2 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, China, Colombia, Costa Rica, India, Indonesia, Lithuania,[1] 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 region.

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 that the population size as well as geographic size of subnational entities can vary widely within countries. For example, in Canada, the population of Nunavut is 37 082 and the territory covers 1.9 million square kilometres, while the population of the province of Ontario is 13.9 million and the territory covers 909 000 square kilometres (OECD, 2018[2]). Also, regional disparities tend to be higher especially in big countries like Canada, the Russian Federation or the United States when more subnational entities are used in the analysis.

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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 Adult Competencies (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 countries attain specific values 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[1] 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[1] 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, the OECD 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 **EU22 average** is also presented. It is calculated as the unweighted mean of the data values of the 22 countries that are members of both the European Union and the OECD for which data are available or can be estimated.[1] These 22 countries are Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, 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, EU22 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/EU22/G20 average" refers to the OECD, EU22 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.

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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.

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.

The table below lists the ISCED 2011 levels used in the publication (OECD / Eurostat / UNESCO Institute for Statistics, 2015[3])

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 Serves to deepen the knowledge developed at previous levels by imparting new techniques, concepts and ideas not generally covered in upper secondary education.	**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.	**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**

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. Throughout this publication, the term "field of study" is used to refer to the different fields of this classification.

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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 a Glance 2018* 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". Subnational data presented in this publication can be accessed from a subnational supplement to *Education at a Glance* via the website https://nces.ed.gov/surveys/annualreports/oecd/.

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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

Note

1. On 3 May 2018, the Council invited Lithuania to become an OECD Member. However at the time of preparation of the publication, the deposit of Lithuania's instrument of accession to the OECD Convention was pending. Therefore Lithuania does not appear in the list of OECD Members and is not included in the OECD and EU22 averages.

References

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OECD (2018), *OECD Regional Statistics Database*, http://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR. [2]

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Executive summary

The impact of socio-economic status on equity in education tends to build throughout life

Despite significant expansion in educational attainment over the past decade, those people with low-educated parents, a proxy for low socio-economic status, are less likely to participate in early childhood education programmes, complete upper secondary school and advance to higher levels of education than those with at least one tertiary-educated parent. While two-thirds of 25-64 year-olds whose parents have not completed upper secondary are expected to attain a higher level of education than their parents, most of them attain upper secondary vocational education. The story is similar at the tertiary level: across OECD countries with available data, 18-24 year-olds whose parents have not attained tertiary education represent only 47% of new entrants into bachelor's, long first-degree or equivalent programmes, although they represent more than 65% of the population of that age group. These inequalities are then reflected in the labour market: those who have attained only upper secondary education are less likely to be employed and earn 65% as much as their tertiary-educated peers.

The gender gap favours girls in education, but men in the labour market

On average across OECD countries with available data, boys make up about 60% of secondary-school grade repeaters and are less likely to complete that level of education than girls. As a result, a larger share of girls than boys graduates from this level. Men are also less likely than women to attain tertiary education: 38% of men aged 25-34 were tertiary-educated on average across OECD countries in 2017 compared to 50% of women the same age, and this gap has been widening over the past 10 years.

Despite better educational attainment, women still have worse employment outcomes. On average across OECD countries, 80% of tertiary-educated young women are employed, compared with 89% of young men with the same education, and the disparity increases among those with lower educational attainment. Tertiary-educated women also earn 26% less than tertiary-educated men, on average across OECD countries. This pay disparity reflects the gender gap observed between high- and low-paying fields of study at the tertiary level, but may also result from women's greater likelihood of going through periods of inactivity or unemployment, which may delay salary increases.

Foreign-born adults and those with an immigrant background are less likely to participate in education and to succeed in the labour market

First- and second-generation immigrants are under-represented among entrants into and graduates from bachelor's or long first-degree programmes in countries with available data. Foreign-born adults who arrived in their host country at the age of 26 or older also tend to participate less in formal and/or non-formal education than their native-born peers or than those who arrived before the age of 25, because they are less familiar with the education system and language of the host country.

In most OECD countries, employment rates are lower among tertiary-educated foreign-born adults than among their native-born peers, but the opposite is often observed among those with lower educational attainment. These opposing trends reflect the difficulties tertiary-educated foreign-born adults face in gaining host-country recognition for their education and experience, and the attractiveness, for employers, of the lower wage demands of foreign-born adults with lower educational attainment. Foreign-born adults are also more likely to be neither employed nor in education or training (NEET). Some 18% of foreign-born 15-29 year-olds are NEET compared to 13% of native-born young adults.

THE JOURNEY THROUGH EDUCATION AND EMPLOYMENT

What influences an individual's education and employment outcomes?



PARENTS' EDUCATION



GENDER



IMMIGRANT BACKGROUND AND COUNTRY OF BIRTH

BELOW UPPER SECONDARY

Employment rate

among women, men and foreign-born individuals who leave school before completing upper secondary education

47% *25-64 year-olds*



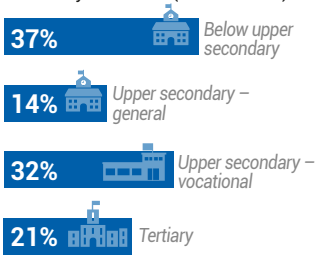
68% *25-64 year-olds*



60% *25-64 year-olds*

Educational attainment

among 25-64 year-olds whose parents had not completed upper secondary education (2012 or 2015)



TERTIARY

Employment rate

among tertiary-educated women, men and foreign-born individuals



78% *25-64 year-olds*



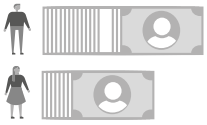
89% *25-64 year-olds*



81% *25-64 year-olds*

Salaries

of those with tertiary education



Tertiary-educated women earn **26% less** than tertiary-educated men.

Tuition fees and financial aid

USD 2 364

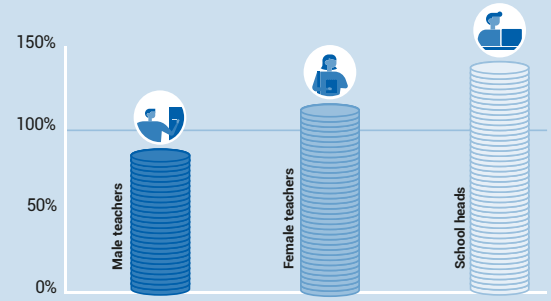
Average annual tuition fee for a bachelor's degree

More than **75%** of students in countries with the highest tuition fees benefit from financial aid

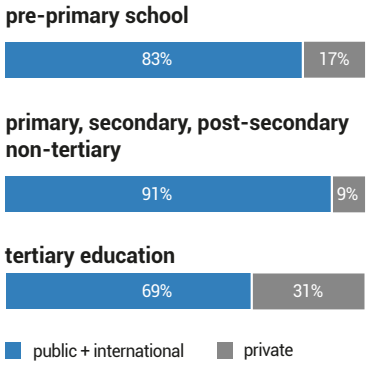


Male teachers earn less than female teachers relative to tertiary-educated men and women, although school heads earn significantly more

Relative earnings of lower secondary teachers and school heads compared to other full-time tertiary-educated workers



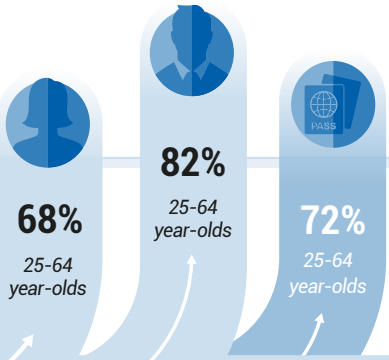
A significant share of total spending on tertiary education is privately funded



UPPER SECONDARY

Employment rate

among women, men and foreign-born individuals who completed upper secondary education



Repeaters

4% repeat a grade in upper secondary general programmes

58% of them are boys



Salaries

Those who completed upper secondary education earn

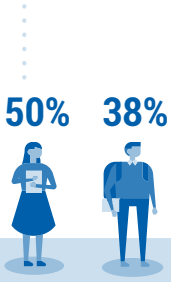
65% as much as tertiary-educated workers



Who is likely to participate in tertiary education?

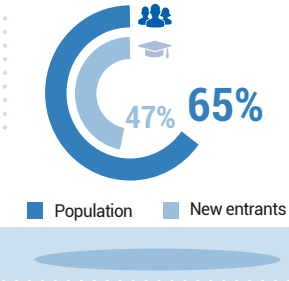
Gender

Young men are less likely than women to earn a tertiary degree



Parents' education

Young adults without tertiary-educated parents represent almost two-thirds of all 18-24 year-olds but less than half of new entrants into higher education



Immigrant background

First- and second-generation immigrants are under-represented among new entrants to tertiary education.



Despite increases in public spending, a significant share of total funds for tertiary and pre-primary education comes from private contributions

Between 2010 and 2015, expenditure per student increased by 5% at the primary, secondary and post-secondary non-tertiary levels, and by 11% at the tertiary level. Educational institutions are still predominantly publicly funded. In 2015, 90% of funding for primary, secondary and post-secondary non-tertiary education and 66% of funding for tertiary education came from government coffers. Since a larger share of funding for tertiary education comes from households, countries have implemented financial mechanisms to support families. At least 75% of students in countries with the highest tuition fees benefit from these loans or grants.

With more 3-5 year-olds participating in early childhood education, public investment in pre-primary schools is also increasing, amounting to 83% of total funding in 2015. Over the past decade, this share rose by 4 percentage points across countries with available data. However, on average across OECD countries, one in three children enrolled in pre-primary school attends a privately funded institution – a larger proportion than observed in any other non-tertiary level of education.

The teaching profession still suffers from large gender imbalances

Nearly all pre-primary teachers are women, but fewer than one in two tertiary instructors is a woman. Over the past decade, this gender gap has widened at the primary and secondary levels, and narrowed at the tertiary level. Attracting male teachers to the profession is particularly difficult: while the average actual salary of female teachers is equal to or higher than the average salary of other full-time, tertiary-educated women, primary and secondary male teachers earn between 77% and 88% of the average earnings of other full-time, tertiary-educated men.

However, between 2005 and 2017, on average across OECD countries and economies with available data, statutory salaries of primary and secondary teachers with 15 years of experience and the most common qualifications in their country, have increased by 5% to 8% and are back to pre-economic-crisis levels. Teachers also have strong incentives to work to become school leaders: the actual salaries of school heads are at least 35% higher than the salaries of teachers and at least 20% higher than the average earnings of other tertiary-educated workers.

Other findings

Regional disparities in participation in education tend to widen as the level of education increases. However, the largest differences between subnational regions are observed in enrolment in early childhood education and care for children under the age of three.

In half of the OECD countries and economies with available data, school heads and teachers working in a disadvantaged or remote area are rewarded with additional compensation.

In most countries, decisions on how instruction is organised are predominantly taken at the school level, but decisions related to planning and structures, personnel management and resources are more likely to be made at higher levels of authority.

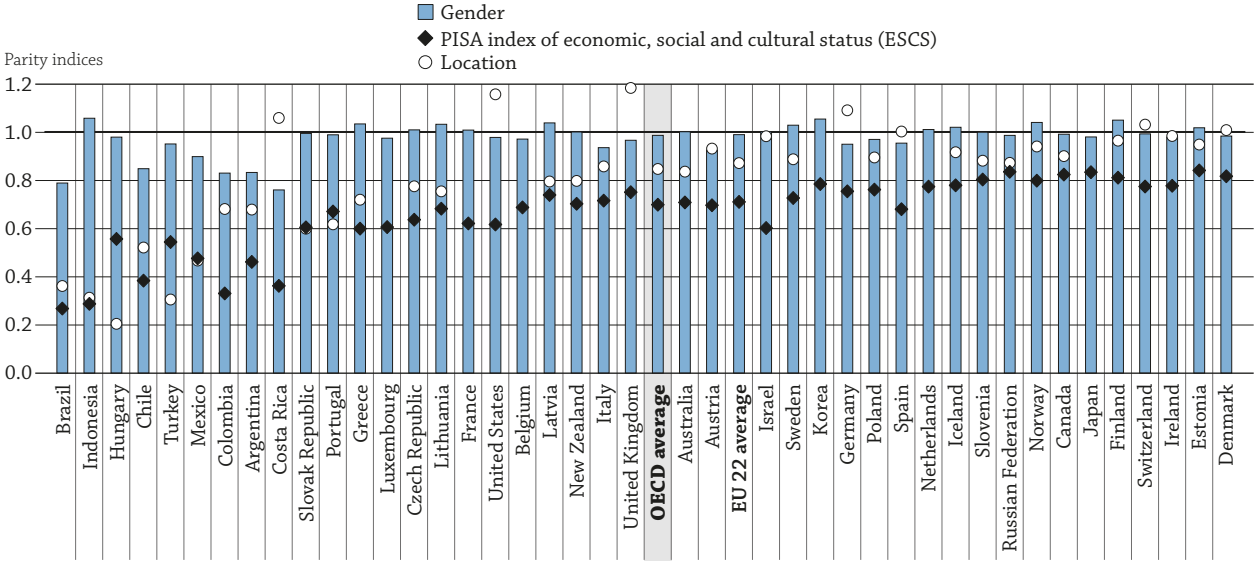
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Equity in the Education Sustainable Development Goal

- The 17 Sustainable Development Goals (SDGs) adopted by the 70th General Assembly of the United Nations in 2015, otherwise known as the Global Goals or the 2030 Agenda for Sustainable Development, are a universal call for action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The fourth SDG (SDG 4) is to: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". SDG 4 is to be achieved through the accomplishment of ten targets, which represent the most comprehensive and ambitious agenda for global education ever attempted. Among these, Target 4.5 is of special interest for this year's edition of *Education at a Glance* as it focuses on equity.
- The 2030 Agenda for Sustainable Development widens the focus on participation to levels and programmes outside compulsory education, including participation in adult education. Achieving equitable participation in these programmes remains a challenge for many OECD countries.
- The 2030 Agenda for Sustainable Development has also a strong focus on equity in learning outcomes. In all OECD countries, the performance of 15-year-olds in mathematics is strongly associated with the location of their school (in rural or urban areas) and with their socio-economic background. These levels of socio-economic inequity have remained the same for the last decade in the majority of countries.

Figure 1. Mathematics performance and gender, ESCS and location parity indices (2015)

Indicator 4.1.1 - Proportion of 15-year-olds achieving at least a proficiency level 2 (PISA) in mathematics



How to read this figure

In Denmark, the proportion of girls achieving at least PISA level 2 in mathematics is almost equal to that of boys (a parity index of 1 indicates perfect parity). The proportion of children from the bottom quartile of the PISA ESCS index achieving at least PISA level 2 in mathematics is 20% lower than that of childen from the top ESCS quartile.

Note: The gender parity index refers to the ratio of the female value over the male value. ESCS refers to the PISA index of economic, social and cultural status. The ESCS parity index refers to the ratio of the value for the bottom quartile over the value for the top quartile of the ESCS index. Location parity is measured using the PISA definition of rural and urban areas (see the *Definitions* section at the end of this chapter). The location parity index refers to the ratio of the value for rural areas over the value for urban areas.

Countries are ranked based on the average distance of each index to 1 (high to low).

Source: OECD (2018), Table 2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

It is well recognised that education plays a critical role in eradicating poverty and steering the vision for prosperous and sustainable development. As the 2018 World Development Report (World Bank Group, 2017[1]) and the 2016 Global Education Monitoring Report (UNESCO, 2016[2]) have made clear, education is also a foundation block for nearly every other SDG. Education saves lives, improves health and fosters shared understanding and values. Achieving SDG 4 will therefore be instrumental in realising the broader aspirations of the SDG agenda.

The international community has adopted a strong equity focus in the 2030 Agenda for Sustainable Development, and in the Education SDG agenda in particular. SDG 4 is broken down into ten targets, each measured by a set of global and thematic indicators. Among those, one whole target, Target 4.5, is dedicated to equity: "By 2030, eliminate gender disparities in education and ensure access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations." This target is cross-cutting by nature and encompasses all types of inequality across all educational outcomes.

In line with the overall equity theme of this year's edition of *Education at a Glance*, this chapter focuses on SDG Target 4.5 (Box 1). It will present data on the global and thematic indicators as agreed internationally within the context of the United Nations-led SDG framework, which in the case of SDG 4 is convened by UNESCO. The aim is to provide an assessment of where OECD and partner countries are on their path towards meeting the equity objectives of SDG Target 4.5.

Other findings

- The socio-economic status of students influences their participation in early childhood education, as well as in vocational and technical education (see Indicator B2).
- Men and women (25-64 year-olds) have similar literacy skills, but men tend to have higher skills in numeracy. Socio-economic background is also strongly associated with performance in numeracy. In two-thirds of countries with available data, adults (25-64 year-olds) with at least one tertiary-educated parent perform better than those whose parents have not attained this level of education.
- Men are more likely to use information and communications technology (ICT) skills than women, particularly the more specialised skills, such as programming. On average across OECD countries, less than 10% of adults over age 15 have recently used a specialised programming language. In all countries, men are at least 50% more likely to have used programming than women.

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 tables and figures in this chapter present only a few 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, the data are not repeated in this chapter, and reference is made to the corresponding indicator.

Box 1. SDG Target 4.5

This chapter focuses on Target 4.5 of the Sustainable Development Goals, which calls for the elimination of inequalities in education. Five indicators have been proposed to measure this target, as outlined in Table A below.

Global Indicator 4.5.1 sets the parity index as the main measure of inequity in education within the SDG 4 agenda (Box 2). This indicator casts a wide scope for measuring inequity, as it is meant to be applied to all other SDG 4 indicators with available data and can be used to measure inequity along several dimensions. Parity indices across a number of different indicators are presented and discussed in the *Participation* and *Skills* sections of this chapter. Due to data availability, only three dimensions of equity are analysed: gender, location (rural/urban) and socio-economic status (either measured using the index of economic, social and cultural status (ESCS) or proxied by parental education).

...

Indicator 4.5.2 addresses the fact that language can be an important source of inequities in education. Teaching children in a language they do not speak at home can hinder their ability to learn and reinforce learning gaps between different groups. Results from PISA 2015 indicate that immigrant students who speak a language at home that is different from the language of assessment score over 20 points less in science than immigrants who speak the language of assessment at home. Nevertheless, Indicator 4.5.2 is targeted at younger children (primary school), for which data is not currently available (OECD, 2016[3]). This indicator is therefore not addressed in this chapter.

The other three indicators (4.5.3, 4.5.4, and 4.5.5) relate to the financing of education, which is an important means through which equity can be pursued. These three indicators are addressed in the *Resources* section of this chapter.

Table 1. SDG Indicators for Target 4.5

Target 4.5: By 2030, eliminate gender disparities in education and ensure access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

Indicator	Definition
4.5.1 (Global)	Parity indices (female/male, rural/urban, bottom/top wealth quintiles and others, such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated
4.5.2	Percentage of students in primary education whose first or home language is the language of instruction
4.5.3	Extent to which explicit formula-based policies reallocate education resources to disadvantaged populations
4.5.4	Percentage of total aid to education allocated to least developed countries
4.5.5	Education expenditure per student by level of education and source of funding

Analysis

SDG 4 and its associated targets set an ambitious agenda that emphasises quality learning and equity in education alongside the more traditional indicators of access and participation. 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. The analysis below takes into account this larger scope and reports on equity levels in the areas of participation, skills acquisition and resources.

Participation in education

The 2030 Agenda for Sustainable Development widens the focus to education levels outside the traditional frame of compulsory education, including early childhood education and care (Indicator 4.2.2), secondary, post-secondary and tertiary vocational education (Indicator 4.3.3) and adult education (Indicator 4.3.1). Ensuring inclusive, quality education at these levels remains a challenge for most OECD member and partner countries.

Target 4.2 reaffirms the importance for all children of receiving a strong foundation through early childhood education and care (ECEC). Evidence has widely shown that the early years play a pivotal role in determining future performance and breaking the vicious circle of socio-economic inequality (OECD, 2017[4]). On average across OECD countries, 95% of children one year younger than the official primary school entry age are enrolled in ECEC, and all boys and girls participate equally in ECEC (Table 1). However, targeting the most disadvantaged groups remains a challenge in many countries. Indicator B2 of this publication highlights the fact that the mother's educational attainment often affects enrolment in ECEC. On average across countries with available data, only 31% of children below the age of 3 whose mother has not attained tertiary education participate in early childhood education, compared to 41% of those whose mother has completed tertiary education (Table B2.1c, available on line).

A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

Box 2. Measuring inequity in education and the parity index

Measuring equity is challenging for at least three reasons. First, the notion of equity is linked to a normative framework of fairness, which may differ across countries and cultures. Second, there is a general lack of data availability because equity indicators often require more refined data that allow for disaggregation among different groups in the population. As an additional challenge, in the case of the SDG framework, this disaggregation must also follow internationally agreed definitions that do not always match the national definitions. Third, there are several different methods for measuring equity, all of which have advantages and disadvantages, and that could lead to different conclusions about the degree of inequity in a given country (UIS, 2018[5]).

The main indicator chosen to measure equity across the SDG 4 agenda is the parity index. It is defined as the ratio between the values of a given indicator for two different groups, with the value of the likely most disadvantaged group in the numerator. A parity index equal to 1 indicates parity between the two considered groups. A value of less than 1 indicates a disparity in favour of the likely most advantaged group, and a value greater than 1 indicates a disparity in favour of the most disadvantaged group.

The use of a parity index provides the relative magnitude of the disparity in a simple, easy-to-communicate way. However, it also has some drawbacks, such as being sensitive to low values and not being symmetrical around 1 (perfect equality). For example, if the enrolment rate for girls is 40% and for boys it is 50%, the gender parity index (GPI) has a value of 0.8. If the female and male values are reversed, the GPI has a value of 1.25, which gives the mistaken impression of greater gender disparity because 1.25 is at a greater distance from 1 than 0.8 (UIS, 2010[6]). To solve this, an adjusted parity index, which is symmetrical around 1, is used in the tables and figures of this indicator whenever values for the likely advantaged and likely disadvantaged groups are switched for an observation (see *Methodology* section at the end of this chapter).

For more information on measuring inequity in education, please see the *UNESCO Handbook on Measuring Equity in Education* (UIS, 2018[5]). The handbook provides a conceptual framework for measuring equity in education and offers thorough methodological guidance on how to calculate and interpret various types of equity indicators.

At the other end of non-compulsory education, Target 4.3 focuses on participation in technical, vocational and tertiary levels of education and training. Each of these programmes plays an important role in preparing students for the labour market. Participation of 15-24 year-olds in technical-vocational programmes in secondary, post-secondary non-tertiary and short-cycle tertiary education (Thematic Indicator 4.3.3) varies widely across countries, from 4% in Brazil to 30% in Slovenia,[1] and has a strong association with both gender and socio-economic status. In most OECD and partner countries, boys are at least 40% more likely than girls to enrol in vocational education (Figure 2.a), and students whose parents did not attain tertiary education are more likely to choose upper secondary vocational programmes than general programmes (Box B3.1).

Finally, Global Indicator 4.3.1 measures the participation rate of adults (25-64 year-olds) in formal and non-formal education and training in the previous 12 months. By including formal and non-formal education, this indicator captures participation in any type of programme that aims to improve knowledge, skills and competencies from a personal, civic, social or employment-related perspective (UNESCO, 2016[2]). In most OECD and partner countries, at least 20% of 25-64 year-olds have participated in formal or non-formal education and training in the previous 12 months, with participation among men and women varying greatly across countries. Figure 2.b shows that the gender gap for Global Indicator 4.3.1 varies in magnitude and direction across countries. Participation is higher among women in 17 countries and higher among men in 13 countries. The most extreme cases are in Turkey, where participation for women is about 30% lower than for men, and in Estonia, Lithuania and the Russian Federation, where participation for women is at least 30% higher.

Skills

The ultimate goal of education policy is not to simply provide access to all levels of education, but also to ensure that all students gain the necessary skills to guide them through life. All children, youth and adults, regardless of their gender, location or background, should be able to acquire similar skills and reach comparable levels of proficiency.

The OECD Programme for International Student Assessment (PISA) provides valuable insights to Global Indicator 4.1.1.c, which measures the "Proportion of children and young people at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex". Level 2 proficiency in reading and mathematics in PISA has been internationally accepted for the purposes of SDG 4 monitoring of minimum proficiency level achievement at the end of lower secondary in 2017 and 2018. Figure 1 displays parity indices for Indicator 4.1.1.c, measured along gender, location (urban and rural) and socio-economic background (based on the PISA index of economic, social and cultural status [ESCS], see the *Definitions* section at the end of this chapter). Among 15-year-olds, there are usually as many boys as girls who achieve at least PISA Level 2 in mathematics, and more girls who achieve PISA Level 2 in reading (Table 2 and Table 3, available on line).[2]

However, students' performance remains strongly determined by their school's location in the majority of OECD and partner countries. Students in urban schools (located in communities with over 100 000 inhabitants) are more likely to achieve at least Level 2 than students rural schools (located in communities with fewer than 100 000 inhabitants). Suburban areas are not taken into account. Students in urban schools tend to perform better because they go to schools that are usually larger and more likely to gather a higher proportion of qualified teachers. They are also more likely to come from a socio-economically advantaged background, which is directly linked to their performance in PISA (OECD, 2013[7]).

The performance gap between students from different socio-economic backgrounds remains a reality in all countries, for both reading and mathematics skills. Even in those where parity is (almost) met along each of the three dimensions displayed in Figure 1, such as Denmark, Estonia and Slovenia, the proportion of youth achieving PISA Level 2 in mathematics remains 20% lower among the most disadvantaged students. Even more concerning, levels of socio-economic inequity have not changed since 2006 in the majority of countries. Figure 3 shows that in a few countries, such as Australia, Finland and Korea, the discrepancy between students in the top and bottom quartiles of PISA's socio-economic ESCS index grew even larger between 2006 and 2015. However, PISA results show that inequality of opportunity is not set in stone, and that selected school systems succeeded in becoming more equitable over a relatively short period (OECD, 2017[8]). This is the case in Mexico and the Russian Federation, where the gap between ESCS quartiles narrowed significantly in this period, although high discrepancies between disadvantaged and advantaged students remain.

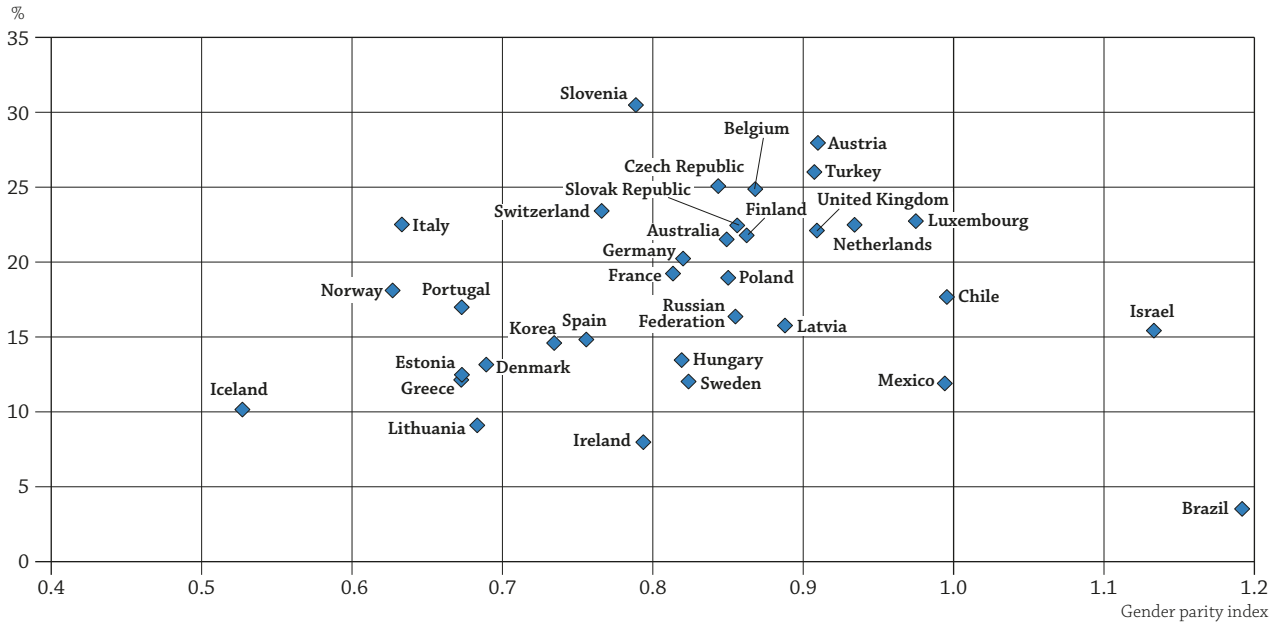
Target 4.4 refers to skills for work. One measure of this target is the percentage of adults who have attained tertiary education (Thematic Indicator 4.4.3). Across OECD countries, 36% of 25-64 year-olds have attained tertiary education, but one's educational attainment is likely to depend on his or her parents' educational attainment. Among adults who have at least one parent who attained tertiary education, 68% attained tertiary education themselves, compared to 21% of those whose parents have not attained upper secondary education (see Box A1.1 in Indicator A1). While these inequalities may be reflected in the labour market, it is important to keep in mind that attainment is not a direct measure of skills.

Global Indicator 4.6.1 measures the "Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex." In the Survey of Adult Skills, a product of the OECD Programme for the International Assessment of Adult Competencies (PIAAC), this fixed level corresponds to PIAAC score 226 in (a) numeracy and (b) literacy skills. This score corresponds to Level 2 in the Survey of Adult Skills (PIAAC), which reports results on a scale from Below Level 1 (below 176 points) to Level 5 (376 points or more). Among 25-64 year-olds, gender parity in numeracy skills is met in less than half of the countries with available data (Table 2). However, women and men perform similarly in literacy in the majority of OECD and partner countries (Table 3 available on line). Socio-economic background is more strongly related to performance than gender. In all countries with available data, adults with at least one tertiary-educated parent have higher numeracy skills than those whose parents have not attained this level of education (Table 2).

In today's increasingly digitalised economies, literacy and numeracy skills may not be sufficient to thrive in the labour market. Related to SDG Target 4.4 on Skills for Work, Global Indicator 4.4.1 measures the "Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill." This indicator has been developed according to the definition of the International Telecommunication Union in the framework of the Partnership on Measuring ICT for Development (ITU, 2014[9]). ICT skills refer to nine computer-related activities with varying levels of difficulty, from transferring files between a computer and other devices to writing a computer programme using a specialised programming language.

Figure 2.a. Gender parity in participation in technical-vocational programmes (2016)

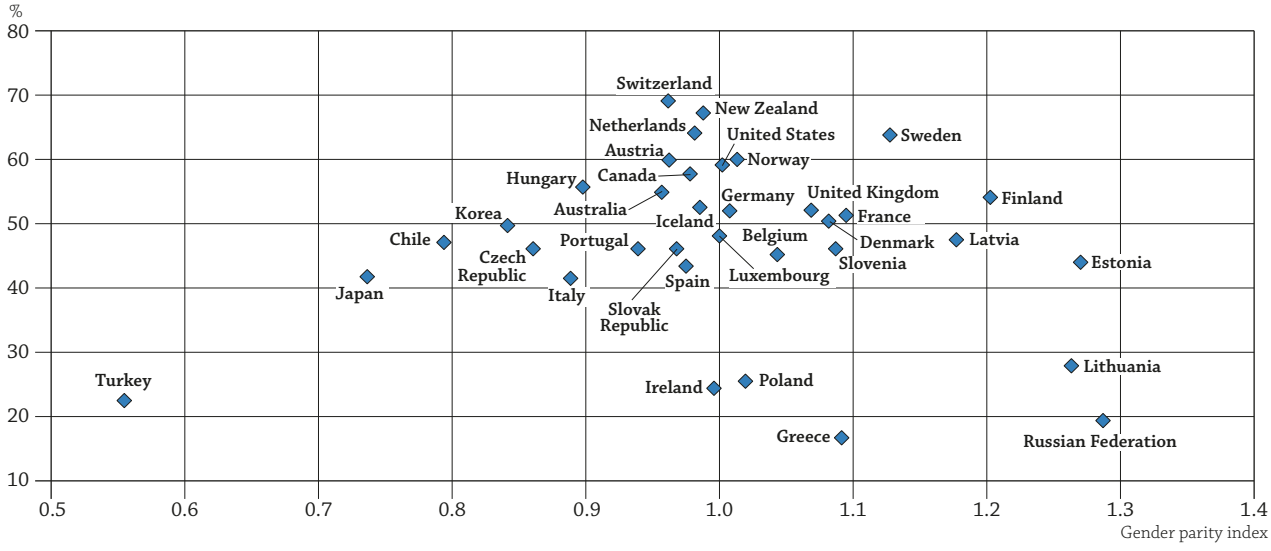
Indicator 4.3.3 - Participation rate of 15-24 year-olds in technical-vocational programmes and related gender parity index



Note: Indicator 4.3.3 refers to participation in technical and vocational programmes in secondary, post-secondary non-tertiary and short-cycle tertiary education (ISCED 2 to 5).
Source: OECD (2018), Table 1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Figure 2.b. Gender parity in participation in adult education (2012 or 2015, 2016)

Indicator 4.3.1 - Participation rate of 25-64 year-olds in formal and non-formal education and related gender parity index

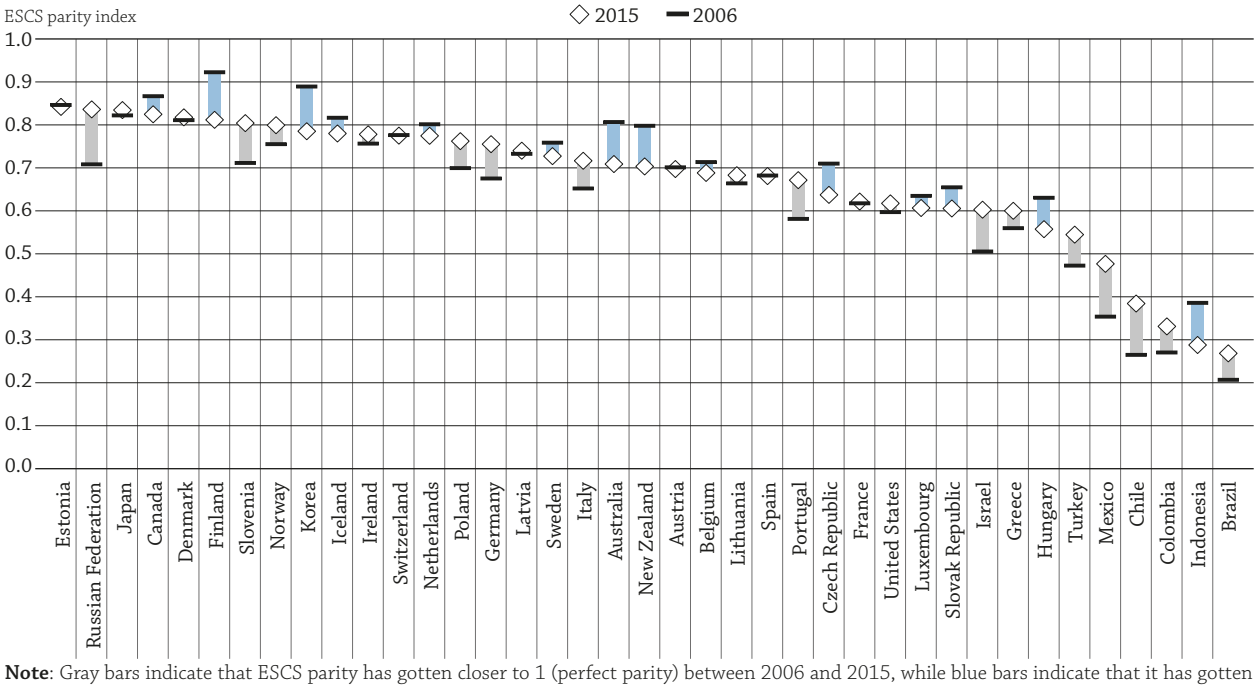


Note: Data from the Survey of Adult Skills (PIAAC) are reported and refer to 2012 for Australia, Canada, Korea, Russian Federation and the United States and 2015 for Chile, Israel, New Zealand and Turkey. For other countries, data from the Adult Education Survey (AES) are reported and refer to 2011 for Ireland and 2016 for all others.
Source: OECD (2018), Table 1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933801525

Men are more likely to use ICT skills than women, particularly the more specialised skills such as programming. On average across OECD countries, over 50% of adults over the age of 15 have transferred files between a computer and other devices in the last three months, and women are only about 10% less likely to have recently used this skill in comparison to men.[3] On the other hand, except in a few countries, such as Denmark and Iceland, less than 10% of adults over the age of 15 have recently used a specialised programming language. In all countries, men are at least 50% more likely to have recently run a programme than women (Table 2). These results mirror the gender differences in fields of study and occupations, as men are more likely to obtain a degree in the fields of science, technology, engineering and mathematics (STEM) (OECD, 2018[10]).

Figure 3. Trends in socio-economic (ESCS) parity index (2006, 2015)

Indicator 4.1.1 - Proportion of 15-year-olds achieving at least proficiency level 2 (PISA) in mathematics



Note: Gray bars indicate that ESCS parity has gotten closer to 1 (perfect parity) between 2006 and 2015, while blue bars indicate that it has gotten further from 1 in the same period.

Countries are ranked in descending order of the ESCS parity index value in 2015.

Source: OECD (2018), Table 2, and PISA database. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933801544

Resources

Ensuring equitable participation and skills acquisition relies on the availability of resources. That is why Target 4.5 contains three financing-related indicators, each of which tackles education expenditure from a different angle.

Thematic Indicator 4.5.4 on "Education expenditure per student by level of education and source of funding" provides a meaningful way to measure the availability of resources in a country. This indicator alone cannot measure the quality or equitability of education in a country, but it serves as a useful reference point. Increased data availability, such as disaggregation by students' socio-economic status or location of schools, for example, would provide more relevant information to measure Target 4.5.

Expenditure per student is presented for OECD and partner countries in Indicator C1 of this edition of *Education at a Glance*. Results show that governments are by far the main investors in education, especially at primary and secondary levels. There are higher shares of private expenditure at the tertiary level, which may raise equity concerns if financial support to students, such as grants and public loans, are not readily available.

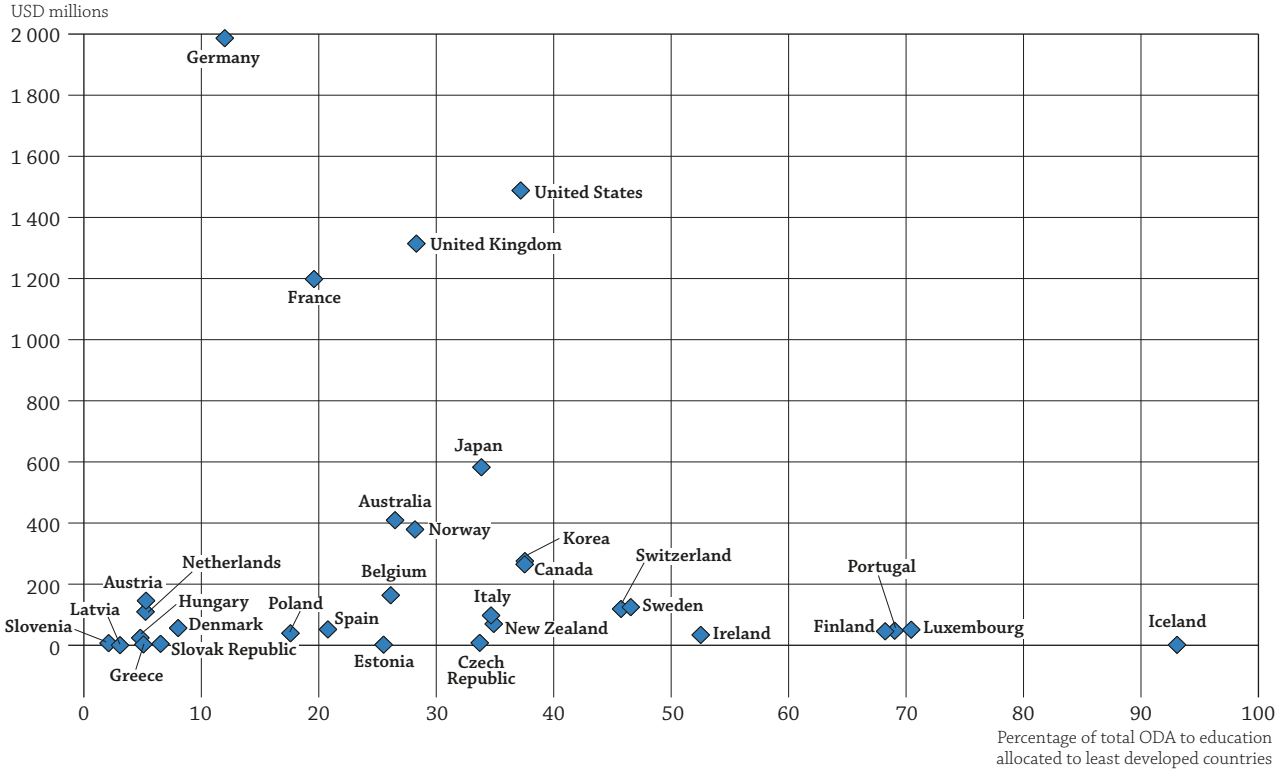
Even though governments are the main source of education expenditure, international assistance remains an important financing mechanism in least developed countries. Indicator 4.5.5, "Percentage of total aid to education allocated to least developed countries", aims to measure the extent to which international education assistance

is targeted to the countries that are most in need. Figure 4 shows the total official development assistance to education disbursed by each OECD country to all developing countries and the share of this assistance directed to least developed countries.

These figures only include public bilateral assistance transfers, so transfers to multilateral organisations, such as the World Bank, the European Commission and other important institutions in education funding worldwide like the Global Partnership for Education, are not included. As a result, countries that donate mostly through multilateral organisations may appear lower than those that donate directly to other countries, even if the total amount given is higher. These figures also do not include aid destined to humanitarian aid or aid allocated for budget support which could also help achieve education goals.

Figure 4. Official development assistance to education, gross disbursements and percentage allocated to least developed countries (2016)

Including scholarships and imputed student costs, current prices



Source: OECD (2018), "Creditor Reporting System: Aid activities", OECD International Development Statistics (database), http://dx.doi.org/10.1787/data-00061-en (accessed on 03 May 2018).

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These two indicators address the availability of resources, but it is not only the amount of resources that matters, but also how effectively these resources are allocated. Evidence consistently points to the fact that spending more does not necessarily lead to better outcomes (OECD, 2012[11]). This is especially true as countries try to develop education systems that strive for both excellence and equity. The SDG Thematic Indicator 4.5.3 attempts to tackle this issue by measuring "the extent to which explicit formula-based policies reallocate education resources to disadvantaged populations". Lack of data and of an international agreement on its scope has led this indicator to be classified as requiring further development, and it has not yet been approved for monitoring. However, the concept behind the indicator and the notion that countries must find efficient ways to diminish inequalities in education remain pertinent.

The 2017 OECD report, *The Funding of School Education: Connecting Resources and Learning* (OECD, 2017[12]), sheds light on countries' strategies to allocate resources, taking into account the fact that schools have different resource needs. For example, in Chile, the Flemish and French Communities of Belgium, Estonia and Israel, at least part of

the main school-funding mechanism is allocated using a formula with different weightings for variables such as students' socio-economic characteristics, school location and special educational needs. Some of these countries also provide targeted funding outside of the main allocation mechanism for specific groups, such as newly arrived immigrants or refugees. These examples may not be appropriate in every context, and there are several other policy tools that can be used by countries (UNESCO, 2016[2]). What is important is that countries take steps to ensure that resource allocation also tackles equity concerns.

Definitions

Level 2 in PISA (baseline proficiency level):

- **Mathematics:** Students can use basic algorithms, formulae, procedures or conventions to solve problems involving whole numbers (e.g. to compute the approximate price of an object in a different currency or to compare the total distance across two alternative routes). They can interpret and recognise situations in contexts that require no more than direct inference, extract relevant information from a single source and make use of a single representational mode. Students at this level are capable of making literal interpretations of the results.
- **Reading:** Students begin to demonstrate the reading skills that will enable them to participate effectively and productively in life. Some tasks at Level 2 require the student to retrieve one or more pieces of information that may have to be inferred and may have to meet several conditions. Others require recognising the main idea in a text, understanding relationships, or interpreting meaning within a limited part of the text when the information is not prominent and the student must make low-level inferences.

Level 2 (score 226) in PIAAC (baseline proficiency level):

- **Numeracy:** Tasks at this level require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percentages and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.
- **Literacy:** Tasks at this level require the respondent to make matches between the text, either digital or printed, and information, and may require paraphrasing or low-level inferences.

The **PISA index of economic, social and cultural status (ESCS)** was created on the basis of the following variables: 1) the International Socio-Economic Index of Occupational Status (ISEI); 2) the highest level of education of the student's parents, converted into years of schooling; 3) the PISA index of family wealth; 4) the PISA index of home educational resources; and 5) the PISA index of possessions related to "classical" culture in the family home. See Volume I of *PISA 2015 Results* (OECD, 2016[3]) for more information.

Technical and vocational education and training 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.

Parental education (only two categories are considered in this chapter):

- Below tertiary means that neither parent has attained a tertiary degree (ISCED 2011 levels 5, 6, 7 and 8).
- Tertiary means that at least one parent has attained a tertiary degree (ISCED 2011 levels 5, 6, 7 and 8).

Location is defined based on the number of inhabitants in the community where the school is located. In the PISA survey, principals are asked to choose the closest description to the community. Rural schools are those where the principal answered "a village, hamlet or rural area" (fewer than 3 000 people), "a small town" (3 000 to about 15 000 people) or a town (15 000 to about 100 000 people), whereas urban schools are those where the principal answered either "a city" (100 000 to about 1 million people) or "a large city" (with over 1 million people).

The Development Assistance Committee List of Official Development Assistance Recipients shows all countries and territories eligible to receive official development assistance. These consist of all low- and middle-income countries, based on gross national income per capita as published by the World Bank, with the exception of G8 members, EU members, and countries with a firm date for entry into the European Union. The list also includes all of the Least Developed Countries as defined by the United Nations (UN-OHRLLS[13]). **Least developed countries** (LDCs) are low-income countries confronting severe structural impediments to sustainable development, they are highly vulnerable to economic and environmental shocks and have low levels of human assets.

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 is calculated as the indicator value for women divided by the indicator value for men. The ESCS parity index is calculated as Q1%/Q 4%, where Q = a quartile of ESCS. The location parity index is calculated as the indicator value for rural schools divided by the indicator value for urban schools. The parental education parity index is calculated as the indicator value for those whose parents have not attained tertiary education divided by the value for those with at least one tertiary-educated parent.

In order to make the parity index results symmetrical around 1, the adjusted parity index is used whenever the indicator values for the likely advantaged and likely disadvantaged groups are switched for an observation. For example, if the enrolment rate for girls (likely disadvantaged) is higher than the enrolment rate for boys (likely advantaged), the adjusted parity index is calculated for this observation. The adjusted parity index (API) is calculated as API = 2-(value for likely advantaged group/ value for likely disadvantaged group).

All indicators presented in this chapter follow the agreed SDG methodology, and may differ in some cases from other indicators presented in *Education at a Glance*, including on issues such as population data sources (i.e. the population data used in this chapter is collected from the United Nations Population Division).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Indicator	Source
4.1.1	OECD, PISA 2015 Database
4.2.2	UOE 2017 data collection
4.3.1	Two different data sources: PIAAC (2012, 2015) and Adult Education Survey (2016)
4.3.3	UOE 2017 data collection
4.4.1	International Telecommunication Union (2015)
4.4.3	Indicator A1 in *Education at a Glance 2018*
4.5.3	The Funding of School Education OECD
4.5.4	OECD International Development Statistics Database
4.5.5	Indicator C1 in *Education at a Glance 2018*
4.6.1	PIAAC Database (2012, 2015)

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.

Notes

1. In many countries, the large majority of students who participate in technical-vocational programmes do so at ages corresponding to upper secondary education (mostly age 15-19; see Indicator B1 for more information on enrolment in secondary education). Thus, taking into account the extended 15-24 age span in Indicator 4.3.3 may underestimate participation rates in these programmes.

2. Although boys and girls are likely to perform similarly at PISA Level 2 in mathematics, the gender gap in favour of boys increases at higher levels of performance.

3. According to the ITU survey manual, the question asked is: "Which of the following computer-related activities have you carried out in the last three months? Respondent should select all that apply." Respondents have the choice among nine ICT skills. The indicator therefore measures the percentage of individuals who have used the specific skills.

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"The education sustainable development goal" Tables

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	Table 1	Equity in participation in education
	Table 2	Equity in skills acquisition (mathematics, numeracy and ICT skills)
WEB	Table 3	Equity in skills acquisition (reading and literacy skills)

Data can be found on line at http://dx.doi.org/10.1787/eag-data-en.

Table 1. Equity in participation in education

Indicators 4.2.2, 4.3.1 and 4.3.3 and related parity indices

		Target 4.2 – By 2030, ensure that all boys and girls have access to quality early childhood development, care and pre-primary education so that they are ready for primary education		Target 4.3 – By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university				
		4.2.2 Participation rate in organised learning one year before the official primary entry age[1] (2016)		4.3.1 Participation rate of adults in formal and non-formal education[2] (2012/2015, 2016)			4.3.3 Participation rate of 15-24 year-olds in technical and vocational programmes[3] (2016)	
		%	Gender parity index[4]	%	(S.E.)	Gender parity index[4]	%	Gender parity index[4]
		(1)	(2)	(3)		(4)	(5)	(6)
OECD	Australia	91	1.0	*55*	*0.7*	*1.0*	22	0.8
OECD	Austria	99	1.0	60	m	1.0	28	0.9
OECD	Belgium	100	1.0	45	m	1.0	25	0.9
OECD	Canada	93	1.0	*58*	*0.6*	*1.0*	m	m
OECD	Chile	97	1.0	*47*	*1.9*	*0.8*	18	1.0
OECD	Czech Republic	92	1.0	46	m	0.9	25	0.8
OECD	Denmark	98	1.0	50	*m*	1.1	13	0.7
OECD	Estonia	91	1.0	44	m	1.3	12	0.7
OECD	Finland	99	1.0	54	m	1.2	22	0.9
OECD	France[5]	100	1.0	51	m	1.1	19	0.8
OECD	Germany	100	1.0	52	m	1.0	20	0.8
OECD	Greece	89	1.0	17	m	1.1	12	0.7
OECD	Hungary	91	1.0	56	m	0.9	13	0.8
OECD	Iceland	99	1.0	m	m	m	10	0.5
OECD	Ireland[5]	98	1.0	24	m	1.0	8	0.8
OECD	Israel[5]	97	1.0	*53*	*0.7*	*1.0*	15	1.1
OECD	Italy	98	1.0	42	m	0.9	23	0.6
OECD	Japan	91	m	*42*	*0.8*	*0.7*	6	0.8
OECD	Korea	96	1.0	*50*	*0.8*	*0.8*	15	0.7
OECD	Latvia[5]	97	1.0	48	m	1.2	16	0.9
OECD	Luxembourg	99	1.0	48	m	1.0	23	1.0
OECD	Mexico	99	1.0	m	m	m	12	1.0
OECD	Netherlands	99	1.0	64	m	1.0	22	0.9
OECD	New Zealand	92	1.0	*67*	*0.8*	*1.0*	m	m
OECD	Norway	98	1.0	60	m	1.0	18	0.6
OECD	Poland	100	1.0	26	m	1.0	19	0.9
OECD	Portugal	100	1.0	46	m	0.9	17	0.7
OECD	Slovak Republic	82	1.0	46	m	1.0	22	0.9
OECD	Slovenia	94	1.0	46	m	1.1	30	0.8
OECD	Spain	96	1.0	43	m	1.0	15	0.8
OECD	Sweden	99	1.0	64	m	1.1	12	0.8
OECD	Switzerland	99	1.0	69	m	1.0	23	0.8
OECD	Turkey	66	1.0	*22*	*0.8*	*0.6*	26	0.9
OECD	United Kingdom	100	1.0	52	m	1.1	22	0.9
OECD	United States[5]	91	1.0	*59*	*1.1*	*1.0*	m	m
	OECD average	95	1.0	49	~	1.0	18	0.8
	EU22 average	96	1.0	47	~	1.0	19	0.8
Partners	Argentina	m	m	m	m	m	m	m
Partners	Brazil[5]	97	1.0	m	m	m	4	1.2
Partners	China	m	m	m	m	m	m	m
Partners	Colombia	m	m	m	m	m	m	m
Partners	Costa Rica	m	m	m	m	m	m	m
Partners	India	m	m	m	m	m	m	m
Partners	Indonesia	m	m	m	m	m	m	m
Partners	Lithuania[5]	99	1.0	28	m	1.3	9	0.7
Partners	Russian Federation	96	1.0	*19*	*1.5*	*1.3*	16	0.9
Partners	Saudi Arabia	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m
	G20 average	m	m	m	~	m	m	m

1. Official primary entry ages are reported in Table X1.3. in Annex 1.

2. Data from the Survey of Adult Skills (PIAAC) are reported in italics and refer to 2012 for Australia, Canada, Korea, Russian Federation and the United States and 2015 for Chile, Israel, New Zealand and Turkey. Data from the Adult Education Survey (AES) are not italicised and refer to 2011 for Ireland and 2016 for all others.

3. Indicator 4.3.3 refers to participation in technical and vocational programmes in secondary, post-secondary non-tertiary and short-cycle tertiary education (ISCED 2 to 5).

4. Gender parity index refers to the ratio of the female value over the male value.

5. Population data is collected from the UOE data or Eurostat database (instead of UNPD).

Source: OECD/UIS/Eurostat (2018), Eurostat (2011, 2016) and PIAAC (2012/2015). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table 2. Equity in skills acquisition (mathematics, numeracy and ICT Skills)

Indicator 4.1.1 (mathematics), 4.4.1 and 4.6.1 (numeracy) and related parity indices

		Target 4.1 – By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes					Target 4.4 – By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent work and entrepreneurship						Target 4.6 – By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy			
		4.1.1 Proportion of 15-year-olds achieving at least a minimum proficiency level (PISA level 2) in mathematics (2015)[1]					4.4.1 Proportion of adults over age 15 with information and communications technology (ICT) skills **Programming language** (2015)		4.4.1 Proportion of adults over age 15 with information and communications technology (ICT) skills **Presentation** (2015)		4.4.1 Proportion of adults over age 15 with information and communications technology (ICT) skills **File transfer** (2015)		4.6.1 Proportion of adults (25-64 year-olds) achieving at least a fixed level of proficiency (score 226) in functional numeracy skills (2012/2015)[1]			
		%	(S.E.)	Gender parity index[2]	ESCS parity index[3]	Location parity index[4]	%	Gender parity index[2]	%	Gender parity index[2]	%	Gender parity index[2]	%	(S.E.)	Gender parity index[2]	Parental education attainment parity index[5]
		(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)
OECD	Australia	78	0.6	1.0	**0.7**	**0.8**	m	m	m	m	m	m	80	0.7	**0.9**	**0.8**
	Austria	78	1.1	**0.9**	**0.7**	0.9	8	0.2	42	0.7	59	0.8	85	0.7	**1.0**	**0.9**
	French Comm. (Belgium)	80	1.0	1.0	**0.7**	**1.2**	5	0.2	33	0.8	58	0.9	m	m	m	m
	Canada	86	0.7	1.0	**0.8**	**0.9**	m	m	m	m	m	m	77	0.5	**0.9**	**0.8**
	Chile	51	1.3	**0.8**	**0.4**	**0.5**	m	m	m	m	m	m	38	2.6	**0.7**	**0.5**
	Czech Republic	78	1.1	1.0	**0.6**	**0.8**	4	0.1	31	0.9	56	0.9	87	0.8	**1.0**	**0.9**
	Denmark	86	0.9	1.0	**0.8**	1.0	13	0.5	58	0.9	71	0.9	86	0.6	**1.0**	**0.9**
	Estonia	89	0.7	1.0	**0.8**	**0.9**	7	0.3	37	1.0	58	0.8	86	0.5	1.0	**0.9**
	Finland	86	0.8	**1.1**	**0.8**	1.0	8	0.3	46	0.9	66	0.9	87	0.5	1.0	**0.9**
	France	77	0.9	1.0	**0.6**	m	5	0.3	35	0.9	62	0.9	72	0.6	**0.9**	**0.7**
	Germany	83	1.0	**1.0**	**0.8**	1.1	6	0.2	39	0.8	60	0.8	81	0.7	**0.9**	**0.8**
	Greece	64	1.8	1.0	**0.6**	**0.7**	10	0.4	25	0.9	47	0.8	71	1.1	**0.9**	**0.8**
	Hungary	72	1.2	1.0	**0.6**	**0.2**	3	0.3	25	0.9	54	0.9	m	m	m	m
	Iceland	76	1.0	1.0	**0.8**	**0.9**	18	0.5	58	1.0	74	0.9	m	m	m	m
	Ireland	85	0.9	1.0	**0.8**	1.0	4	0.3	30	0.9	37	0.9	75	0.9	**0.9**	**0.8**
	Israel	68	1.4	1.0	**0.6**	1.0	m	m	m	m	m	m	68	0.8	**0.9**	**0.7**
	Italy	77	1.1	**0.9**	**0.7**	0.9	5	0.4	31	0.8	43	0.8	68	1.0	**0.9**	**0.8**
	Japan	89	0.8	1.0	**0.8**	c	m	m	m	m	m	m	92	0.6	**1.0**	**0.9**
	Korea	85	1.1	**1.1**	**0.8**	c	5	0.5	m	m	48	0.8	81	0.6	**0.9**	**0.8**
	Latvia	79	1.0	1.0	**0.7**	**0.8**	1	0.3	24	1.2	56	0.9	m	m	m	m
	Luxembourg	74	0.7	1.0	**0.6**	m	13	0.5	63	0.9	75	0.8	m	m	m	m
	Mexico	43	1.3	**0.9**	**0.5**	**0.5**	m	m	m	m	m	m	m	m	m	m
	Netherlands	83	0.9	1.0	**0.8**	c	7	0.3	43	0.8	63	0.9	86	0.6	**0.9**	**0.9**
	New Zealand	78	1.0	1.0	**0.7**	0.8	m	m	m	m	m	m	81	0.7	**0.9**	**0.8**
	Norway	83	0.8	**1.0**	**0.8**	0.9	10	0.5	55	0.9	61	0.9	85	0.6	**1.0**	**0.9**
	Poland	83	1.0	1.0	**0.8**	**0.9**	2	0.2	21	0.9	43	0.8	77	0.7	1.0	**0.8**
	Portugal	76	1.0	1.0	**0.7**	**0.6**	7	0.4	35	0.9	45	0.8	m	m	m	m
	Slovak Republic	72	1.2	1.0	**0.6**	**0.6**	3	0.3	31	1.0	57	0.9	86	0.6	1.0	**0.9**
	Slovenia	84	0.6	1.0	**0.8**	**0.9**	4	0.3	33	1.1	49	1.0	74	0.8	1.0	**0.7**
	Spain	78	1.0	**1.0**	**0.7**	1.0	6	0.4	39	0.9	53	0.9	69	0.7	**0.9**	**0.7**
	Sweden	79	1.2	1.0	**0.7**	**0.9**	10	0.3	34	1.0	63	0.9	85	0.7	**0.9**	**0.9**
	Switzerland	84	1.0	1.0	**0.8**	1.0	7	m	m	m	m	m	m	m	m	m
	Turkey	49	2.2	1.0	**0.5**	**0.3**	2	m	18	m	26	m	49	1.6	**0.7**	**0.6**
	United Kingdom	78	1.0	1.0	**0.8**	**1.2**	7	0.4	45	0.9	52	0.9	m	m	m	m
	United States	71	1.4	1.0	**0.6**	**1.2**	m	m	m	m	m	m	70	0.9	**0.9**	**0.7**
	OECD average	77	~	1.0	0.7	0.8	7	0.3	37	0.9	55	0.9	77	~	0.9	0.8
	EU22 average	79	~	1.0	0.7	0.8	6	0.3	36	0.9	56	0.9	80	~	1.0	0.8
Partners	Argentina[6]	44	1.7	**0.8**	**0.5**	**0.7**	m	m	m	m	m	m	m	m	m	m
	Brazil	30	1.2	**0.8**	**0.3**	**0.4**	6	0.6	12	0.9	21	0.8	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	34	1.2	**0.8**	**0.3**	**0.7**	m	m	m	m	m	m	m	m	m	m
	Costa Rica	38	1.5	**0.8**	**0.4**	1.1	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	31	1.6	1.1	**0.3**	**0.3**	m	m	m	m	m	m	m	m	m	m
	Lithuania	75	1.1	1.0	**0.7**	**0.8**	4	0.3	32	1.0	55	0.9	82	0.8	1.0	**0.8**
	Russian Federation	81	1.2	1.0	**0.8**	**0.9**	1	0.3	8	1.2	28	0.9	86	1.5	1.0	1.0
	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

1. For indicators 4.1.1 and 4.6.1, parity indices are in bold when the difference between the two considered groups is statistically significant.
2. The gender parity index refers to the ratio of the female value over the male value.
3. ESCS refers to the PISA index of economic, social and cultural status. The ESCS parity index refers to the ratio of the value for the bottom quartile over the value for the top quartile of the ESCS index.
4. The location parity index refers to the ratio of the value for rural areas over the value for urban areas.
5. The parental attainment parity index refers to the ratio of the value for individuals whose parents have not attained tertiary education over the value for those with at least one tertiary-educated parent.
6. For PISA results, coverage is too small to ensure comparability.

c: There are too few observations or no observation to provide reliable estimates (i.e. there are fewer than 30 students or fewer than 5 schools with valid data).

Source: PISA (2015), ITU (2015) and PIAAC (2012/2015). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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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/10.1787/888933801582

Indicator A2 Transition from education to work: Where are today's youth?
StatLink https://doi.org/10.1787/888933801772

Indicator A3 How does educational attainment affect participation in the labour market?
StatLink https://doi.org/10.1787/888933801962

Indicator A4 What are the earnings advantages from education?
StatLink https://doi.org/10.1787/888933802171

Indicator A5 What are the financial incentives to invest in education?
StatLink https://doi.org/10.1787/888933802361

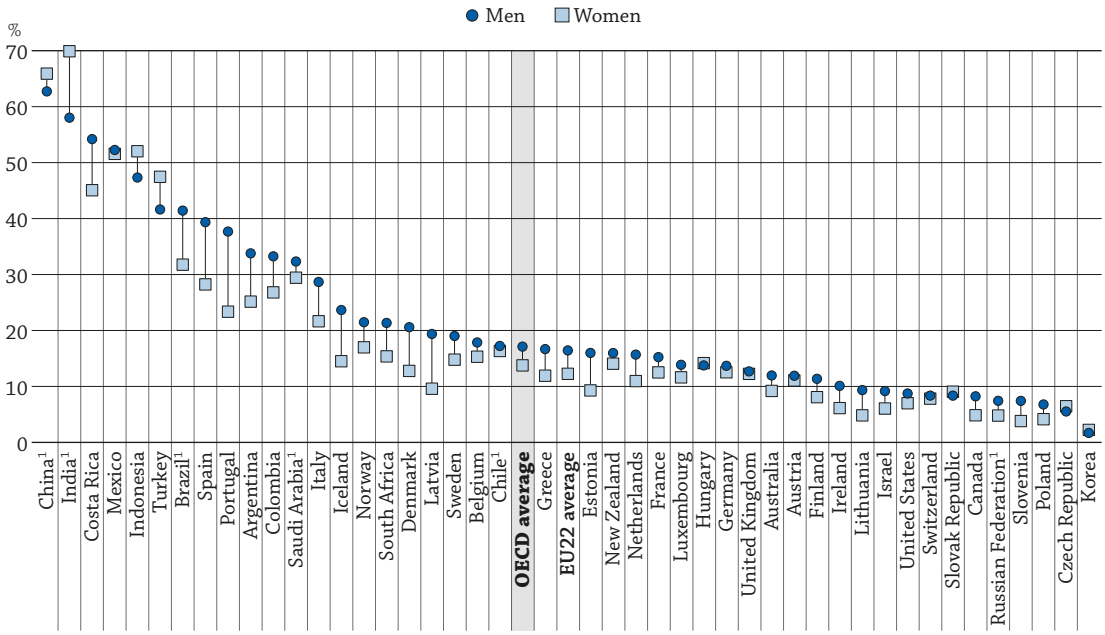
Indicator A6 How are social outcomes related to education?
StatLink https://doi.org/10.1787/888933802608

Indicator A7 To what extent do adults participate equally in education and learning?
StatLink https://doi.org/10.1787/888933802798

TO WHAT LEVEL HAVE ADULTS STUDIED?

- In most countries, less than 20% of younger adults (age 25-34) have not completed upper secondary education. Gender differences are small in most countries, but the difference between men and women is over 10 percentage points in India, Portugal and Spain. More women than men do not have upper secondary education in India, while more men than women are in this situation in Portugal and Spain.
- On average across OECD countries, 50% of women age 25-34 are tertiary-educated, compared to 38% of men.
- Among 25-34 year-olds in most OECD countries, the majority of those who attained bachelor's or master's degrees are women, but 51% of those who attained a doctorate or equivalent degree are men.

Figure A1.1. Percentage of 25-34 year-olds without upper secondary education, by gender (2017)



1. Year of reference differs from 2017. Refer to the source table for more details.

Countries are ranked in descending order of the total percentage of 25-34 year-old men without upper secondary education.

Source: OECD (2018), Table A1.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933801658

Context

Giving everyone a fair chance to obtain a 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. This will promote inclusive growth by broadening the pool of candidates for high-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 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). In this sense, qualifications certify and offer information on the type of knowledge and skills that graduates have acquired in formal education.

Higher levels of educational attainment are associated with several positive economic and social outcomes for individuals (see Indicators A3, A4, A5 and A6). Highly educated individuals are more socially engaged and have higher employment rates and higher relative earnings. Higher 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 organisation to support the expansion of higher 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.

According to the *International Migration Outlook 2017* (OECD, 2017[2]), 13% of the total population in OECD countries are foreign-born. The size and the characteristics of this group vary across countries, and it is important to analyse these elements to better understand the composition of a country's population. It is also important to consider how a country's geographic location or proximity to other countries affects the demographics of the country's foreign-born population. According to the OECD Demography and Population database, for example, in almost all European OECD countries, most immigrants are from Europe (OECD, 2018[3]). Educational attainment of the native-born and foreign-born population should also inform policies related to human capital within these two groups. In some cases, similarities or divergences between the two groups can signal the need for formal and/or non-formal adult education programmes (see Indicator A7).

Other findings

- The expansion of tertiary education has largely been to the advantage of women. Among 55-64 year-olds, there is a perfect gender balance in the percentage of men and women who are tertiary-educated on average across OECD countries. However, among the younger generation (age 25-34), a larger share of women than men are attaining tertiary education.
- The share of young men with vocationally oriented upper secondary or post-secondary non-tertiary education is higher than that of young women, but the share of young men and women who completed general programmes as the highest educational level is about the same.
- There are no clear patterns in the distribution of educational attainment among the native-born and foreign-born population across OECD countries. For instance, in Australia, Canada, Ireland, Israel and Poland, the percentage of tertiary-educated foreign-born adults is highest, at over 50%. In contrast, in Costa Rica and Italy, over 45% of foreign-born adults have not completed upper secondary education.

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Analysis

Below upper secondary education

In most OECD countries, the large majority of younger adults (age 25-34) had at least an upper secondary qualification in 2017. In just a few decades, upper secondary schooling has been transformed from a vehicle for upward social mobility into a minimum requirement for life in modern society. Young people who leave school before completing upper secondary education not only face difficulties in the labour market, but also have particularly low cognitive skills compared with upper secondary graduates. Those who leave school before completing upper secondary education are twice as likely to have low numeracy skills as those with an upper secondary education (OECD, 2015[4]).

The percentage of younger adults with below upper secondary education has fallen between 2007 and 2017. Across OECD countries, the share decreased from 20% in 2007 to 15% in 2017. Despite this progress, several countries are still lagging behind and have a high proportion of young adults without upper secondary education. While the share of young adults without upper secondary education is lower than 10% among 25-34 year-olds in Canada, the Czech Republic, Ireland, Israel, Korea, Lithuania, Poland, the Russian Federation, the Slovak Republic, Slovenia, Switzerland and the United States, it is 50% or more in China, Costa Rica, India, Indonesia and Mexico. In Korea, only 2% of men and women age 25-34 did not complete upper secondary education, the lowest share across OECD and partner countries for both genders (Table A1.2).

In most countries, there is a higher percentage of young men than young women without an upper secondary qualification. Gender disparities are generally larger in countries where the percentage of young adults without upper secondary education is high. For example, the gender gap is above 5 percentage points in about one-quarter of OECD and partner countries: Argentina, Brazil, Colombia, Costa Rica, Denmark, Estonia, Iceland, India, Italy, Latvia, Portugal, South Africa and Spain. With the exception of Estonia and Latvia, in all these countries, the percentage of young adults without upper secondary education is above the OECD average of 15%. In India, Portugal and Spain, the gap is above 10 percentage points, the largest gender gap among OECD and partner countries. One exception is Mexico, where the share of young men and young women without upper secondary education is high but similar (52% for both). Other countries with similar shares for young men and women without upper secondary education are Austria, Chile, the Czech Republic, Germany, Hungary, Korea, the Slovak Republic, Switzerland and the United Kingdom (Table A1.2).

Upper secondary or post-secondary non-tertiary education

Despite the expansion of tertiary education, upper secondary education is still the most commonly attained level of education among 25-64 year-olds in 17 OECD countries. However, it represents the largest share among 25-34 year-olds in 14 OECD countries. On average across OECD countries, the share of people with upper secondary or post-secondary non-tertiary education among 25-34 year-olds is 41%. Across OECD and partner countries, it ranges from as low as 18% in China to as high as 76% in South Africa (Table A1.2 and [OECD, 2018[5]]).

Upper secondary education across OECD countries is mainly divided into two types of programmes. Programmes defined as "general" are often designed to prepare students for further education, and those defined as "vocational education and training" (VET) are designed to lead directly to the labour market. Within upper secondary education or post-secondary non-tertiary education, more adults completed vocational programmes than general programmes as their highest educational attainment across countries. On average across OECD countries, 24% of 25-34 year-olds completed a vocational programme and 18% completed a general programme as their highest education level. The lower share for general programmes can be explained by the fact that these programmes are usually designed to prepare students for further education, and those who acquire this qualification often continue to tertiary education. The prevalence of vocational programmes differs across countries. While the share of 25-34 year-olds with vocational programmes is as low as 2% in Costa Rica and Mexico, followed by 3% in Israel, elsewhere it is much more significant: about 50% in Germany and the Slovak Republic (OECD, 2018[5]).

A gender difference is also observed among 25-34 year-olds with upper secondary or post-secondary non-tertiary education. Across OECD countries, on average, 46% of young men have this level of education as their highest attainment, while the share is lower among young women (37%). The share of young men with vocationally oriented upper secondary or post-secondary non-tertiary education (28%) as their highest level of education is higher than that of young women (21%), but the share of young men (19%) and young women (17%) who completed general programmes is about the same (Table A1.2 and [OECD, 2018[5]]).

Box A1.1. Programme orientation and intergenerational mobility in education

Education is often seen as a tool to level inequalities. But educational attainment often persists from one generation to the next, and it can also perpetuate inequalities. To facilitate social inclusion and improve socio-economic outcomes, now and for future generations, countries need to offer all young people a fair chance to obtain a quality education.

Growing up in a family where the parents have low levels of education often means having less financial support available for continuing studies. This situation is worsened if the education system does not provide support for students from disadvantaged backgrounds. In the short term, staying in education can involve foregoing earnings from employment. In such cases, those from disadvantaged backgrounds cannot incur the opportunity cost and thus leave education earlier.

To examine these issues, this box draws on data from the Survey of Adult Skills (PIAAC) (see *Source* section at the end of this indicator), on the educational attainment of the 25-64 year-olds relative to their parents' educational attainment (see *Definitions* and *Source* section at the end of this indicator). These data include the disaggregation by programme orientation (general/vocational) for adults whose highest level of education is upper secondary or post-secondary non-tertiary education, which complements analyses on intergenerational mobility in education published in earlier editions of *Education at a Glance* (OECD, 2014[6]; OECD, 2015[7]; OECD, 2016[1]; OECD, 2017[8]).

England (United Kingdom), the Flemish Community of Belgium, Italy, Northern Ireland (United Kingdom), Sweden, Turkey and the United States have been excluded from the analysis, because information on the disaggregation between general and vocational orientation is missing for over 10% of 25-64 year-olds with upper secondary or post-secondary non-tertiary education (Table A1.a, available on line).

Educational attainment of 25-64 year-olds whose parents have not attained upper secondary education

Figure A1.a shows that, on average across OECD countries and economies that participated in the Survey of Adult Skills (PIAAC), 43% of 25-64 year-olds have parents who did not complete upper secondary education. Among those adults, 36% achieved the same low level of educational attainment, meaning that 64% succeeded in completing a higher level of education than their parents. The breakdown of this upward mobility in education is as follows: 14% of 25-64 year-olds whose parents who did not complete upper secondary education attained upper secondary or post-secondary non-tertiary general education; 30% attained upper secondary or post-secondary non-tertiary vocational education; and 20% attained tertiary education. This means that, in most countries, upper secondary or post-secondary non-tertiary vocational education is the prominent programme for upward mobility in education for 25-64 year-olds with parents who did not complete upper secondary education (Figure A1.a and Table A1.b, available on line).

In eight countries, upward mobility to general programmes is higher than upward mobility to vocational programmes, with a statistically significant difference. This is the case for Japan, where 37% of 25-64 year-olds with parents who did not complete upper secondary education attained upper secondary or post-secondary non-tertiary general education themselves, the largest share among these countries. In contrast, in 15 countries, upward mobility to upper secondary or post-secondary non-tertiary vocational education is higher than upward mobility to general programmes. The highest shares are observed in the Czech Republic and Poland, where more than 65% of 25-64 year-olds with parents who did not complete upper secondary education are attaining these programmes (Figure A1.a).

Educational attainment of 25-64 year-olds who have at least one parent who attained tertiary education

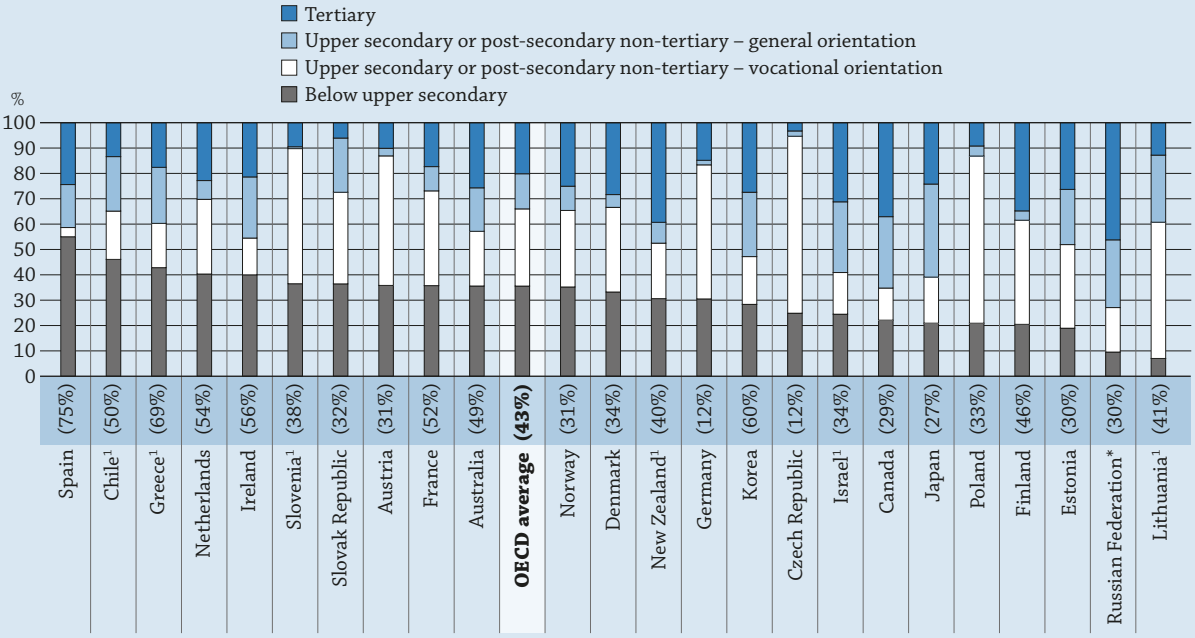
The educational attainment distribution of 25-64 year-olds who have at least one parent who attained tertiary education (22% on average) is radically different from that of adults with parents who did not complete upper secondary education. Among adults who have at least one parent who attained tertiary education, only 5% did not complete upper secondary education, 13% attained upper secondary or post-secondary non-tertiary general education, 16% attained upper secondary or post-secondary non-tertiary vocational education, and 66% attained tertiary education (Figure A1.b and Table A1.a, available on line).

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Figure A1.a. Educational attainment of 25-64 year-olds whose parents have not attained an upper secondary education (2012 or 2015)

Survey of Adult Skills (PIAAC)



Note: The percentage in parentheses represents the share of 25-64 year-olds whose parents have below upper secondary education. Countries where more than 10% of the 25-64 year-olds with upper secondary or post-secondary non-tertiary education could not be distinguished between general and vocational orientation have been excluded. The values for the average were redistributed to add up to 100%. Data from the Survey of Adult Skills (PIAAC) are based on ISCED-97. See *Definitions*, *Methodology* and *Source* sections for more information.

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 are ranked in descending order of the percentage of 25-64 year-olds with below upper secondary education.

Source: OECD (2018), Tables A1.a and A1.b, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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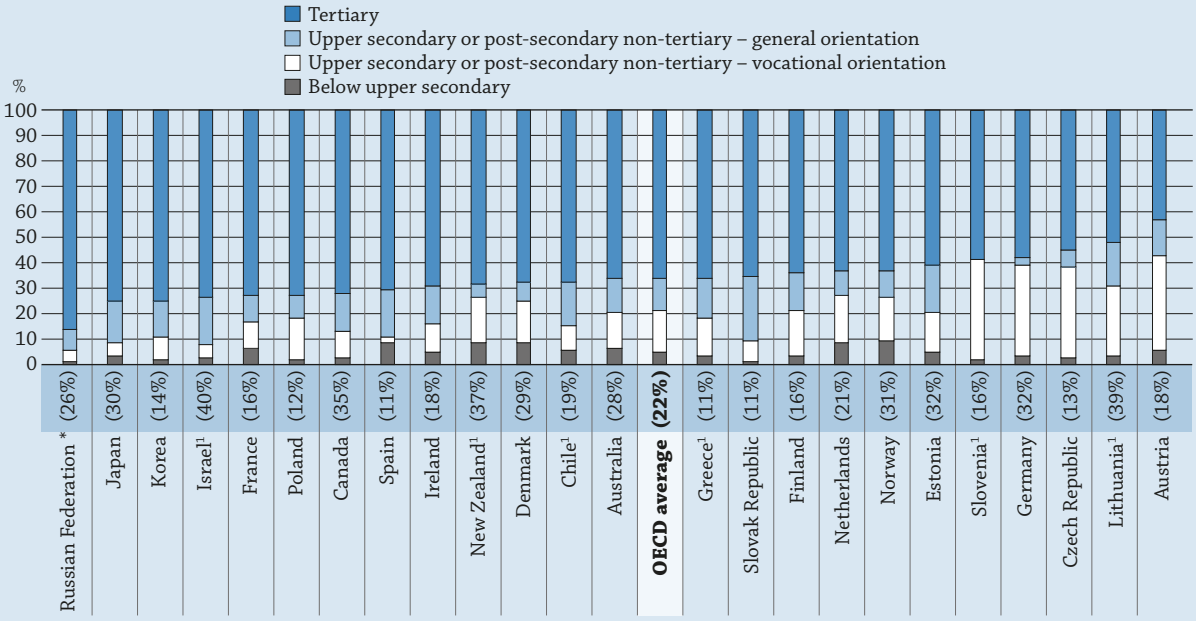
Most people with at least one tertiary-educated parent achieve at least an upper secondary education, considered to be the minimum threshold for successful labour market entry and continued employability. Children of tertiary-educated parents have higher probabilities of attaining tertiary education and greater opportunities to reach the level of education they aspire to. However, this does not mean that all children of tertiary-educated parents will also attain tertiary education. For instance, in Austria, the Czech Republic, Germany and Slovenia, at least 35% of 25-64 year-olds with at least one tertiary-educated parent have upper secondary or post-secondary non-tertiary vocational education as their highest level of education (Figure A1.b). Indicator A3 shows that young adults who attained vocational programmes in these four countries have labour-market outcomes that are similar to or even better than those of tertiary-educated young adults. Therefore attaining upper secondary or post-secondary non-tertiary vocational education can be a deliberate choice and may not represent a second-chance programme for those who did not attain tertiary education in some countries.

However, in most countries, the share of 25-64 year-olds with upper secondary or post-secondary vocational education is lower among those with highly educated parents than among those with parents who did not complete upper secondary education. In some countries, the difference is very large. In the Slovak Republic, for example, 36% of adults with parents who did not complete upper secondary education attained upper secondary or post-secondary vocational education themselves, while only 8% attained at most this level of education among those with tertiary-educated parents. This shows that, in a large majority of cases, having tertiary-educated parents leads to high educational attainment (Figures A1.a and A1.b).

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Figure A1.b. Educational attainment of 25-64 year-olds who have at least one parent who attained tertiary education (2012 or 2015)

Survey of Adult Skills (PIAAC)



Note: The percentage in parentheses represents the share of 25-64 year-olds who have at least one parent who attained tertiary education. Countries where more than 10% of the 25-64 year-olds with upper secondary or post-secondary non-tertiary education could not be distinguished between general and vocational orientation have been excluded. The values for the average were redistributed to add up to 100%. Data from the Survey of Adult Skills (PIAAC) are based on ISCED-97. See *Definitions*, *Methodology* and *Source* sections for more information.

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 are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds.

Source: OECD (2018), Tables A1.a and A1.b, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933801753

Box A1.1 Tables

WEB	Table A.1a	Adults' educational attainment, by programme orientation, and their parents' educational attainment (2012 or 2015)
WEB	Table A.1b	Adults' educational attainment broken down by programme orientation and parents' educational attainment (2012 or 2015)

Tertiary education

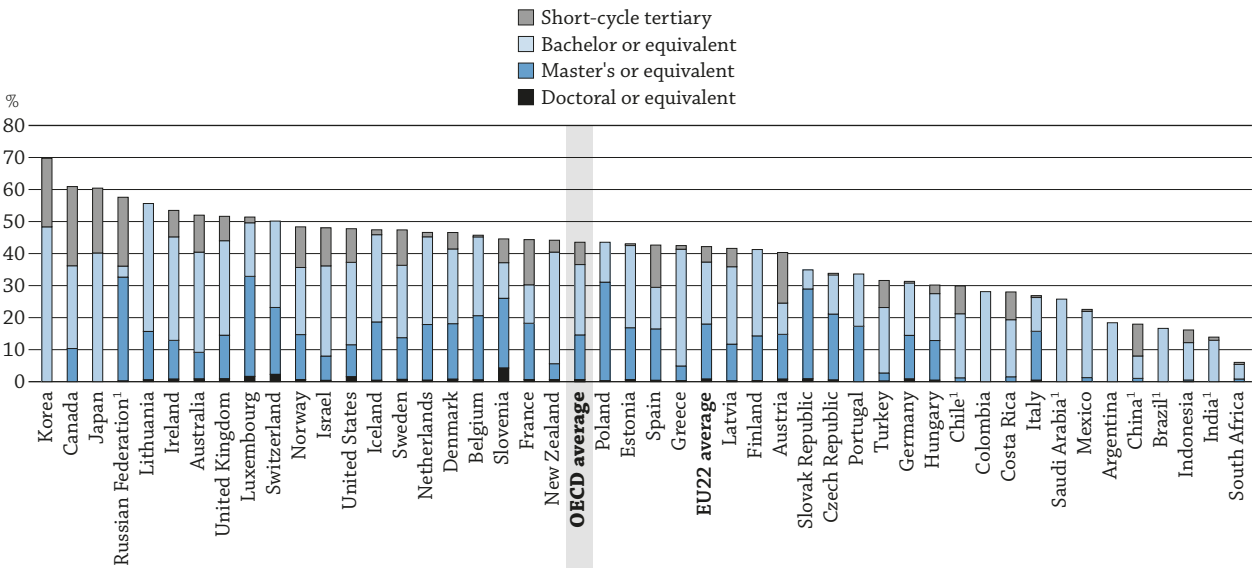
Tertiary education has expanded significantly over recent decades, and people with tertiary education now account for the largest share of 25-34 year-olds in many OECD countries. On average across OECD countries, 36% of adults age 25-64 are tertiary-educated. As a result of the expansion of tertiary education, the share of younger adults (age 25-34) with tertiary education is 44% on average across OECD countries, much higher than the share of 55-64 year-olds (27%) (Tables A1.2, A1.3 and [OECD, 2018[5]]).

The proportion of 25-34 year-olds with tertiary education is at least 60% in Canada and Korea. But it is below 15% in India and South Africa, where the dominant share of adults have below upper secondary education (Figure 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. But in some countries, such as Austria and China, those with a short-cycle tertiary degree represent the largest share of tertiary-educated 25-34 year-olds. In the Czech Republic, France, 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 (Figure A1.2).

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Figure A1.2. Percentage of 25-34 year-olds with tertiary education, by level of tertiary education (2017)



Note: Some categories might be included in other categories. Please refer to Table A1.1 for details.
1. Year of reference differs from 2017. Refer to Table A1.1 for more details.

Countries are ranked in descending order of the percentage of tertiary-educated 25-34 year-olds.

Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933801677

The expansion of tertiary education has largely been to the advantage of women. Among 55-64 year-olds, there is a perfect gender balance on average across OECD countries, where the share of tertiary-educated 55-64 year-olds is even among both genders (27%). Among the younger generation (age 25-34) a larger share of women than men have a tertiary degree. On average across OECD countries, 50% of women age 25-34 are tertiary-educated, while the proportion is 38% for men. In Korea and Saudi Arabia, the change in the gender composition has been the largest, going from a gap of 16 percentage points in favour of men among 55-64 year-olds to a gap of about 10 percentage points in favour of women among 25-34 year-olds. In Korea, the share of tertiary-educated women rose from 14% among 55-64 year-olds to 75% among 25-34 year-olds, while for men it went from 29% to 65%. This expansion of tertiary education is very large for both genders, but larger for women. In the case of Saudi Arabia, 22% of men are tertiary-educated in the two age groups, while the share of women increased from 5% among 55-64 year-olds to 31% among 25-34 year-olds (Table A1.2 and [OECD, 2018[5]]).

Gender balance reverses with higher levels within the tertiary level. Women make up the majority of 25-34 year-olds who attained a bachelor's degree in 30 OECD countries. Among 25-34 year-olds who attained a master's degree, the number of countries where women form the majority rises to 33. Among OECD countries with data on those who attained a doctorate or equivalent degree, women make up more than 50% in only 11 countries.

Educational attainment of native-born and foreign-born adults

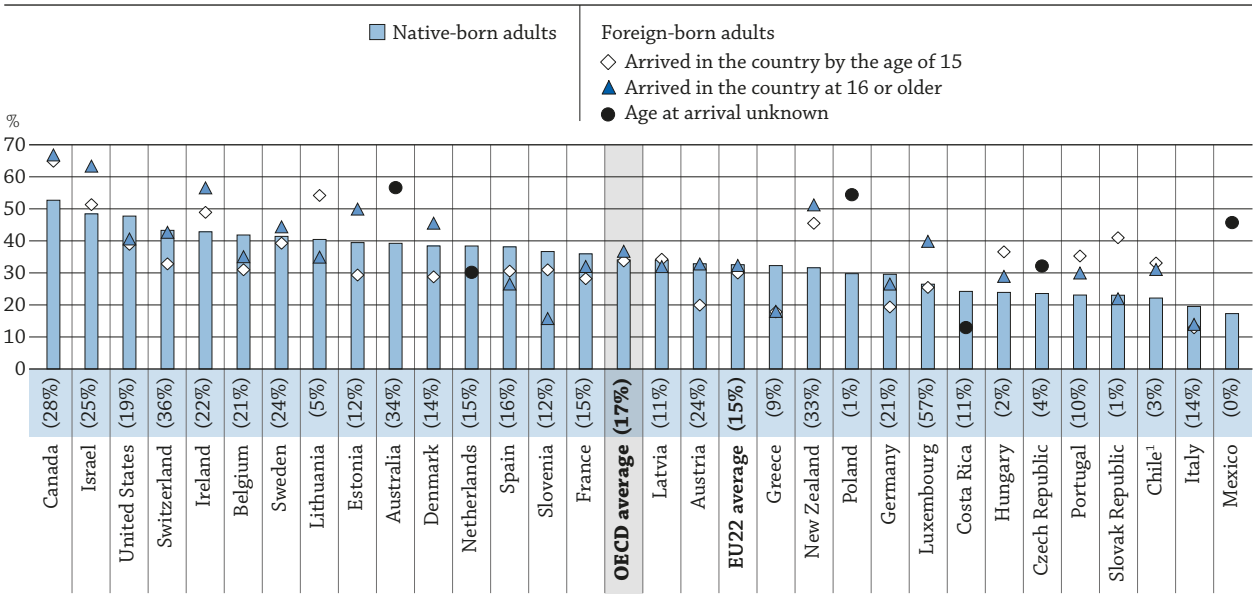
The educational attainment levels of native-born and foreign-born adults vary widely across OECD countries. In some countries, the share of adults with tertiary education is higher among native-born adults than among foreign-born adults, while the opposite situation is observed in some other countries. Age at arrival in the country also has different associations across OECD countries. In some countries, the share of adults with tertiary education is higher among those who arrived in the country by age 15, while in other countries the share is higher among those who arrived after age 15. In other words, no clear patterns emerge across OECD countries in tertiary educational attainment among native-born and foreign-born adults.

The only element that shows some consistency across OECD countries is that the share of tertiary-educated adults among native-born and foreign-born adults tends to follow the overall country pattern. In Canada, for example, the share of tertiary-educated adults is high among native-born adults (53%), and it is even higher among foreign-born

adults (67%), regardless of their age at arrival in the country. In Italy, the opposite situation is observed. The share of tertiary-educated adults is generally low, regardless of whether they are native-born (20%) or foreign-born (14%) and regardless of their age at arrival in the country (Figure A1.3).

In Denmark, Estonia, Lithuania and the Slovak Republic, the difference in the share of tertiary-educated people who arrived by the age of 15 and those who arrived later is higher than 15 percentage points (Figure A1.3).

Figure A1.3. Percentage of tertiary-educated native- and foreign-born 25-64 year-olds, by age at arrival in the country (2017)



Note: The percentage in parentheses represents the share of foreign-born adults among 25-64 year-olds.
1. Year of reference differs from 2017. Refer to the source table for more details.
Countries are ranked in descending order of the percentage of tertiary-educated native-born adults.
Source: OECD (2018), Table A1.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933801696

Evidence from the OECD Programme for International Student Assessment (PISA) shows that reading proficiency at age 15 does not vary significantly between those who arrived before age 5 and those who arrived between age 6 and age 11. However, immigrant students who arrived at age 12 or older have lower results than 15-year-old immigrant students in the same grade who arrived before age 12 (OECD, 2015[9]). Students who arrive at a later age can face the increased difficulty of learning a new language and/or a different culture. Moreover, as they have already completed several years of schooling in their home country, it might be challenging to adapt and perform in their new school system.

This may partly explain the differences in the share of tertiary-educated foreign-born adults in Denmark, Estonia, Lithuania and the Slovak Republic between those who arrived by the age of 15 and those who arrived after that. However, in some other countries, the share of tertiary-educated adults is higher among those who arrived at age 16 or older (Figure A1.3). The explanations for these differences can be diverse. For example, as tertiary qualification is obtained after age 16, it is not possible to know if the qualification was obtained in the host country or in the country of origin, and this may vary across countries. The 25-64 age group is also large enough to include different waves of migration, with significant variation in individual characteristics and educational attainment.

Regardless of the age at arrival in the country, it is important for countries to know the general human capital of their foreign-born population. Figure A1.4 shows the diversity in the distribution of educational attainment among the foreign-born population across OECD countries. In Australia and Canada, two countries with about 30% of foreign-born adults, the percentage of tertiary-educated foreign-born adults is among the highest, at over 50%. These two countries also have a large share of tertiary-educated adults: 45% in Australia and 57% in Canada.

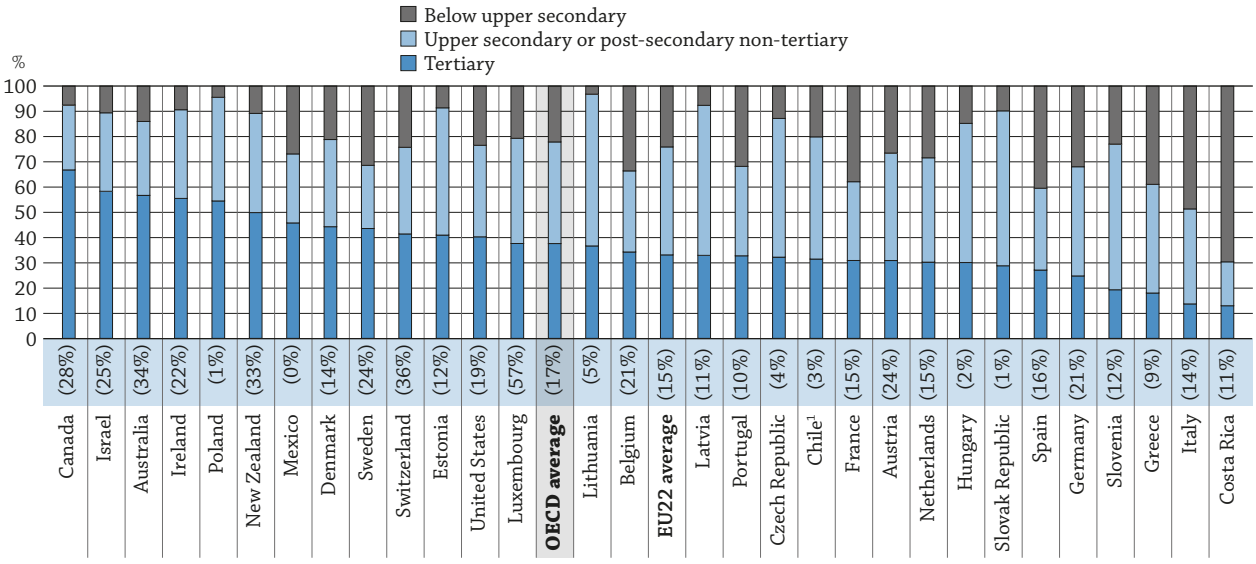
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In addition, these countries have selective migration policies designed to attract highly educated and skilled migrants. In contrast, in Costa Rica (with 11% of foreign-born adults) and Italy (with 14%), around 50% or more of foreign-born adults have not completed upper secondary education. And these two countries have a low share of tertiary-educated adults: 23% in Costa Rica and 19% in Italy (Table A1.3).

A common characteristic is that, regardless of their educational attainment, foreign-born adults perform lower in literacy than native-born adults. Data from the Survey of Adult Skills (PIAAC) shows that the mean literacy score for migrants was 248 points, compared to 276 points for natives, a gap equivalent to about four years of schooling (OECD/EU, 2015[10]).

Figure A1.4. Educational attainment of foreign-born 25-64 year-olds (2017)

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



Note: The percentage in parentheses represents the share of foreign-born adults among 25-64 year-olds.
1. Year of reference differs from 2017. Refer to the source table for more details.

Countries are ranked in descending order of the percentage of tertiary-educated foreign-born adults.

Source: OECD (2018), Table A1.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933801715

Subnational variations in educational attainment levels

On average across OECD countries, about 15% of younger adults (age 25-34) have below upper secondary education as their highest level of educational attainment, but there are significant subnational variations within countries. In 13 of the 19 OECD and partner countries that reported subnational data on educational attainment, the share of 25-34 year-olds with this level of educational attainment in the subnational region with the highest share is over twice as large as in the subnational region with the lowest share. When dividing the highest by the lowest shares within countries, the ratio is above six only in Canada and the Russian Federation, two large countries with many subnational regions. For example, in one region of Canada, 41% of 25-34 year-olds are without an upper secondary education, while in another region the share is only 5%. In contrast, across the OECD and partner countries that reported subnational data, the difference is the smallest in Ireland and Slovenia, two countries with only a few subnational regions: in Ireland, 10% in the region with the highest share and 8% in the region with the lowest share, and in Slovenia, 6% in the region with the highest share and 5% in the region with the lowest share (OECD/NCES, 2018[11]).

In general, less regional variation is observed in the relative share of 25-34 year-olds with upper secondary or post-secondary non-tertiary education. Among countries with data, the Russian Federation, Switzerland, Turkey and the United States are the only countries in which the percentage of those with upper secondary or post-secondary non-tertiary education in the subnational region with the highest share is more than twice as large as in the subnational region with the lowest share (OECD/NCES, 2018[11]).

As for tertiary education, Brazil, Canada, Germany, the Russian Federation, Turkey and the United States are the countries in which the percentage of 25-34 year-olds with this level of educational attainment is over twice as large in the subnational region with the highest share as in the subnational region with the lowest share. By contrast, Ireland and Slovenia are again the two countries showing the lowest within-country variation (OECD/NCES, 2018[11]).

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.

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) in Box A1.1. The levels of education are defined as follows: **below upper secondary** corresponds to levels 0, 1, 2 and 3C short programmes; **upper secondary or post-secondary non-tertiary general** corresponds to levels 3A, 3B, 3C long programmes and level 4 that are identified with a general orientation; **upper secondary or post-secondary non-tertiary vocational** corresponds to levels 3A, 3B, 3C long programmes and level 4 that are identified with a vocational orientation; and **tertiary** corresponds to levels 5B, 5A and 6. The variable Area of study (B_Q01b) was used instead of the variable VET to distinguish between general programmes (general programmes and humanities, languages and arts) and vocational programmes (teacher training and education science; social sciences, business and law; science, mathematics and computing; engineering, manufacturing and construction; agriculture and veterinary; health and welfare; and services) at level 4.

Vocational programmes: The International Standard Classification of Education (ISCED 2011) defines vocational programmes as education programmes that are designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. Such programmes may have work-based components (e.g. apprenticeships and dual-system education programmes). Successful completion of such programmes leads to vocational qualifications relevant to the labour market and acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.

Methodology

Educational attainment profiles are based on annual data on the percentage of the adult population (25-64 year-olds) in a specific age group that has 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 "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 [12]).

Countries have defined general or vocational orientation based on the features of the education programme and the resulting credentials and qualifications. Some countries may also use variables based on students' choice of field of study and students' destinations after their studies, because such variables also reflect the distribution of students in general and vocational programmes.

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.

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Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[13]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

For the methodology used in Box A1.1, please see the *Methodology* section in Indicator A7.

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

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 LSO (Labour Market, Economic and Social Outcomes of Learning) 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 released by the OECD, with the support from the US National Centre for Education Statistics (NCES), and 19 countries have submitted their data for this edition of Indicator A1: Australia, Austria, Belgium, Brazil, Canada, Finland, Germany, Greece, Ireland, Italy, Poland, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. Subnational estimates were provided by countries using national data sources or by Eurostat based on data for Level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2). For the United Kingdom, the subnational regions are based on NUTS 1.

Data used in Box A1.1 are based on the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]).

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.

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[14]).

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Indicator A1 Tables

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Table A1.1	Educational attainment of 25-64 year-olds (2017)
Table A1.2	Trends in educational attainment of 25-34 year-olds, by gender (2007 and 2017)
Table A1.3	Educational attainment of native- and foreign-born 25-64 year-olds, by age at arrival in the country (2017)

Cut-off date for the data: 18 July 2018. 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 A1.1. Educational attainment of 25-64 year-olds (2017)

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	Australia	0	5	a	14	a	30	5	12	26	7	1	100
	Austria	m	1	a	14	a	50	3	15	4	12	1	100
	Belgium	3	5	a	15	a	35	2	0	22	17	1	100
	Canada	x(2)	2[d]	a	7	a	24	11	26	21	10[d]	x(10)	100
	Chile[1]	7	6	a	22	a	42	a	8	13	1[d]	x(10)	100
	Czech Republic	0	0	a	6	a	70[d]	x(6)	0	6	17	1	100
	Denmark	x(2)	3[d]	a	16	c	42	0	5	21	13	1	100
	Estonia	0	1	a	11	a	40	9	6	12	20	1	100
	Finland	x(2)	2[d]	a	9	a	43	1	12	17	15	1	100
	France	2	6	a	14	a	43	0	14	10	10	1	100
	Germany	x(2)	4[d]	a	10	a	46	12	1	15	12	1	100
	Greece	1	13	0	13	0	32	9	2	26	3	1	100
	Hungary	0	1	a	15	a	52	8	1	13	9	1	100
	Iceland	x(2)	0[d]	a	23	a	27	8	3	21	17	1	100
	Ireland	0	6	a	12	a	22	14	10	25	10	1	100
	Israel	2	4	a	7	a	36	a	14	23	12	1	100
	Italy	1	5	a	33	a	41	1	0	4	14	0	100
	Japan	x(6)	x(6)	a	x(6)	a	49[d]	x(8)	21[d]	30[d]	x(9)	x(9)	100
	Korea	x(2)	4[d]	a	8	a	40	a	13	34[d]	x(9)	x(9)	100
	Latvia	0	0	a	9	3	46	8	3	19	12	0	100
	Luxembourg	0	9	a	14	a	34	3	3	12	24	2	100
	Mexico	13	17	2	27	4	20	a	1	15	1	0	100
	Netherlands	1	6	a	15	a	41	0	2	21	13	1	100
	New Zealand	x(4)	x(4)	a	21[d]	a	27	14	4	28	5	1	100
	Norway	0	0	a	17	a	37	2	12	19	11	1	100
	Poland	0	7	a	1	a	59	3	0	7	23	1	100
	Portugal	2	29	a	21	a	23	1	c	6	17	1	100
	Slovak Republic	0	0	x(2)	8	0	66	2	0	3	20	1	100
	Slovenia	0	1	a	11	a	53	a	7	7	16	4	100
	Spain	3	8	a	31	a	23	0	11	10	15	1	100
	Sweden	x(2)	3[d]	a	12	2	34	7	10	17	14	2	100
	Switzerland	0	2	a	10	a	45[d]	x(6)	x(9, 10, 11)	21[d]	19[d]	3[d]	100
	Turkey	5	41	a	15	a	19	a	5	12	2	0	100
	United Kingdom	0	2	a	17	17	19	a	10	23	12	1	100
	United States	1	3	a	6	a	44[d]	x(6)	11	23	11	2	100
	OECD average	2	6	m	14	m	39	5	7	17	12	1	100
	EU22 average	1	5	m	14	m	42	4	5	14	14	1	100
Partners	Argentina	5	18	a	16	a	40	a	x(9)	21[d]	x(9)	x(9)	100
	Brazil[1]	17	20	a	15	a	34[d]	x(6)	x(9)	15[d]	x(9)	x(9)	100
	China[2]	3	25	a	47	a	15[d]	x(6)	6	3	0[d]	x(10)	100
	Colombia	x(4)	x(4)	a	41[d]	5	31[d]	x(6)	x(9)	22[d]	x(9)	x(9)	100
	Costa Rica	13	29	8	7	2	16	0	6	15	2[d]	x(10)	100
	India[3]	46	14	a	11	a	18	0	1	10[d]	x(9)	x(9)	100
	Indonesia	17	27	a	18	a	26	0	3	8	1	0	100
	Lithuania	0	0	0	4	2	32	20	a	26	14	1	100
	Russian Federation[4]	x(2)	1[d]	a	5	a	20	21	25	1	26	0	100
	Saudi Arabia[5]	3	24	a	19	a	32	a	x(9)	23[d]	x(9)	x(9)	100
	South Africa	x(2)	15[d]	a	12	a	58	8	1	5	1[d]	x(10)	100
	G20 average	9	13	m	16	m	33	m	9	16	8	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 2015.
2. Year of reference 2010.
3. Year of reference 2011.
4. Year of reference 2016.
5. Year of reference 2014.

Source: OECD/ILO/UIS (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table A1.2. Trends in educational attainment of 25-34 year-olds, by gender (2007 and 2017)

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	
		2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	20[b]	12	17[b]	9	19[b]	11	45[b]	43	36[b]	32	41[b]	37	35[b]	45	46[b]	59	41[b]	52
	Austria	11	12	16	11	14	11	59	52	52	45	55	48	30	36	32	44	31	40
	Belgium	20[b]	18	17[b]	15	18[b]	17	45[b]	42	36[b]	33	40[b]	38	36[b]	40	47[b]	51	41[b]	46
	Canada	10	8	7	5	9	7	42	40	30	26	36	33	48	52	63	70	56	61
	Chile[1]	m	17	m	16	m	17	m	55	m	52	m	53	m	28	m	31	m	30
	Czech Republic	5[b]	6	6[b]	6	6[b]	6	81[b]	67	77[b]	53	79[b]	60	14[b]	27	17[b]	40	15[b]	34
	Denmark	21[b]	21	18[b]	13	19[b]	17	47[b]	41	42[b]	32	44[b]	37	32[b]	38	40[b]	55	36[b]	47
	Estonia	18	16	10	9	14	13	56	50	47	38	52	44	26	34	43	53	34	43
	Finland	12	11	8	8	10	10	57	55	44	42	51	49	31	33	48	50	39	41
	France	18	15	16	13	17	14	45	45	38	38	41	42	37	39	46	49	41	44
	Germany	14[b]	14	16[b]	13	15[b]	13	64[b]	56	61[b]	55	62[b]	56	22[b]	30	23[b]	32	23[b]	31
	Greece	29[b]	17	19[b]	12	24[b]	14	45[b]	48	50[b]	38	47[b]	43	25[b]	35	31[b]	50	28[b]	42
	Hungary	15	14	15	14	15	14	67	62	59	50	63	56	18	25	26	36	22	30
	Iceland	31	24	28	15	29	19	40	37	35	29	38	33	29	39	37	57	33	47
	Ireland	19[b]	10	13[b]	6	16[b]	8	43[b]	41	36[b]	36	40[b]	38	38[b]	49	51[b]	58	44[b]	53
	Israel	17[b]	9	12[b]	6	15[b]	8	48[b]	53	40[b]	36	44[b]	44	35[b]	38	48[b]	58	42[b]	48
	Italy	36[b]	29	28[b]	22	32[b]	25	50[b]	51	49[b]	45	49[b]	48	15[b]	20	23[b]	33	19[b]	27
	Japan[2]	m	m	m	m	m	m	m	m	m	m	m	m	50[db]	59[d]	58[db]	62[d]	54[db]	60[d]
	Korea	3[b]	2	2[b]	2	3[b]	2	43[b]	33	40[b]	23	42[b]	28	53[b]	65	58[b]	75	55[b]	70
	Latvia	25	19	14	10	20	15	55	51	54	36	55	44	19	30	32	54	26	42
	Luxembourg	24[b]	14	22[b]	12	23[b]	13	44[b]	39	39[b]	33	41[b]	36	32[b]	47	40[b]	55	36[b]	51
	Mexico	65	52	66	52	65	52	19	25	18	26	18	26	17	23	16	23	16	23
	Netherlands	19[b]	16	16[b]	11	17[b]	13	47[b]	43	45[b]	38	46[b]	40	34[b]	42	39[b]	51	37[b]	47
	New Zealand	23	16	18	14	21	15	m	44	m	38	m	41	m	40	m	48	m	44
	Norway	19	21	14	17	17	19	46	37	35	28	40	32	35	42	51	55	43	48
	Poland	9[b]	7	7[b]	4	8[b]	5	67[b]	59	57[b]	42	62[b]	51	24[b]	34	36[b]	54	30[b]	44
	Portugal	63	38	48	23	56	30	22	37	24	34	23	36	15	26	28	42	21	34
	Slovak Republic	6[b]	8	6[b]	9	6[b]	9	79[b]	64	74[b]	48	77[b]	56	15[b]	27	20[b]	43	17[b]	35
	Slovenia	9[b]	7	6[b]	4	8[b]	6	71[b]	60	53[b]	40	62[b]	50	20[b]	33	40[b]	56	30[b]	45
	Spain	40	39	29	28	35	34	25	24	25	23	25	24	35	36	45	49	40	43
	Sweden	10[b]	19	8[b]	15	9[b]	17	56[b]	41	46[b]	30	51[b]	36	34[b]	40	46[b]	55	40[b]	47
	Switzerland	9[b]	8	12[b]	8	10[b]	8	52[b]	42	57[b]	41	55[b]	42	39[b]	49	31[b]	51	35[b]	50
	Turkey	55[b]	42	67[b]	47	61[b]	44	30[b]	27	20[b]	21	25[b]	24	16[b]	31	13[b]	32	14[b]	32
	United Kingdom[3]	19[b]	13	21[b]	12	20[b]	12	38[b]	38	36[b]	34	37[b]	36	43[b]	50	43[b]	54	43[b]	52
	United States	15	9	11	7	13	8	49	48	44	41	47	44	36	43	45	52	40	48
	OECD average	22	17	19	14	20	15	49	46	44	37	47	41	30	38	38	50	34	44
	EU22 average	20	16	16	12	18	14	53	48	47	39	50	44	27	35	36	48	32	42
Partners	Argentina	m	34	m	25	m	30	m	51	m	53	m	52	m	15	m	22	m	18
	Brazil[1]	57	41	49	32	53	36	35	45	39	49	37	47	8	14	12	20	10	17
	China[4]	m	63	m	66	m	64	m	19	m	16	m	18	m	18	m	18	m	18
	Colombia	m	33	m	27	m	30	m	42	m	42	m	42	m	24	m	32	m	28
	Costa Rica	62	54	56	45	59	50	15	22	16	23	16	22	23	24	28	32	25	28
	India[5]	m	58	m	70	m	64	m	26	m	18	m	22	m	16	m	12	m	14
	Indonesia	64[b]	48	67[b]	51	66[b]	50	29[b]	37	24[b]	31	26[b]	34	8[b]	14	9[b]	18	8[b]	16
	Lithuania	17[b]	9	12[b]	5	14[b]	7	50[b]	44	43[b]	30	47[b]	37	33[b]	46	45[b]	66	39[b]	56
	Russian Federation[6]	m	7	m	5	m	6	m	42	m	31	m	36	m	50	m	65	m	58
	Saudi Arabia[7]	m	32	m	29	m	31	m	46	m	40	m	43	m	22	m	31	m	26
	South Africa	m	21	m	15	m	18	m	73	m	78	m	76	m	5	m	7	m	6
	G20 average	m	28	m	26	m	27	m	41	m	36	m	39	m	32	m	39	m	35

Note: In most countries there is a break in the time series, represented by the code "b", as data for 2017 refer to ISCED 2011 while data for 2007 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 2015 instead of 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 (17% of adults aged 25-64 are in this group).
4. Year of reference 2010 instead of 2017.
5. Year of reference 2011 instead of 2007.
6. Year of reference 2016 instead of 2017.
7. Year of reference 2014 instead of 2017.

Source: OECD/ILO/UIS (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table A1.3. Educational attainment of native- and foreign-born 25-64 year-olds, by age at arrival in the country (2017)

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

		Percentage of foreign-born adults among 25-64 year-olds	Below upper secondary					Upper secondary or post-secondary non-tertiary					Tertiary				
				Foreign-born adults					Foreign-born adults					Foreign-born adults			
			Native-born adults	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total	Native-born adults	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total	Native-born adults	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Australia	34	22	x(5)	x(5)	14	19	39	x(10)	x(10)	29	36	39	x(15)	x(15)	57	45
	Austria	24	11	29	26	27	15	56	51	41	43	53	33	20	33	31	32
	Belgium	21	20	29	35	34	23	38	40	30	32	37	42	31	35	34	40
	Canada	28	9	6	8	8	9	38	29	25	26	34	53	65	67	67	57
	Chile[1]	3	36	14	21	20	35	42	53	48	48	42	22	33	31	31	22
	Czech Republic	4	6	x(5)	x(5)	13	6	70	x(10)	x(10)	55	70	24	x(15)	x(15)	32	24
	Denmark	14	18	36	20	21	19	43	35	34	35	42	38	29	46	44	39
	Estonia	12	12	12	5	9	11	49	58	45	50	49	39	29	50	41	40
	Finland	m	m	m	m	m	12	m	m	m	m	44	m	m	m	m	44
	France	15	19	27	43	38	22	45	45	25	31	43	36	28	32	31	35
	Germany	21	9	26	33	32	13	62	54	40	43	58	30	19	27	25	29
	Greece	9	26	36	40	39	27	42	46	42	43	42	32	18	18	18	31
	Hungary	2	16	19	14	15	16	60	44	57	55	60	24	37	29	30	24
	Iceland	m	m	m	m	m	23	m	m	m	m	35	m	m	m	m	42
	Ireland	22	21	16	8	9	18	37	35	35	35	36	43	49	57	55	46
	Israel	25	13	9	11	11	13	38	39	26	31	36	48	51	63	58	51
	Italy	14	37	42	50	49	39	43	45	36	38	42	20	13	14	14	19
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	51[d]
	Korea	m	m	m	m	m	12	m	m	m	m	40	m	m	m	m	48
	Latvia	11	13	11	5	8	12	53	55	63	59	54	34	34	32	33	34
	Luxembourg	57	17	24	20	21	23	57	50	40	42	36	26	25	40	38	40
	Mexico	0	62	x(5)	x(5)	27	62	20	x(10)	x(10)	27	20	17	x(15)	x(15)	46	17
	Netherlands	15	20	x(5)	x(5)	28	22	41	x(10)	x(10)	41	41	38	x(15)	x(15)	30	37
	New Zealand	33	26	16	9	11	21	42	38	39	39	41	32	46	51	50	38
	Norway	m	m	m	m	m	18	m	m	m	m	39	m	m	m	m	43
	Poland	1	8	x(5)	x(5)	4	8	62	x(10)	x(10)	41	62	30	x(15)	x(15)	54	30
	Portugal	10	54	30	34	32	52	23	35	36	35	24	23	35	30	33	24
	Slovak Republic	1	9	c	13	10	9	68	54	65	61	68	23	41	22	29	23
	Slovenia	12	11	11	27	23	12	53	58	58	58	53	37	31	16	19	34
	Spain	16	41	42	40	41	41	21	27	33	32	23	38	31	27	27	36
	Sweden	24	12	19	35	31	17	46	42	21	25	41	41	39	44	44	42
	Switzerland	36	5	15	26	24	12	51	52	32	34	45	43	33	43	41	43
	Turkey	m	m	m	m	m	61	m	m	m	m	19	m	m	m	m	20
	United Kingdom	m	m	m	m	m	19	m	m	m	m	35	m	m	m	m	46
	United States	19	6	19	25	23	9	46	42	35	36	44	48	39	41	40	46
	OECD average	17	20	22	24	22	22	46	45	39	40	43	34	34	37	38	36
	EU22 average	15	19	26	26	24	20	48	46	41	43	46	33	30	32	33	34
Partners	Argentina	m	m	m	m	m	39	m	m	m	m	40	m	m	m	m	21
	Brazil[1]	m	m	m	m	m	51	m	m	m	m	34	m	m	m	m	15
	China[2]	m	m	m	m	m	76	m	m	m	m	15	m	m	m	m	10
	Colombia	m	m	m	m	m	46	m	m	m	m	31	m	m	m	m	22
	Costa Rica	11	59	x(5)	x(5)	70	60	16	x(10)	x(10)	17	17	24	x(15)	x(15)	13	23
	India[3]	m	m	m	m	m	71	m	m	m	m	18	m	m	m	m	11
	Indonesia	m	m	m	m	m	62	m	m	m	m	26	m	m	m	m	12
	Lithuania	5	5	3r	3	3	7	54	43r	62	60	53	40	54r	35	37	40
	Russian Federation[4]	m	m	m	m	m	6	m	m	m	m	41	m	m	m	m	53
	Saudi Arabia[5]	m	m	m	m	m	45	m	m	m	m	32	m	m	m	m	23
	South Africa	m	m	m	m	m	27	m	m	m	m	66	m	m	m	m	7
	G20 average	m	m	m	m	m	36	m	m	m	m	36	m	m	m	m	30

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 2015.
2. Year of reference 2010.
3. Year of reference 2011.
4. Year of reference 2016.
5. Year of reference 2014.

Source: OECD/ILO/UIS (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

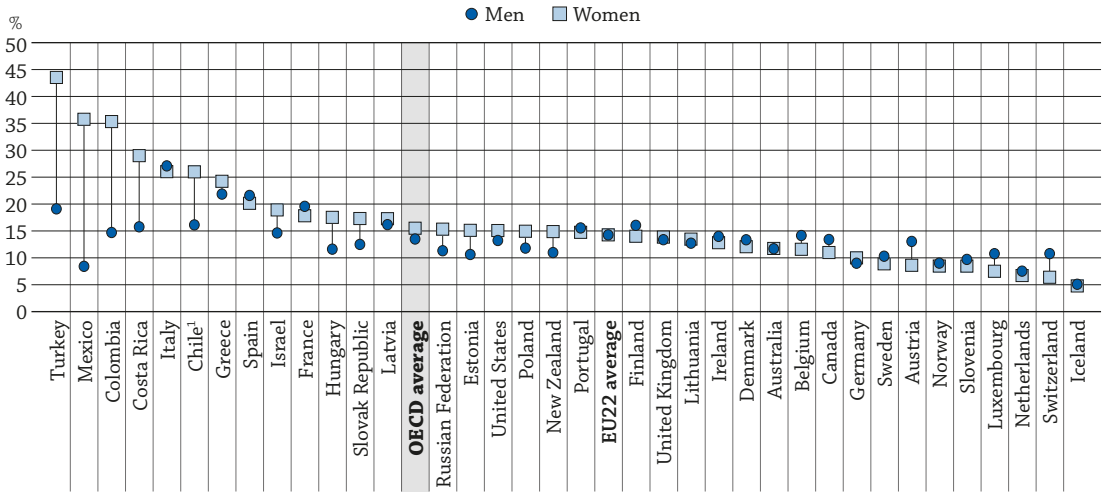
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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TRANSITION FROM EDUCATION TO WORK: WHERE ARE TODAY'S YOUTH?

- On average across OECD countries, 6% of 15-19 year-olds are neither employed nor in education or training (NEET), and this percentage increases to 16% among 20-24 year-olds and 18% among 25-29 year-olds.
- In almost all OECD and partner countries, the share of the inactive population among 18-24 year-old NEETs is higher for women than for men: on average, over 65% of NEET women are inactive, while the share does not reach 50% among NEET men.
- On average across OECD countries, 18% of foreign-born 15-29 year-olds are NEETs, compared to 13% of native-born 15-29 year-olds.

Figure A2.1. Percentage of 18-24 year-old NEETs, by gender (2017)



Note: NEET refers to young people neither employed nor in education or training.
1. Year of reference differs from 2017. Refer to the Table A2.1 for more details.
Countries are ranked in descending order of the total percentage of 18-24 year-old NEET women.
Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933801848

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 raise their family full time after leaving the education system 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 labour-market 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 required in the labour market. During recessions, public investment in education could be a sensible way to counterbalance unemployment and invest in future economic growth, by building the needed skills. In addition, public investment could be directed towards potential employers, in the form 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. NEETs among young people represent a current concern, but there can also be significant future consequences for individuals and society if no action is taken to address this issue.

Young immigrants are particularly at risk. According to the *International Migration Outlook 2017* (OECD, 2017[1]) 13% of the total population in OECD countries are foreign-born. Some of these people are still suffering the consequences of the economic crisis. For example, in Europe, where the recovery from the crisis has been slower, migrant youth have experienced rising unemployment rates since 2007.

Other findings

- A higher ending age of compulsory education is not systematically associated with higher participation in education. In Chile, for example, the percentage of 15-19 year-olds in education is below the OECD average, although the ending age of compulsory education (age 18) is among the highest across OECD countries.
- In over half of OECD and partner countries that reported subnational data on the transition from education to work, the share of 15-29 year-old NEETs in the subnational region with the highest share is twice or more as large as in the subnational region with the lowest share.
- Across OECD and partner countries, 53% of 18-24 year-olds are studying, and 17% of 18-24 year-olds combine education and employment.

Note

This indicator analyses the situation of young people in transition from education to work: those who are in education, those who are employed, and those who are neither employed nor in education or training. 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 compulsory education does not affect the proportion of inactive or unemployed at this age, when a significant proportion of young people are continuing their studies after compulsory education.

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Analysis

Young men and women (age 18-24) who are NEETs

Across OECD and partner countries, 53% of 18-24 year-olds are studying. Most of these young students are only studying, but across countries 17% of them combine education and employment. This share varies between countries, from less than 3% in Hungary, Italy and the Slovak Republic to over 35% in Iceland and the Netherlands (Table A2.1).

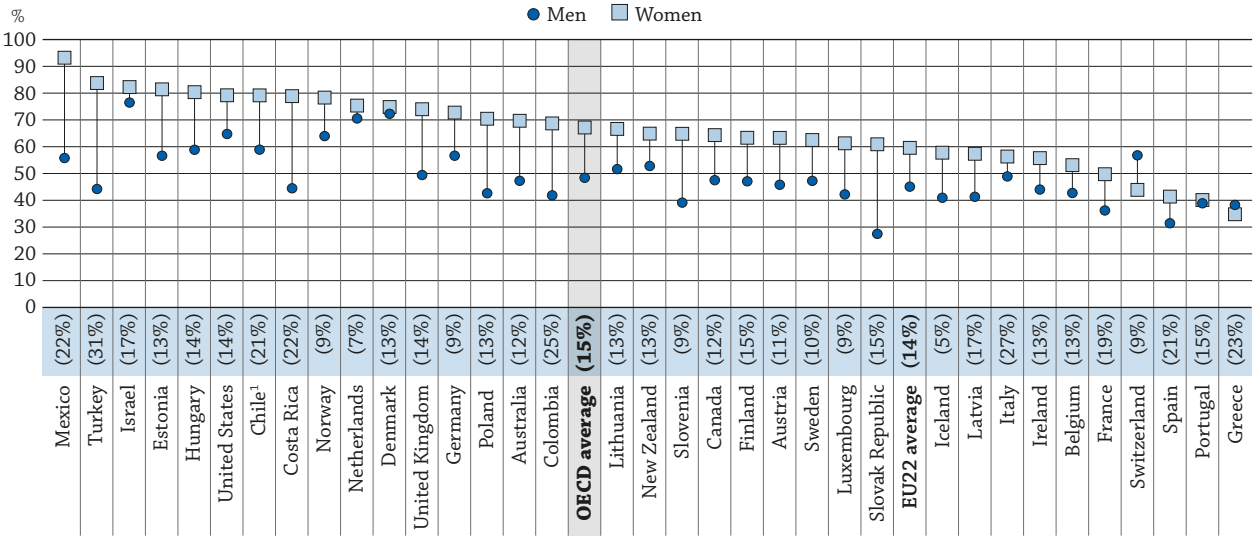
The transition from education to work can be a difficult period for many young people. Spells of unemployment, job insecurity because of low-paid or temporary contracts, and the uncertainties associated with starting to live autonomously produce a challenging phase in young people's lives.

Of the 18-24 year-olds who have left education (47% on average across OECD countries), most are working, but there is still a high share of NEETs. Among all 18-24 year-olds, 33% are not in education and employed, and 14% are NEETs (Table A2.1).

The percentages of NEETs are generally similar by gender. On average across OECD countries, the difference between men and women is about 2 percentage points, but there is significant variation across countries. In Chile, Colombia, Costa Rica, Mexico and Turkey, the share of NEETs is generally high, and it is systematically higher for women than for men, with differences of at least 10 percentage points. In contrast, in Austria and Switzerland, the share of NEETs aged 18-24 is generally low, and it is about 5 percentage points lower for women than for men (Figure A2.1).

With regard to inactive NEETs, gender gaps are larger than for the whole NEET population, and countries follow a similar trend. Figure A2.2 shows that in almost all OECD and partner countries, the share of the inactive population among NEETs is higher for women than for men. On average in 2017, over 65% of NEET women are inactive, while the share does not reach 50% among NEET men (Figure A2.2).

Figure A2.2. Share of the inactive among 18-24 year-old NEETs, by gender (2017)



Note: NEET refers to young people neither employed nor in education or training. The percentage in parentheses represents the share of 18-24 year-old NEETs.

1. Year of reference differs from 2017. Refer to the Table A2.1 for more details.

Countries are ranked in descending order of the share of the inactive among 18-24 year-old NEET women.

Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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In Greece, Portugal and Spain, the share of the inactive population is low among both men and women who are NEETs. This implies that most NEETs are actively looking for a job and therefore fall into the category of unemployed NEETs. In contrast, in Mexico and Turkey, about 90% of women NEETs are inactive, the highest share across all OECD and partner countries. In these two countries, the share of inactive NEETs is much lower among men, showing a strong gender gap in the composition of the NEET population. Costa Rica and the Slovak Republic also show a large gender gap in the share of inactive NEETs, with a difference of above 30 percentage points. The reasons for this

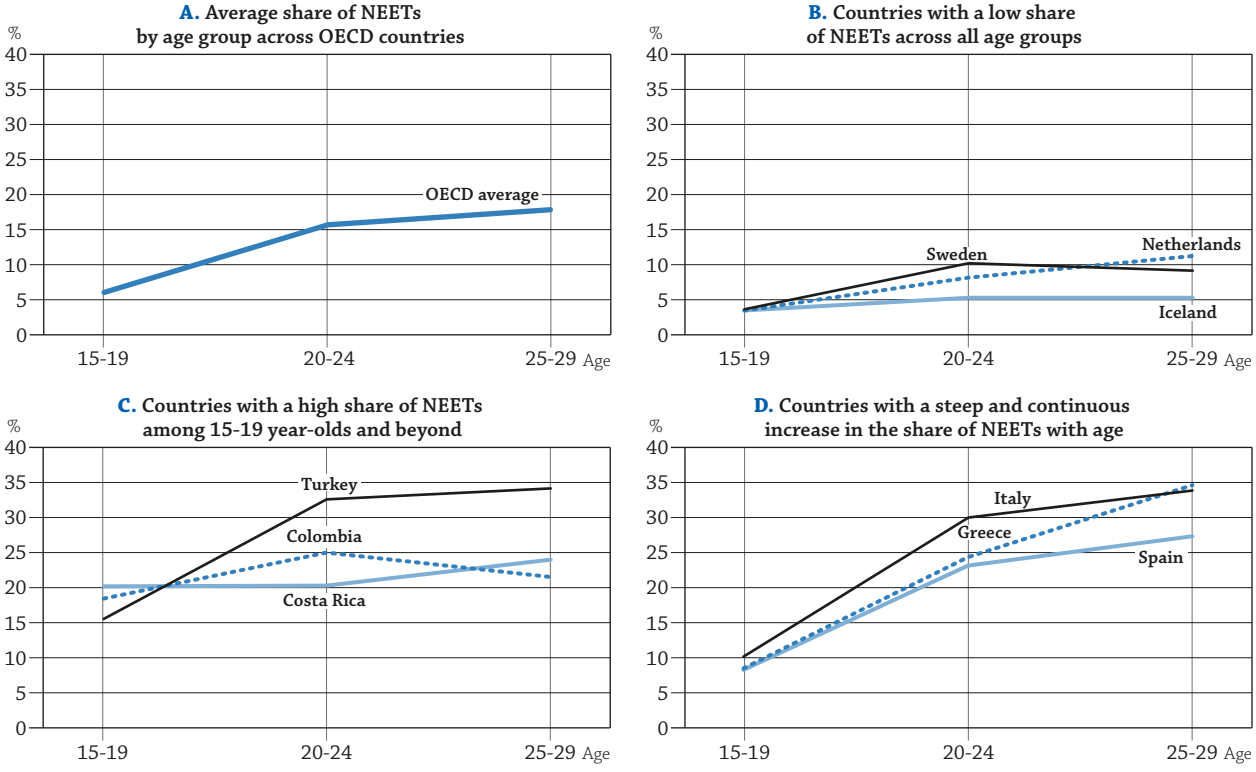
large gap can be diverse, but one factor is that women may still largely be the ones responsible for raising families and may decide to leave the labour market to care for their children. They would, therefore, be over-represented among the inactive. It is also worth noting that the share of 18-24 year-old NEETs is 7 percentage points higher in Costa Rica than in the Slovak Republic (Figure A2.2 and Table A2.1).

Transition from education to work by age

The period between age 15 and age 29 is quite long, and there are many changes associated with the teenage years and young adulthood. Breaking this period down into smaller age groups allows for a better assessment of the different situations among this population. In most countries, the period from age 15-19 encompasses the end of upper secondary education and the transition to work or tertiary education. The periods from age 20-24 and age 25-29 are a time of increased financial autonomy, when most people leave education and enter the labour market. On average across OECD countries, about 40% of 20-24 year-olds are no longer in education and are in employment. This percentage rises to over 65% among 25-29 year-olds (Table A2.2 and [OECD, 2018[2]]).

Not all those who leave education find work. When they do, many accept temporary contracts or low-paid jobs, due to their lack of experience. This difficult transition to the labour market is also reflected in the high percentage of NEETs. On average across OECD countries, 16% of 20-24 year-olds are NEETs, and this percentage increases to 18% among 25-29 year-olds (Figure A2.3).

Figure A2.3. Percentage of NEETs for selected countries, by age group (2017)



Note: NEET refers to young people neither employed nor in education or training.
Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933801886

Across OECD and partner countries, the transition from education to work is very diverse. Figure A2.3 shows some of the patterns observed across selected countries. In Colombia, Costa Rica and Turkey, the share of NEETs is generally high, but particularly so among 15-19 year-olds: more than 15% are in this situation, compared to the OECD average of about 6%. At this age, being out of education means that the highest possible level of education completed is upper secondary education, but it is likely that a high share will not even have completed that level (see Indicator A1). In these countries, it seems that there are lost opportunities for a number of young adults who could benefit from the positive outcomes of further education (Figure A2.3).

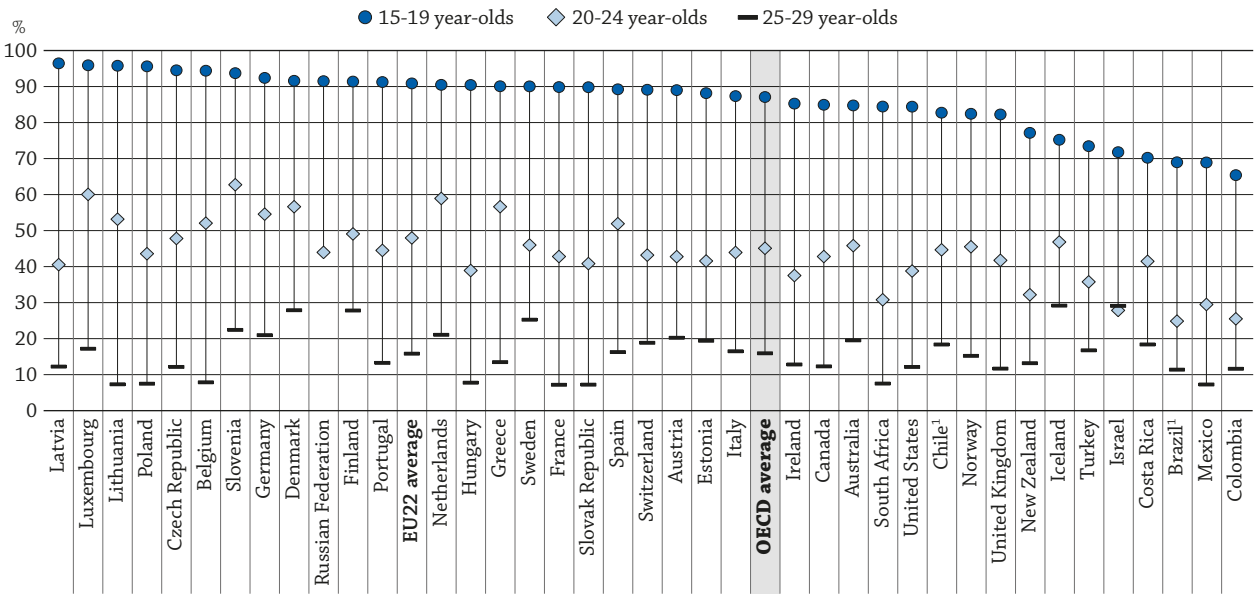
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Greece, Italy and Spain have all been severely hit by the last economic crisis, and the high share of the NEET population still reflects that. In these countries, the level of NEETs is a little higher than the OECD average among 15-19 year-olds, but there is a steep and continuous increase in the share of NEETs with age. In Greece, the share of NEETs among 15-19 year-olds is below 10%, and it reaches 35% among 25-29 year-olds, the highest share across all OECD countries. In Greece and Spain, the high level of NEETs among 25-29 year-olds is mostly associated with high unemployment and problems in finding a job, rather than with high inactivity. In Italy, both inactivity and unemployment among 25-29 year-olds are above the OECD average (Figure A2.3 and [OECD, 2018[2]]).

In contrast, in Iceland, the Netherlands and Sweden, the share of NEETs is low across all age groups. This is particularly true in Iceland, where the level of NEETs is constant, at about 5% across all age groups. Interestingly, the low share of NEETs is not so much related to a higher-than-average share of employed people, but rather to a higher-than-average share of 25-29 year-olds in education. Similar observations hold true for the Netherlands and Sweden, where adults seem to stay in education longer (Figures A2.3 and A2.4, and [OECD, 2018[2]]).

A comparison of data on the ending age of compulsory education and the share of 15-19 year-olds in education across countries shows that there is no direct link between the two. For example, in Slovenia, the enrolment rate of 15-19 year-olds is 94%, despite the fact that compulsory education ends at age 14, the lowest school-leaving age across OECD countries (see Annex 1). In contrast, Chile is one of the OECD countries with the highest ending age of compulsory education (age 18), but the enrolment rate of 15-19 year-olds is 83%, suggesting that dropout rates are high (Figure A2.4).

Figure A2.4. Percentage of the population in education, by age group (2017)



1. Year of reference differs from 2017. Refer to the Table A2.1 for more details.

Countries are ranked in descending order of the percentage of 15-19 year-olds in education.

Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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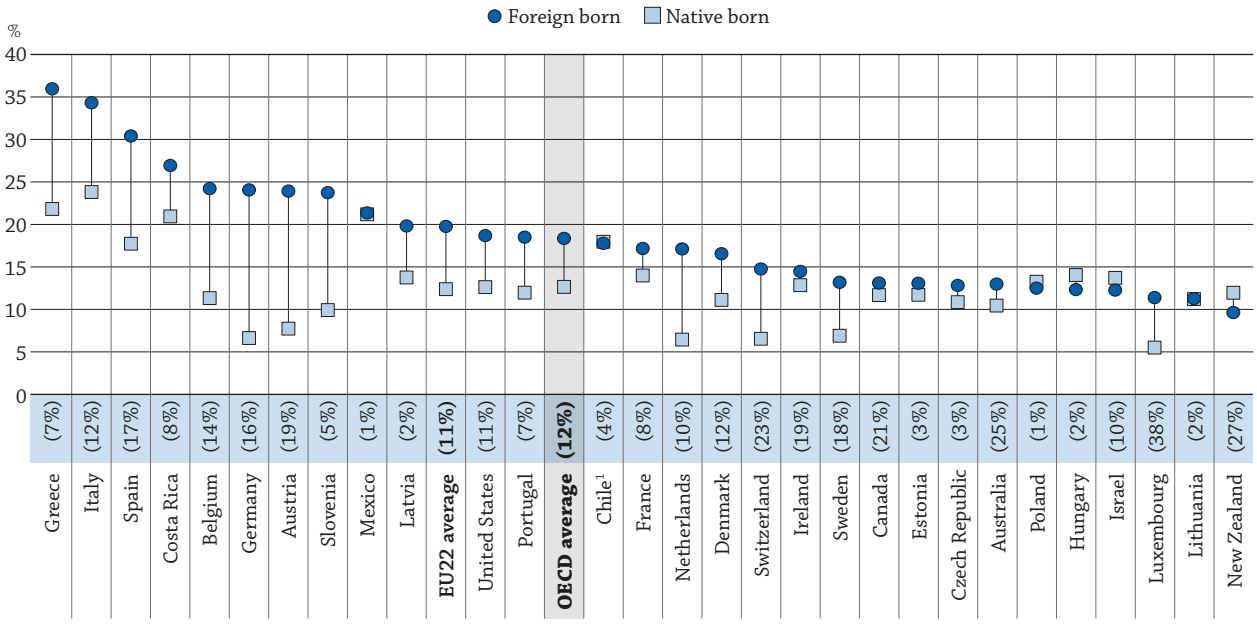
Native-born and foreign-born young people who are NEETs

In most OECD countries, the share of foreign-born NEETs among 15-29 year-olds is larger than the share of native-born NEETs of the same age. On average across OECD countries, 18% of foreign-born 15-29 year-olds are NEETs, while 13% of native-born 15-29 year-olds are in this situation. The differences are largest in Austria and Germany, where the percentage is about 25% among foreign-born 15-29 year-olds and below 10% among native-born 15-29 year-olds. In contrast, in about one third of countries, the difference between the two groups is below 3 percentage points. For example, there is only a small difference between the two groups in New Zealand. It has one of the highest shares of foreign-born 15-29 year-olds (27%), but the share of NEETs among them (10%) is

the lowest among all OECD countries with data. This low share of NEETs among foreign-born 15-29 year-olds in New Zealand might be related to its point-based immigration system, which prioritises higher-skilled migrants and makes migration more selective (Figure A2.5 and [OECD, 2017[1]]).

In Greece, Italy and Spain, about one in three foreign-born 15-29 year-olds are NEETs. In these countries, a high share of native-born 15-29 year-olds are also NEETs, but to a much lower extent than foreign-born 15-29 year-olds. The share of foreign-born 15-29 year-old NEETs in Greece (over 35%) is the highest across OECD countries. But this may affect fewer people than in Italy and Spain, because in Greece only 7% of 15-29 year-olds were born abroad, while this is the case for 12% in Italy and 17% in Spain (Figure A2.5).

Figure A2.5. Percentage of native- and foreign-born 15-29 year-old NEETs (2017)



Note: NEET refers to young people neither employed nor in education or training. The percentage in parentheses represents the share of foreign-born 15-29 year-olds.

1. Year of reference differs from 2017. Refer to the source table for more details.

Countries are ranked in descending order of the percentage of 15-29 year-old foreign-born NEETs.

Source: OECD (2018), Table A2.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Subnational variations in the percentage of young people who are NEETs

On average across OECD countries, 47% of 15-29 year-olds are studying, 39% are not studying and working, and 13% are NEETs, but there are significant subnational variations within countries (Table A2.2 and [OECD/NCES, 2018[3]]).

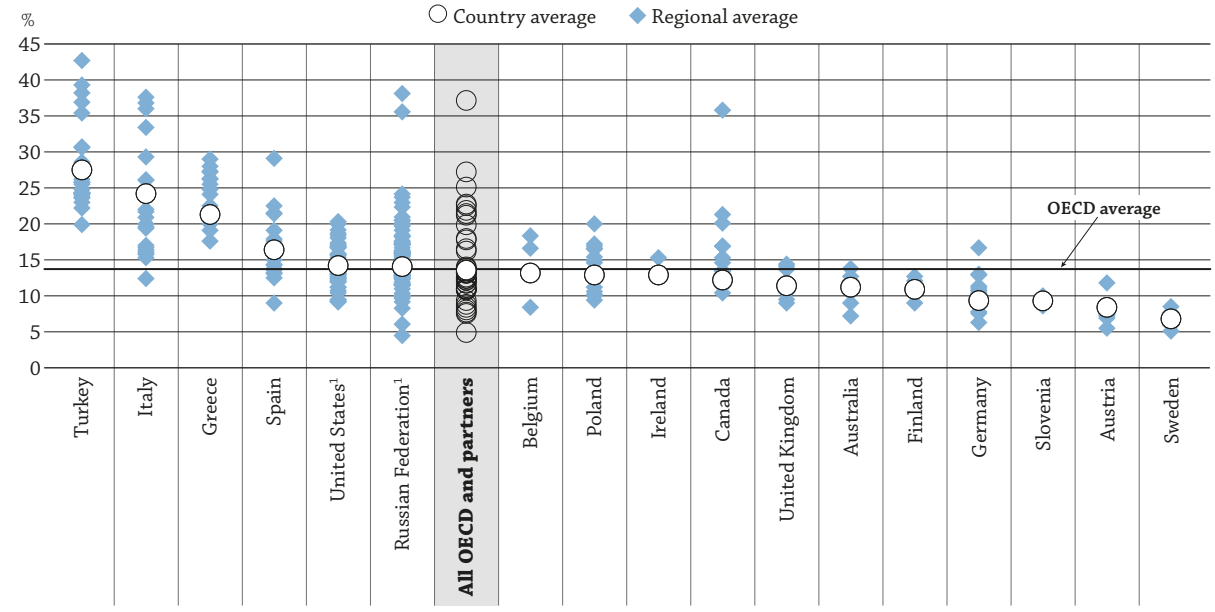
In 10 of the 17 OECD and partner countries that reported subnational data on the transition from education to work, the share of 15-29 year-old NEETs in the subnational region with the highest share is twice or more as large as in the subnational region with the lowest share. When dividing the highest shares by the lowest shares within countries, the ratio is 3 or more in Canada, Italy, the Russian Federation and Spain. In contrast, across the OECD and partner countries that reported subnational data, the difference is smallest in Ireland and Slovenia. However, this may be related to the fact that there are only two subnational entities in these two countries (Figure A2.6).

Many countries in Figure A2.6 have outlier region(s) with a particularly high percentage of NEETs compared to the national average. This is particularly striking for Canada and the Russian Federation (two large countries with many subnational regions), but it is also true for Austria, Germany, Italy, Poland, Spain and Turkey (Figure A2.6).

In general, the variations are low in Belgium, Finland, Ireland and Slovenia, but these countries have five or fewer subnational regions (far fewer than the 85 subnational regions in the Russian Federation) (Figure A2.6).

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Figure A2.6. Percentage of 15-29 year-old NEETs, by subnational regions (2017)



Note: The country average is the weighted average of the regions and can differ from the country average shown in Table A2.2 as the data source may be different. "All OECD and partner countries" refers to the country averages shown in Table A2.2. NEET refers to young people neither employed nor in education or training.

1. Year of reference 2016.

Countries are ranked in descending order of the percentage of 15-29 year-old NEETs (country average).

Source: OECD/NCES (2018), Education at a Glance Subnational Supplement, https://nces.ed.gov/surveys/annualreports/oecd/index.asp. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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[4]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

For information on the sources, see Indicator A1.

Data on subnational regions for selected indicators are released by the OECD, with support from the US National Centre for Education Statistics (NCES), and 17 countries have submitted their data for this edition of Indicator A2: Australia, Austria, Belgium, Canada, Finland, Germany, Greece, Ireland, Italy, Poland, the Russian Federation,

Slovenia, Spain, Sweden, Turkey, the United Kingdom and the United States. Subnational estimates were provided by countries using national data sources or by Eurostat based on data for Level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2). For the United Kingdom, the subnational regions are based on NUTS 1.

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), *Education at a Glance Database – Transition from education to work*, http://stats.oecd.org/Index.aspx?datasetcode=EAG_TRANS. [2]

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. [4]

OECD (2017), *International Migration Outlook 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/migr_outlook-2017-en. [1]

OECD/NCES (2018), *Education at a Glance Subnational Supplement,* OECD/National Center for Education Statistics, Paris and Washington, DC, https://nces.ed.gov/surveys/annualreports/oecd/index.asp. [3]

Indicator A2 Tables

StatLink https://doi.org/10.1787/888933801772

Table A2.1	**Percentage of 18-24 year-olds in education/not in education, by work status (2017)**
Table A2.2	**Trends in the percentage of young adults in education/not in education, employed or not, by age group (2007 and 2017)**
Table A2.3	**Percentage of native- and foreign-born 15-29 year-old NEETs, by age at arrival in the country (2017)**

Cut-off date for the data: 18 July 2018. 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 A2.1. Percentage of 18-24 year-olds in education/not in education, by work status (2017)

		In education						Not in education					
		Employed						NEET					
		Students in work-study programmes	Other employed	Total	Unemployed	Inactive	Total	Employed	Unemployed	Inactive	Total	Total	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	Australia	5.7	26.1	31.8	3.0	16.8	51.6	36.7	4.9	6.8	11.7	48.4	100
	Austria	7.7	14.1	21.8	1.6	28.3	51.7	37.4	5.1	5.7	10.8	48.3	100
	Belgium	0.2	3.6	3.8	0.9	57.0	61.7	25.3	6.8	6.1	12.9	38.3	100
	Canada	x(2)	23.4[d]	23.4	2.7	24.2	50.2	37.5	5.5	6.7	12.2	49.8	100
	Chile[1]	x(2)	9.3[d]	9.3	2.8	38.2	50.3	28.6	6.0	15.1	21.1	49.7	100
	Czech Republic	m	m	m	m	m	m	m	m	m	m	m	m
	Denmark	x(2)	34.3[d]	34.3	4.3	24.2	62.7	24.6	3.4	9.3	12.7	37.3	100
	Estonia	c	18.1	18.1	2.9	28.6	49.6	37.6	3.7	9.1	12.8	50.4	100
	Finland	x(2)	19.7[d]	19.7	6.1	30.8	56.6	28.4	6.8	8.2	15.0	43.4	100
	France	6.4	4.3	10.7	0.8	42.1	53.5	27.8	10.7	8.0	18.7	46.5	100
	Germany	16.0	14.2	30.1	1.1	31.2	62.5	28.0	3.3	6.1	9.5	37.5	100
	Greece	a	4.7	4.7	2.6	54.6	61.8	15.2	14.6	8.4	23.0	38.2	100
	Hungary	a	2.8	2.8	0.2	46.3	49.3	36.2	4.1	10.3	14.5	50.7	100
	Iceland	a	38.8	38.8	3.2	11.6	53.6	41.5	2.5	2.4	4.9	46.4	100
	Ireland	a	17.1	17.1	1.3	31.1	49.6	37.0	6.8	6.6	13.4	50.4	100
	Israel	x(2)	10.7[d]	10.7	0.7	18.2	29.6	53.6	3.4	13.3	16.7	70.4	100
	Italy	a	2.3	2.3	0.7	50.1	53.1	20.4	12.6	13.9	26.6	46.9	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	12.6	12.6	0.6	39.4	52.6	30.7	8.5	8.3	16.7	47.4	100
	Luxembourg	a	10.2	10.9	1.3	53.3	65.5	25.4	4.6	4.6	9.1	34.5	100
	Mexico	a	9.6	9.6	0.7	26.5	36.8	41.0	3.1	19.1	22.1	63.2	100
	Netherlands	x(2)	40.2[d]	40.2	3.4	22.1	65.7	27.2	1.9	5.2	7.1	34.3	100
	New Zealand	a	20.1	20.1	1.8	15.2	37.1	50.0	5.2	7.6	12.9	62.9	100
	Norway	0.5	19.6	20.2	3.0	27.1	50.3	40.9	2.6	6.2	8.8	49.7	100
	Poland	a	8.9	8.9	1.4	45.4	55.6	31.0	5.6	7.7	13.3	44.4	100
	Portugal	a	5.3	5.3	2.8	46.3	54.4	30.4	9.2	6.0	15.2	45.6	100
	Slovak Republic	0.2	2.7	2.9	0.2	47.9	51.0	34.2	8.0	6.9	14.8	49.0	100
	Slovenia	x(2)	21.2[d]	21.2	1.2	46.9	69.2	21.6	4.6	4.6	9.1	30.8	100
	Spain	x(2)	6.7[d]	6.7	4.9	48.0	59.6	19.5	13.4	7.5	20.9	40.4	100
	Sweden	a	16.3	16.3	6.8	30.2	53.3	37.1	4.4	5.2	9.6	46.7	100
	Switzerland	16.9	16.1	33.1	2.2	17.6	52.8	38.6	4.1	4.5	8.6	47.2	100
	Turkey	a	13.7	13.7	4.6	22.5	40.7	28.2	8.9	22.3	31.1	59.3	100
	United Kingdom	4.6	13.7	18.3	1.9	22.8	43.0	43.4	5.2	8.4	13.6	57.0	100
	United States	x(2)	20.7[d]	20.7	1.4	24.8	47.0	38.9	3.9	10.2	14.1	53.0	100
	OECD average	m	15.0	16.9	2.3	33.4	52.6	32.9	6.0	8.4	14.5	47.4	100
	EU22 average	m	13.0	14.7	2.2	39.4	56.3	29.4	6.8	7.4	14.3	43.7	100
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
	Colombia	a	11.1	11.1	3.2	16.7	30.9	43.8	9.8	15.4	25.3	69.1	100
	Costa Rica	a	16.3	16.3	4.9	24.8	46.0	31.9	7.5	14.5	22.0	54.0	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
	Lithuania	a	15.9	15.9	1.5	45.7	63.1	23.8	5.3	7.8	13.1	36.9	100
	Russian Federation	m	6.6	6.6	c	44.4	52.8	33.9	5.7	7.6	13.3	47.2	100
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	a	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: NEET refers to young people neither employed nor in education or training. 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 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933801791

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Table A2.2. Trends in the percentage of young adults in education/not in education, employed or not, by age group (2007 and 2017)

		20-24 year-olds						15-29 year-olds					
		2007			2017			2007			2017		
		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	Australia	39.1[b]	50.1[b]	10.7[b]	45.8	42.6	11.5	45.4[b]	44.1[b]	10.5[b]	48.1	41.0	10.9
	Austria	33.5	54.7	11.8	42.8	45.4	11.8	43.6	45.1	11.3	47.2	42.0	10.8
	Belgium	39.2[b]	45.3[b]	15.5[b]	51.8	33.0	15.2	45.4[b]	41.9[b]	12.7[b]	48.8	37.9	13.2
	Canada	38.4	47.8	13.8	42.8	44.0	13.2	43.7	44.3	12.1	44.0	43.8	12.2
	Chile[1]	m	m	m	44.7	34.6	20.7	m	m	m	48.5	33.5	18.0
	Czech Republic	42.1[b]	46.9[b]	11.0[b]	47.8	41.7	10.5	44.8[b]	43.5[b]	11.7[b]	46.1	43.0	10.9
	Denmark	48.9[b]	43.1[b]	8.0[b]	56.6	29.2	14.2	52.8[b]	40.1[b]	7.1[b]	57.7	30.5	11.8
	Estonia	45.4	39.3	15.3	41.6	45.2	13.2	48.0	38.9	13.0	44.4	43.9	11.8
	Finland	51.9	34.8	13.3	49.1	34.0	17.0	56.5	33.4	10.1	54.4	33.0	12.6
	France	41.9	40.1	17.9	42.8	36.5	20.7	46.1	39.4	14.5	47.1	36.3	16.5
	Germany	45.7[b]	39.1[b]	15.2[b]	54.6	35.4	10.1	52.4[b]	35.0[b]	12.6[b]	52.7	37.9	9.3
	Greece	48.1[b]	34.5[b]	17.4[b]	56.6	19.4	24.0	43.9[b]	39.5[b]	16.6[b]	52.1	25.2	22.8
	Hungary	49.2	33.9	16.9	38.9	45.0	16.1	48.6	35.7	15.6	42.5	43.5	14.0
	Iceland	51.9	43.1	5.0	46.8	47.6	5.6	51.3	44.1	4.6	47.8	47.3	4.9
	Ireland	25.9[b]	62.0[b]	12.1[b]	37.5	48.1	14.4	33.3[b]	55.9[b]	10.7[b]	46.4	40.5	13.1
	Israel	28.5[b]	31.9[b]	39.6[b]	27.8	54.8	17.3	41.0[b]	29.3[b]	29.7[b]	43.9	42.5	13.6
	Italy	41.7[b]	35.7[b]	22.6[b]	43.9	26.0	30.1	44.5[b]	35.5[b]	20.0[b]	47.9	27.0	25.1
	Japan	31.8[b]	56.1[b]	12.1[b]	m	m	m	39.5[b]	48.9[b]	11.7[b]	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	42.5	41.0	16.5	40.5	39.2	20.3	48.2	37.0	14.8	43.5	42.7	13.9
	Luxembourg	55.1[b]	35.6[b]	9.2[b]	60.1	29.8	10.2	49.8[b]	41.2[b]	8.9[b]	54.2	38.0	7.7
	Mexico	24.6	49.8	25.6	29.5	46.8	23.8	33.5	43.2	23.3	37.5	41.3	21.2
	Netherlands	50.8[b]	42.2[b]	6.9[b]	58.9	33.4	7.7	53.1[b]	40.2[b]	6.7[b]	56.1	36.3	7.5
	New Zealand	38.8	47.6	13.6	32.2	54.5	13.3	46.2	41.9	12.0	39.1	49.7	11.2
	Norway	37.7	53.6	8.8	45.5	44.4	10.1	44.4	48.1	7.5	46.2	45.0	8.8
	Poland	56.5[b]	25.2[b]	18.3[b]	43.6	40.5	15.9	53.4[b]	31.0[b]	15.5[b]	43.7	43.1	13.3
	Portugal	35.5	49.3	15.2	44.5	38.4	17.1	39.1	47.5	13.4	49.9	37.7	12.4
	Slovak Republic	29.4[b]	50.7[b]	19.9[b]	40.8	42.7	16.5	40.5[b]	42.3[b]	17.2[b]	41.1	42.7	16.2
	Slovenia	58.7[b]	30.9[b]	10.4[b]	62.7	26.8	10.5	56.3[b]	33.6[b]	10.1[b]	56.1	33.0	10.9
	Spain	34.9	48.2	16.9	51.9	24.9	23.2	35.4	49.0	15.6	51.2	28.9	19.9
	Sweden	39.6[b]	47.3[b]	13.1[b]	46.0	43.5	10.5	50.1[b]	39.9[b]	10.1[b]	50.5	41.4	8.0
	Switzerland	41.0[b]	48.6[b]	10.4[b]	43.2	47.7	9.1	45.5[b]	44.3[b]	10.2[b]	47.3	44.3	8.4
	Turkey	18.6[b]	35.1[b]	46.3[b]	35.8	31.4	32.9	24.3[b]	34.4[b]	41.3[b]	42.5	30.3	27.2
	United Kingdom	29.7[b]	52.3[b]	18.1[b]	41.7	45.4	12.9	40.1[b]	45.0[b]	14.9[b]	42.8	45.0	12.2
	United States	35.7	48.1	16.2	38.8	47.0	14.2	44.5	42.3	13.2	44.1	42.6	13.3
	OECD average	40.4	43.8	15.9	45.1	39.4	15.6	45.0	41.1	13.9	47.4	39.1	13.4
	EU22 average	43.0	42.4	14.6	48.0	36.5	15.6	46.6	40.5	12.9	48.9	37.7	13.4
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil[1]	24.6	52.0	23.4	24.9	48.1	27.0	35.1	45.0	19.9	36.6	40.9	22.5
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	m	m	m	25.5	49.5	25.0	m	m	m	34.6	43.6	21.9
	Costa Rica	m	m	m	41.5	38.1	20.5	m	m	m	44.6	34.0	21.4
	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
	Lithuania[2]	51.4[b]	32.7[b]	15.9[b]	53.2	30.8	16.1	56.0[b]	32.6[b]	11.4[b]	50.2	38.6	11.2
	Russian Federation	m	m	m	44.0	41.4	14.6	m	m	m	37.6	50.0	12.4
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	30.8	21.3	47.9	m	m	m	40.9	21.9	37.2
	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 available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2015 instead of 2017.

2. Year of reference 2005 instead of 2007.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933801810

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Table A2.3. Percentage of native- and foreign-born 15-29 year-old NEETs, by age at arrival in the country (2017)

		Native-born	Foreign-born			Total
			Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	
		(1)	(2)	(3)	(4)	(5)
OECD	Australia	11.0	m	m	12.5	10.9
	Austria	7.7	20.2	26.9	23.9	10.8
	Belgium	11.4	18.7	30.3	24.2	13.2
	Canada	11.7	9.3	19.4	13.1	12.2
	Chile[1]	18.0	14.1	18.9	17.8	18.0
	Czech Republic	10.9	m	m	12.8	10.9
	Denmark	11.1	13.6	19.8	16.6	11.8
	Estonia	11.7	c	19.4[r]	13.1	11.8
	Finland	m	m	m	m	12.6
	France	14.0	17.9	16.5	17.2	16.5
	Germany	6.6	11.4	32.1	24.1	9.3
	Greece	21.8	31.3	47.6	36.0	22.8
	Hungary	14.0	11.6	12.9	12.3	14.0
	Iceland	m	m	m	m	4.9
	Ireland	12.9	15.7	13.5	14.5	13.1
	Israel	13.7	9.6	19.5	12.3	13.6
	Italy	23.8	25.9	46.6	34.3	25.1
	Japan	m	m	m	m	m
	Korea	m	m	m	m	m
	Latvia	13.8	c	c	19.8[r]	13.9
	Luxembourg	5.5	7.5	15.6	11.4	7.7
	Mexico	21.2	m	m	21.4	21.2
	Netherlands	6.4	m	m	17.1	7.5
	New Zealand	12.0	7.9	11.9	9.6	11.2
	Norway	m	m	m	m	8.8
	Poland	13.3	m	m	12.5	13.3
	Portugal	12.0	15.0	29.1	18.5	12.4
	Slovak Republic	16.3	m	c	c	16.2
	Slovenia	9.9	8.0[r]	36.8[r]	23.8	10.9
	Spain	17.7	23.2	41.3	30.4	19.9
	Sweden	6.9	9.9	17.4	13.2	8.0
	Switzerland	6.5	10.5	18.1	14.8	8.4
	Turkey	m	m	m	m	27.2
	United Kingdom	m	m	m	m	12.2
	United States	12.6	15.6	22.1	18.7	13.3
	OECD average	12.7	m	m	18.4	13.4
	EU22 average	12.4	16.4	27.1	19.8	13.4
Partners	Argentina	m	m	m	m	m
	Brazil[1]	m	m	m	m	22.5
	China	m	m	m	m	m
	Colombia	m	m	m	m	21.9
	Costa Rica	21.0	m	m	26.9	21.4
	India	m	m	m	m	m
	Indonesia	m	m	m	m	m
	Lithuania	11.2	11.8[r]	m	11.3	11.2
	Russian Federation	m	m	m	m	12.4
	Saudi Arabia	m	m	m	m	m
	South Africa	m	m	m	m	37.2
	G20 average	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 available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

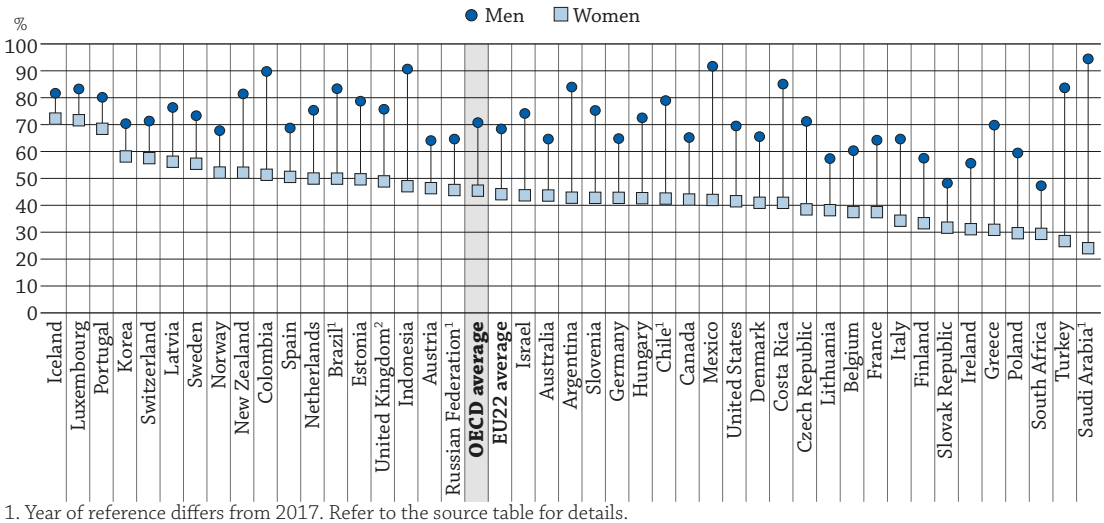
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933801829

HOW DOES EDUCATIONAL ATTAINMENT AFFECT PARTICIPATION IN THE LABOUR MARKET?

- On average across OECD countries, 81% of 25-34 year-old adults who have at least an upper secondary education are employed, compared to 60% among those who have not completed upper secondary education.
- On average across OECD countries, the employment rate of younger women (age 25-34) without upper secondary education is 45%, compared to 71% for their male peers, but the disparities narrow as educational attainment increases.
- While labour-market outcomes for foreign-born adults without upper secondary education are mixed across OECD and partner countries, foreign-born adults with tertiary education have lower employment prospects than their native-born peers in most countries with data.

Figure A3.1. Employment rates of 25-34 year-olds with below upper secondary education, by gender (2017)



1. Year of reference differs from 2017. Refer to the source table for 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 (17% of adults aged 25-64 are in this group).

Countries are ranked in descending order of the employment rate of 25-34 year-old women with below upper secondary education.

Source: OECD / ILO (2018), Table A3.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802057

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 high qualifications are more likely to be employed. 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 low 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. Given the technological advances that have been transforming the needs of the global labour market, employment prospects are better among those with higher skills, particularly in information and communication technology (ICT), and those who are comfortable using ICT for problem solving. Such skills may be acquired outside of formal education and, in some cases, can help people find jobs despite lower educational attainment (Lane and Conlon, 2016[2]).

Employment and unemployment rates over time provide a basis for assessing the long-term trends and variations in labour-market risks among men and women with different levels of education and at different ages. These results can help governments better understand how economies may evolve in the coming years. In turn, that understanding could inform education policies, with the aim of ensuring that the students of today are better prepared for the jobs of tomorrow.

With the recent increase in migration flows to OECD countries, the labour-market situation of foreign-born adults stimulates the public debate. According to the *International Migration Outlook 2017* (OECD, 2017[3]), 13% of the total population in OECD countries are foreign-born. The important rise in humanitarian migration largely contributed to the growing preoccupation with reviewing migration policies. However, humanitarian migration makes up only a part of total population flows. A large share of migrants moves for work reasons, and there is evidence of positive social and economic returns to migration. Overall, foreign-born adults largely contribute to increasing the workforce, and they generally contribute more in taxes and social contributions than they receive in benefits (OECD, 2014[4]).

Other findings

- On average across OECD countries, the unemployment rate is almost twice as high for those who have not completed upper secondary education as for those with higher qualifications: 15% of younger adults (age 25-34) without upper secondary education are unemployed, compared to around 7% for those with a higher level of education (i.e. upper secondary, post-secondary non-tertiary education or tertiary education).
- On average across OECD countries, about 35% of adults (age 25-64) who have not completed upper secondary education are inactive, compared to 20% of adults with upper secondary or post-secondary non-tertiary education and 12% of adults with a tertiary degree.
- Between 2007 and 2017, the gender gap in employment rates for younger adults (age 25-34) with low educational attainment has decreased by more than 5 percentage points in about one-third of OECD countries, while the gender gap increased by 5 or more percentage points in Estonia, Lithuania, New Zealand, Poland, the Slovak Republic and Slovenia.
- Across OECD and partner countries that participated in the Survey of Adult Skills (PIAAC), a large majority of workers report having a level of education that corresponds to the level needed for their job.

A3

Analysis

Educational attainment and employment

Upper secondary education is the minimum educational attainment level for successful labour-market integration. Adults (age 25-64) without at least this level of education are penalised in the labour market. On average across OECD countries, the employment rate is 85% for tertiary-educated adults, 76% for adults with an upper secondary or post-secondary non-tertiary qualification, and less than 60% for adults who have not completed upper secondary education (Table A3.1).

The increase in employment rates for those with an upper secondary or post-secondary non-tertiary education compared to those with lower levels of education is 25 percentage points or more in Belgium, the Czech Republic, Poland and the Slovak Republic. Countries with the lowest increase (below 10 percentage points) are Argentina, Brazil, Colombia, Costa Rica, Greece, Indonesia, Korea, Mexico and Saudi Arabia (Table A3.1).

Adults who have not completed upper secondary education enjoy high employment rates (between 70% and 80%) in only a few countries: Colombia, Iceland, Indonesia and New Zealand. In all other countries, these adults are penalised in the labour market. Less than half are employed in Belgium, Poland, the Slovak Republic, Slovenia and South Africa (Figure A3.1).

On average across OECD countries, getting a tertiary education improves employment rates by roughly a further 10 percentage points, compared to adults with an upper secondary or post-secondary non-tertiary education. The difference is 15 percentage points or more in Latvia, Lithuania, Poland, Slovenia and South Africa. The employment advantage is 7 percentage points or less in Australia, the Czech Republic, Denmark, Estonia, Germany, Hungary, Iceland, Korea, New Zealand, Portugal, the Slovak Republic, Sweden, Switzerland and the United Kingdom. One explanation for this situation is that, in some of these countries, employment rates for adults with an upper secondary or post-secondary non-tertiary vocational qualification are almost as high as for tertiary graduates. For example, in Germany and Switzerland, a majority of vocational graduates participate in combined school- and work-based programmes, which smooth the transition from education to work (Table A3.1 and [OECD, 2018[5]]).

In all OECD and partner countries, younger adults (age 25-34) are better educated than their older peers. In most OECD countries, the share of the population without upper secondary education among younger adults is less than 20% (see Indicator A1). This generational change has an impact in the labour-market outcomes for graduates: on average across OECD countries, 81% of younger adults who have gone beyond compulsory education are employed, compared to 60% who have not completed upper secondary education (Table A3.2 and (OECD, 2018[5]).

For younger adults in Argentina, Brazil, Chile, France, Indonesia, Ireland, Israel, Korea, Latvia, Lithuania, Mexico, Poland, South Africa, Turkey and the United States, a tertiary degree has an employment advantage of 10 percentage points or more compared to younger adults with only upper secondary or post-secondary non-tertiary education (Table A3.2).

Educational attainment and employment and gender

In all OECD and partner countries except Norway and Portugal, employment rates are lower for women than for men, regardless of the educational attainment level.

Employment rates are particularly low for women without upper secondary education. On average across OECD countries, the employment rate of younger women without upper secondary education is 45%, compared to 71% for their male peers. In most OECD and partner countries, less than half of young women without upper secondary education are employed, but the employment rate of women is lowest in Saudi Arabia and Turkey, where only one in four women with below upper secondary education are employed (Figure A3.1).

In contrast, in half of OECD countries, the employment rates of younger men (age 25-34) without upper secondary education exceed 70%. Almost full employment (more than 90%) of young men is reached in Colombia, Indonesia, Mexico and Saudi Arabia, but these high employment rates of younger men seem to be achieved at the expense of younger women, as women's employment rates in these countries are between 40 and 70 percentage points lower. In a few countries, such as Iceland, Luxembourg and Portugal, younger men without upper secondary education have relatively high employment rates (around 80%), with concurrent high employment rates for women (about 70%) (Figure A3.1).

Disparities by gender in employment rates narrow as educational attainment increases. On average across OECD countries, the gender difference in employment rates among 25-34 year-olds without upper secondary qualification is 25 percentage points (71% for men and 45% for women). This difference shrinks to 16 percentage points among individuals with upper secondary or post-secondary non-tertiary education (84% for men and 68% for women) and 9 percentage points among tertiary-educated men and women (89% for men and 80% for women) (Table A3.2).

Educational attainment and unemployment

In many OECD and partner countries, unemployment rates are especially high among younger adults (age 25-34). On average across OECD countries, the unemployment rate is almost twice as high for those who have not completed upper secondary education: 15% compared to 8% for those with upper secondary or post-secondary non-tertiary education. The unemployment rate of tertiary-educated younger adults is only 6% (Table A3.3).

The situation is especially severe for younger adults without an upper secondary education in the Slovak Republic and South Africa, where the unemployment rate for this group exceeds 30%. It is also very high in France, Greece and Spain, where about 25% of these younger adults are unemployed (Table A3.3).

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

While unemployment rates for 25-34 year-olds in many countries improve only slightly with education beyond upper secondary or post-secondary non-tertiary education, the positive effect of tertiary education on unemployment rates in this age group is especially high in Argentina, the Czech Republic, Estonia, France, Iceland, Ireland, Latvia, New Zealand, Poland, the Russian Federation and the United States. In these countries, unemployment rates for 25-34 year-olds with tertiary attainment are about half the rates of younger adults with an upper secondary or post-secondary non-tertiary education. In Lithuania and South Africa, the unemployment rate of tertiary-educated younger adults is only one-third of their lower educated peers (Table A3.3).

In Costa Rica, Iceland, Israel, Korea, Mexico, Portugal and Turkey, unemployment rates are similar across educational attainment levels. In a few countries, the relationship between unemployment rates and educational attainment levels is reversed. In Saudi Arabia, for example, 20% of tertiary-educated younger adults are unemployed, compared to only 2% of those who have not completed upper secondary education (Table A3.3).

Educational attainment and inactivity

The percentage of inactive people (i.e. individuals not employed and not looking for a job) is higher among those with lower educational attainment levels. On average across OECD countries, around 35% of adults aged 25-64 who have not completed upper secondary education were inactive in 2017, compared to 20% of adults with upper secondary or post-secondary non-tertiary education and around 10% of adults with a tertiary degree (OECD, 2018[5]).

Women have consistently higher inactivity rates than men across all educational attainment levels, but the rates are especially high among those who have not completed upper secondary education. The difference in inactivity rates for men and women with below upper secondary education is 22 percentage points, while the difference for those with upper secondary or post-secondary non-tertiary education is 14 percentage points, and the difference for those with tertiary education is 8 percentage points (Figure A3.2).

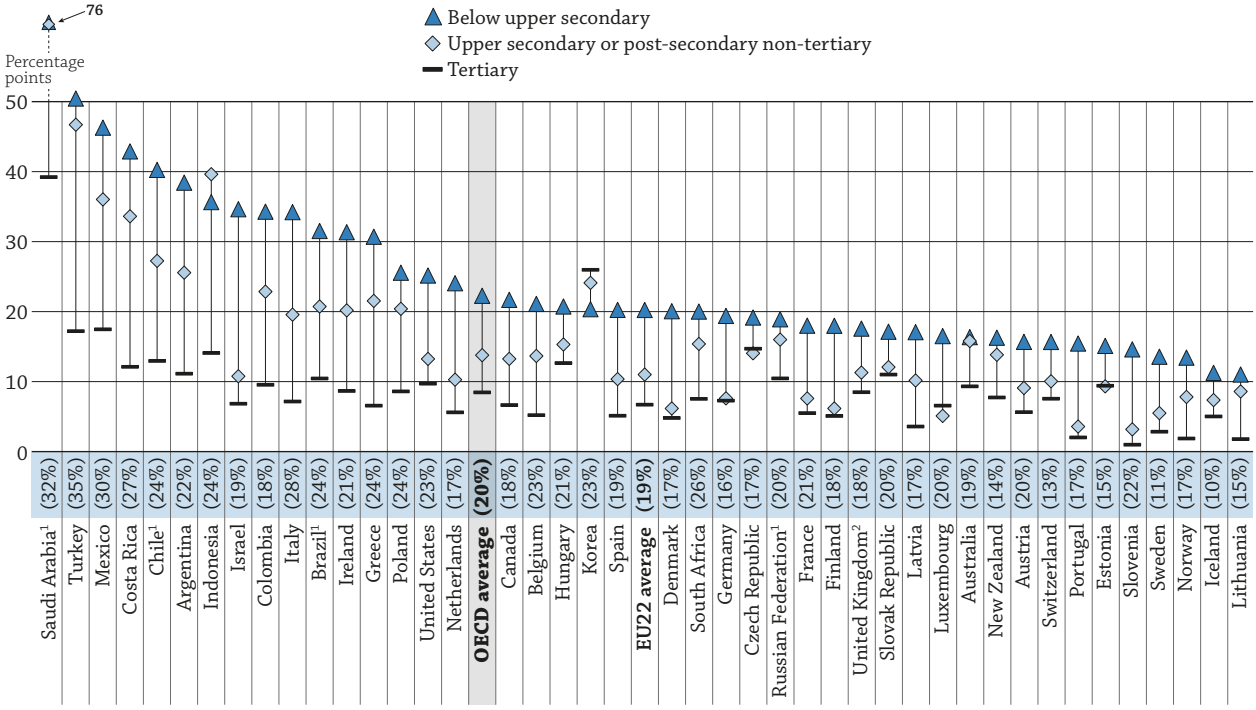
The gender gap in inactivity rates of adults without upper secondary education is highest in Saudi Arabia (76 percentage points) and Turkey (50 percentage points), and the gap is 40 percentage points or more in Chile, Costa Rica and Mexico. Even though the difference in inactivity rates of men and women decreases with higher educational attainment levels, in one-third of OECD countries, the gender gap in activity rates of adults with tertiary education is still more than 10 percentage points, and it is above 20 percentage points in Korea (26 percentage points) and Saudi Arabia (39 percentage points) (Figure A3.2).

In only a few countries, including Lithuania, Norway, Portugal and Slovenia, the gender gap in inactivity rates of tertiary-educated adults is almost closed (less than 3 percentage points) (Figure A3.2).

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Figure A3.2. Gender differences in inactivity rates, by educational attainment (2017)

25-64 year-olds, percentage-point difference (inactivity rate for women minus inactivity rate for men)



Note: The percentage in parentheses shows the inactivity rate of 25-64 year-old adults.

1. Year of reference differs from 2017. Refer to Table A3.1 for 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 (17% of adults aged 25-64 are in this group).

Countries are ranked in descending order of the gender differences in inactivity rates of the population with below upper secondary education.

Source: OECD / ILO (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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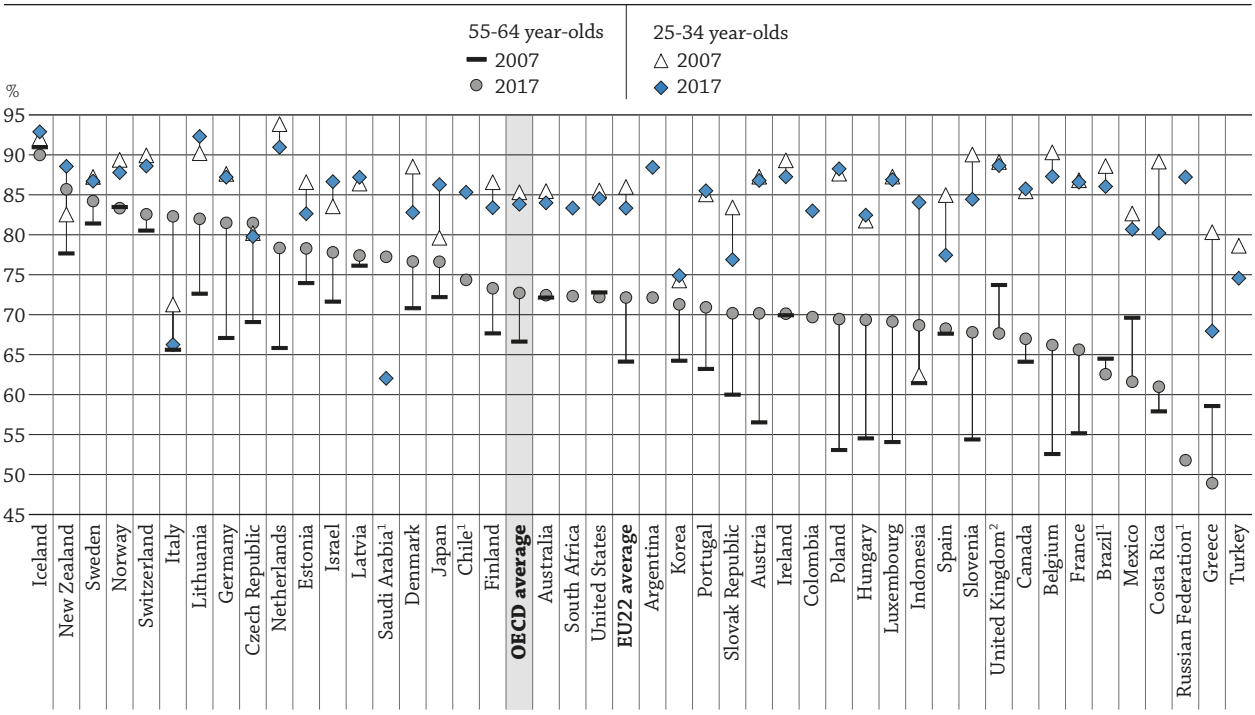
Overall trends in employment rates by educational attainment

Since the Great Recession in the late 2000s and early 2010s, employment rates have returned to the level they were a decade earlier in most OECD and partner countries. On average across OECD countries, regardless of educational attainment, about 75% of adults (age 25-64) were employed in 2017, which is similar to 2007 levels. However, these trends hide diverging employment trends of younger adults (age 25-34) and older adults (age 55-64) (OECD, 2018[5]).

On average across OECD countries, the employment rate of 25-34 year-olds with tertiary education was about 85% in 2007 and 2017. In a few countries, including Indonesia, Japan and New Zealand, the employment rate for these younger adults has increased over the last decade, but the opposite tendency can be observed in many countries. In Costa Rica, Denmark, Greece, Italy, the Slovak Republic, Slovenia and Spain, the employment rate of younger adults with tertiary education is 5 or more percentage points lower in 2017 than it was in 2007. Some of these countries are especially hit by the Great Recession, and their economies have not yet recovered fully (Figure A3.3).

In contrast, on average across OECD countries, the employment rates of 55-64 year-olds with tertiary education have increased by 6 percentage points, from 67% in 2007 to 73% in 2017 (Figure A3.3). The increase in employment rates of older adults can be partly explained by the fact that, on average across 24 OECD countries with available data, the age of labour-market exit (effective retirement age) has increased over the last 15 years for both men and women. In contrast, from the 1970s to the late 1990s, the average retirement age was decreasing. The age of labour-market exit in 2017 was 64.3 on average across the OECD, and it was 1.5 years lower for women than for men. However, beyond the OECD average statistics, there are vast differences across countries. The average effective age of labour-market exit ranges from 60.2 in France and the Slovak Republic to 72.1 in Korea. It is lower than 62 in Belgium, France, Luxembourg and the Slovak Republic and higher than 66 in Chile, Iceland, Israel, Japan, Korea, Mexico, New Zealand and Turkey (OECD, 2017[6]).

Figure A3.3. Trends in employment rates of 25-34 and 55-64 year-olds with tertiary education (2007 and 2017)



1. Year of reference differs from 2017. Refer to Table A3.2 for 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 (17% of adults aged 25-64 are in this group).

Countries are ranked in descending order of the employment rate of tertiary-educated 55-64 year-olds in 2017.

Source: OECD / ILO (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802095

In more than half of OECD countries, the employment rates of older adults with tertiary education have increased by at least 5 percentage points over the last decade. In many of these countries, employment rates increased by more than 10 percentage points, with the highest increases in Italy and Poland (Figure A3.3).

The increase in employment rates of older adults over time can be observed across educational attainment levels. On average across OECD countries, the employment rate of 55-64 year-olds without upper secondary education has increased by 6 percentage points, from 40% in 2007 to 46% in 2017. Over the same period, the employment rate increased by 8 percentage points (from 52% to 60%) for those with an upper secondary or post-secondary non-tertiary education and by 6 percentage points (from 67% to 73%) for tertiary graduates (OECD, 2018[5]).

On average across OECD countries and different educational attainment levels, the gender gap in employment rates among younger adults has remained more or less stable over the last decade, but it has evolved differently across countries (Table A3.2).

In most OECD and partner countries, the gender gap in employment rates of adults without upper secondary education has fallen between 2007 and 2017. In most of these countries, this decline is due to a decreasing employment rate for men, rather than an increasing employment rate for women. The decline in the gender gap due to rising employment rates for younger women is highest in Korea (16 percentage points), where the employment rate of young women (age 25-34) without upper secondary education rose from 42% in 2007 to 58% in 2017, while the employment rate of young men remained stable (about 70% in 2007 and 2017) (Table A3.2).

In a few countries, the gender gap has increased for younger adults (age 25-34) with low educational attainment. In Lithuania, Poland and Slovenia, for example, the employment rates of younger women without secondary education have declined much faster than those of younger men, leading to an increase in the gender gap of 5 or more percentage points (Table A3.2).

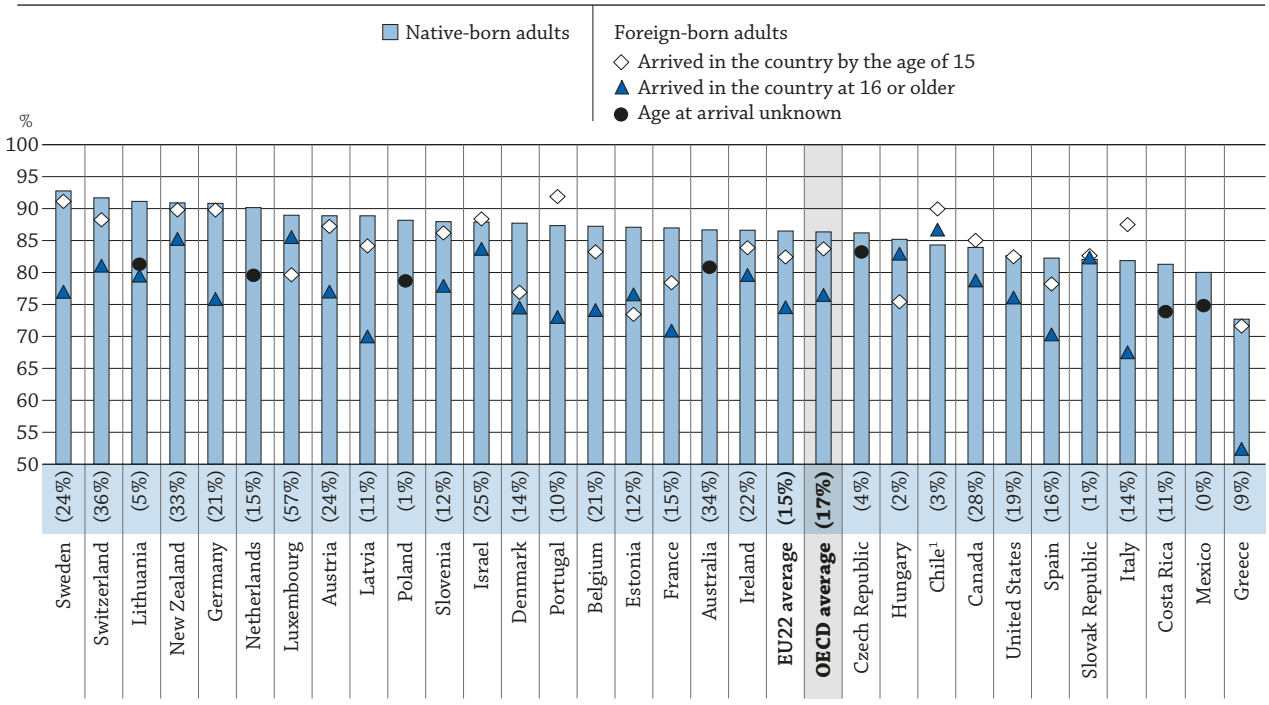
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Labour-market outcomes for foreign-born adults by educational attainment

The labour-market outcomes for foreign-born adults compared to native-born adults vary widely across OECD and partner countries. For both native-born and foreign-born adults, the likelihood of being employed increases with higher educational attainment, but it increases more steeply for native-born adults than for foreign-born adults (Table A3.4).

Among countries with available data, there are both higher and lower levels of employment rates for adults without upper secondary education for native-born versus foreign-born adults. For example, in Chile, Hungary, Israel, Italy, Luxembourg, Portugal and the United States, the employment rates of foreign-born adults without upper secondary education are more than 10 percentage points higher than those of their native-born peers. In contrast, in Denmark, the Netherlands and Sweden, the employment rates of foreign-born adults are more than 10 percentage points lower than those of their native-born peers. The difference between the employment rates of native-born and foreign-born adults may vary depending on the age at arrival in the country for foreign-born adults (Table A3.4).

Figure A3.4. Employment rates of native- and foreign-born 25-64 year-olds with tertiary education, by age at arrival in the country (2017)



Note: The percentage in parentheses represents the share of foreign-born adults among 25-64 year-olds.
1. Year of reference differs from 2017. Refer to the source table for details.
Countries are ranked in descending order of the employment rate of tertiary-educated native-born adults.
Source: OECD / ILO (2018), Table A3.4. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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While labour-market outcomes for foreign-born adults without upper secondary education are mixed across OECD and partner countries, foreign-born adults with tertiary education have lower employment prospects than their native-born peers in most countries with data. In Austria, Belgium, Denmark, Estonia, France, Germany, Greece, Italy, Latvia, the Netherlands, Spain and Sweden, the gap in the employment rate between tertiary-educated native-born and foreign-born adults is more than 10 percentage points, systematically in favour of tertiary-educated native-born adults (Table A3.4).

For foreign-born adults with a tertiary degree, the age at arrival in the country determines employment prospects. In most countries, the employment rates for foreign-born adults who arrived by age 16 are higher than for those who arrived in the country at a later age. For instance, in Greece, Italy and Portugal, early arrival yields an employment advantage of around 20 percentage points (Figure A3.4).

Since foreign-born adults who arrived in the country at an early age have spent some years in the education system of the host country and gained credentials recognised by the host country, their labour-market outcomes are better than of those who arrived at a later age with a foreign qualification. Foreign-born adults often face problems getting their education and experience recognised in their host country. The challenges they face in getting their credentials valued in the host country also explain why they are often overqualified for their positions (OECD, 2017[3]).

In addition, foreign-born adults generally have fewer alternatives in terms of family support than native-born adults. They also generally have lower unemployment insurance and fewer possibilities of returning to school (OECD, 2017[3]). As shown in the European Union Minorities and Discrimination Survey (FRA, 2017[7]), foreign-born adults also often face discrimination when looking for work, particularly foreign-born adults from North Africa. Thus, foreign-born workers are likely to have a lower reservation wage (the lowest wage rate at which a worker would be willing to accept a particular type of job), and this implies that they are more likely to accept any job they can get. This may explain the fact that, in many countries, the employment rate for foreign-born adults with low educational attainment is higher than for their native-born peers.

Box A3.1. Qualification match or mismatch among workers

The objectives of formal education are very broad, but preparation for an active life in society through gainful employment is an important one, conditioning well-being to a large extent. The educational qualifications of workers and the educational requirements of jobs meet in the labour market. Qualification matching through this process is a measure of the close links between the education system and the labour market. The first two international reports of the Survey of Adult Skills (PIAAC) (see *Source* section at the end of this indicator) have presented highlights of qualification mismatch, suggesting that overqualification is particularly common among foreign-born workers and those employed in small establishments, in part-time jobs or on fixed-term contracts (OECD, 2013[8]; OECD, 2016[9]).

At the individual level, a qualification mismatch occurs when an individual works in a job that does not require the level of formal education the worker holds (i.e. being overqualified or underqualified) (see *Definitions* and *Methodology* sections at the end of this indicator). Being in one of these two types of mismatch is likely to have an impact on earnings (see Box A4.1 in Indicator A4). Aggregated at the national level, overqualification may be the result of an oversupply of qualified workers relative to the structure of jobs in the economy, while underqualification may be the result of workers succeeding in having their skills valued beyond their formal educational attainment.

Overqualification and underqualification are present to varying extents

Across countries and economies that participated in the Survey of Adult Skills (PIAAC), a large majority of workers report having a level of education that corresponds to the level needed for their job (Figure A3.a). For example, on average, 85% of workers with a qualification of upper secondary education (ISCED 3) or below reported working in a job that requires this level of education. Among workers with a qualification of tertiary-type A or advanced research programmes (ISCED 5A or 6), 75% reported being in a similarly well-matched situation. For adults with a tertiary-type B degree (ISCED 5B), the match between the level of education attained and the level of education required on the job is not as high, but this is probably due to the fact that these levels of education are less common and, therefore, fewer employers are asking for such qualifications (Figure A3.a).

On average across OECD countries and economies that participated in the Survey of Adult Skills (PIAAC), 15% of workers reported being overqualified for their job (which means having a qualification of ISCED 5A or 6 while working in a job needing ISCED 3 or below). The highest shares are observed in England (United Kingdom) and Japan, where over 25% of workers reported being in this situation (Figure A3.a and Table A3.a, available on line).

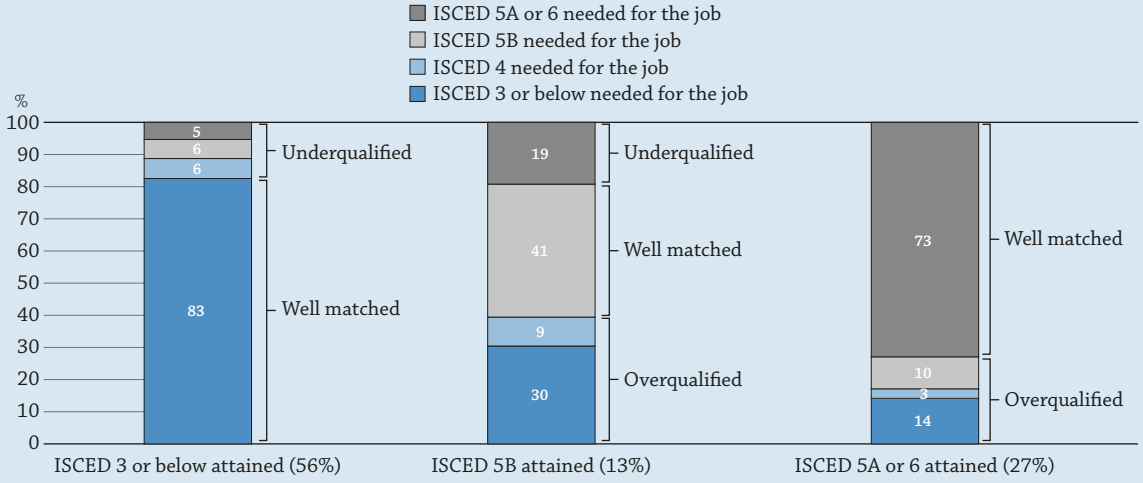
In contrast, on average only 5% of workers reported being underqualified for their job (which means having a qualification of ISCED 3 or below while working in a job needing ISCED 5A or 6). The shares are highest in Finland, Israel, Italy and the Netherlands, where at least 10% of workers reported being in this situation (Figure A3.a, and Table A3.a, available on line).

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Figure A3.a. Qualification match or mismatch among workers (2012 or 2015)

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



Note: The percentage in parentheses represents the proportion of workers with this level of education. The values were redistributed to add up to 100%. Data from the Survey of Adult Skills (PIAAC) are based on ISCED-97. The labels "underqualified", "well matched" and "overqualified" have been added to ease the reading, but in some cases the boundaries between ISCED levels can be blurred. See *Definitions*, *Methodology* and *Source* sections for more information.

Source: OECD (2018), Table A3.a, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802133

Migration status and age

Among personal characteristics that may be associated with various situations of overqualification and underqualification, whether one is born in the country of present residence is a major factor in most countries with a sizeable immigrant population. In Norway and Sweden, the share of overqualified workers is at least three times as large among immigrants as among the native-born population. In addition to other issues such as language or culture, credential recognition is a serious problem for first-generation immigrants with higher levels of education seeking a job that matches their level of education (Table A3.b, available on line).

Age is often closely associated with experience in the labour market, and it also plays a role in both mismatched situations. On the one hand, young people may accept jobs below their qualification in order to enter the labour market. On the other hand, older workers may succeed in having their skills and further training valued beyond their formal educational attainment. Both situations would lead to different age patterns among overqualified and underqualified workers. Data from the Survey of Adult Skills (PIAAC) support this hypothesis, showing that the mean age among overqualified workers is 39, seven years younger than the mean age among underqualified workers (46) (Table A3.b, available on line).

Numeracy skills

Skills are far from homogeneous at any level of formal education, and skills are an important driver for individual employment and economic outcomes (OECD, 2015[10]). On average among similarly-educated adults, numeracy skills tend to be lower among those who are overqualified than among those who are well matched (Figure A3.b). This implies that a formal qualification does not guarantee finding a job corresponding to one's educational attainment. Formal qualifications should also be accompanied by good skills. Otherwise, there is a higher likelihood of ending up in a job where the education requirements are below the acquired qualification.

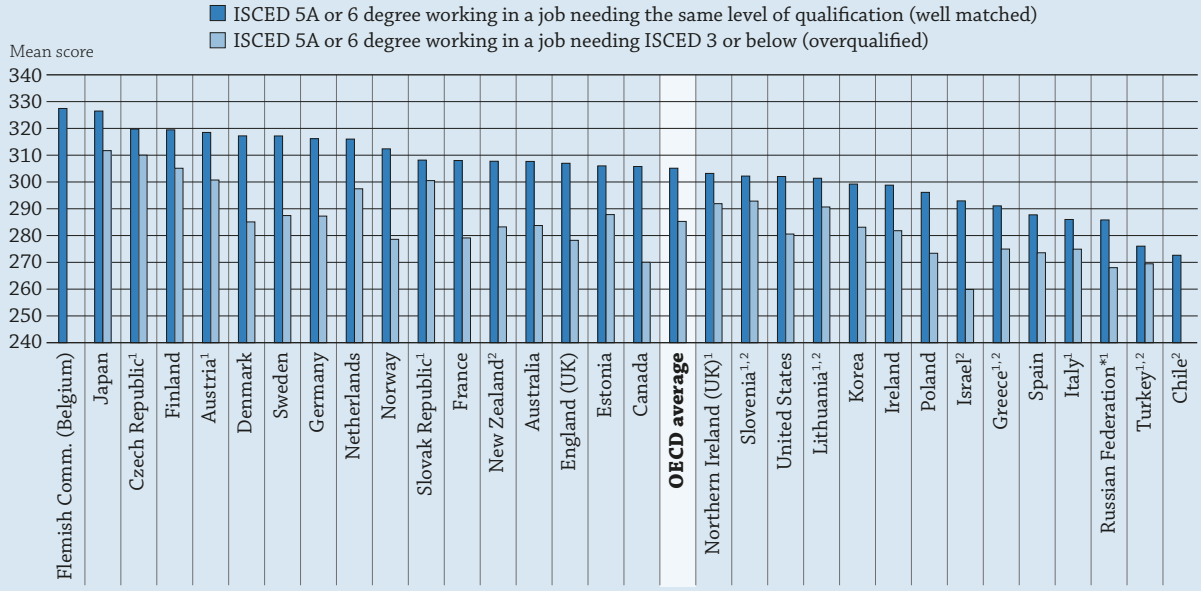
The same pattern holds for all countries and economies that participated in the Survey of Adult Skills (PIAAC), with only a few exceptions where data on the overqualified are missing or where the differences are not statistically significant. Among tertiary-educated adults holding an ISCED 5A or 6 degree, the largest differences in the mean numeracy score between well-matched and overqualified workers are observed in Canada, Denmark, Israel and Norway, where the gap is above 30 score points (which is equivalent to over four years of schooling).

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In contrast, the difference between well-matched and overqualified workers is not statistically significant in ten countries or economies (Figure A3.b).

Figure A3.b. Mean numeracy score among adults with ISCED 5A or 6, by selected qualification match or mismatch among workers (2012 or 2015)

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



Note: Some data points are not displayed because there are too few observations to provide a reliable estimate. Data from the Survey of Adult Skills (PIAAC) are based on ISCED-97. See *Definitions*, *Methodology* and *Source* sections for more information.

1. The difference between well-matched and overqualified workers is not statistically significant at 5%.

2. 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 are ranked in descending order of the mean score of adults reporting having an educational attainment equivalent to what is needed for their job (well matched).

Source: OECD (2018), Table A3.c, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Box A3.1 Tables

WEB	Table A3.a	Qualification match or mismatch among workers and distribution of educational attainment among workers (2012 or 2015)
WEB	Table A3.b	Selected qualification mismatches among workers, by mean age and native-born/foreign-born status (2012 or 2015)
WEB	Table A3.c	Mean numeracy score among adults with ISCED 5A and 6, by selected qualification match or mismatch among workers (2012 or 2015)

Subnational variations in labour-market outcomes by educational attainment level

On average across the 19 OECD and partner countries with subnational data on labour-force status, employment rates tend to vary more across regions among those with lower levels of education than among those with higher levels of education. For example, in the United States (one large country with many subnational regions), among adults who have not completed upper secondary education, the employment rate ranges from 32% to 68% between states while, among adults with upper secondary education, the employment rate ranges from 60% to 79% between states (OECD/NCES, 2018[11]).

In general, the regional variation in employment rates is the lowest among adults with tertiary education. In most countries, the difference in the employment rate in the subnational region with the lowest and the highest rate is below 10 percentage points. The Russian Federation (another large country with many subnational regions) is the country with the largest disparities, with a low of 69% and a high of 93% (OECD/NCES, 2018[11]).

In many countries, employment rates in the region including the capital city are above the country average, regardless of educational attainment level. In Spain, for example, the employment rate for adults who have not completed upper secondary education in the capital city region is 60%, 4 percentage points higher than the country average of 56%. This is also the case for most other educational attainment levels. In contrast, in Austria and Germany, employment rates in the capital region are below the country average, regardless of educational attainment level (OECD/NCES, 2018[11])

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.

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.

The previous classification, ISCED-97, is used for the analyses based on the Survey of Adult Skills (PIAAC) in Box A3.1. The levels of education are defined as follows: **below upper secondary** corresponds to levels 0, 1, 2 and 3C short programmes; **upper secondary** corresponds to levels 3A, 3B and 3C long programmes; post-secondary non-tertiary corresponds to levels 4A and 4B; and **tertiary** corresponds to levels 5B, 5A and 6. ISCED 5A consists of largely theory-based programmes designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Duration is at least three years full time, although usually four or more years. These programmes are not exclusively offered at universities, and not all programmes nationally recognised as university programmes fulfil the criteria to be classified as tertiary-type A. Tertiary-type A programmes include second-degree programmes, such as the American master's degree. ISCED 5B consists of programmes that are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered. They have a minimum duration of two years full-time equivalent at the tertiary level. ISCED 6 consists of programmes that lead directly to the award of an advanced research qualification (e.g. PhD). The theoretical duration of these programmes is three years, full time, in most countries (for a cumulative total of at least seven years full-time equivalent at the tertiary level), although the actual enrolment time is typically longer. Programmes are devoted to advanced study and original research.

Qualification match/mismatch: For the analysis in Box A3.1, an **overqualified worker** is defined as a job holder who has attained an education at ISCED 5A or 6 while holding a job that needs only ISCED 3 or less. An **underqualified worker** is defined as a job holder who has attained ISCED 3 or below while holding a job that needs ISCED 5A or 6. A **well-matched worker** is an individual reporting working in a job that needs his/her level of education. The ISCED-97 categories used for analysis in Box A3.1 are: ISCED 0-3, ISCED 4, ISCED 5B and ISCED 5A-6.

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.

The match or mismatch presented in Box A3.1 is dependent on the number of education levels selected. In this analysis, educational attainment is classified in four groups; breaking that down further into more groups would result in a higher mismatch. This caution is especially relevant for the category "ISCED 3 or below", which encompasses four different attainment levels (ISCED 0 to 3) and represents over 50% of workers. It is also important to note that the mismatch presented in this analysis does not reflect misalignments between the field of study of the worker and what is needed for the job. The definitions of overqualification and underqualification can vary across the different studies on the topic. The question asked by the Survey of Adult Skills on job requirements is the following: "Still talking about your current job: If applying today, what would be the usual qualifications, if any, that someone would need to get this type of job?". The analysis focuses on the comparison between ISCED 3 or below with ISCED 5A or 6 and does not look at the situation for ISCED 4 and 5B. This decision is driven by the blurred boundary between ISCED 5B and ISCED 5A or 6, and it also takes into account the fact that the ISCED 4 level is not well defined in the labour market. For more information on the methodology used in Box A3.1, please see the *Methodology* section in Indicator A7.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[12]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

For information on sources, see Indicator A1.

Data on subnational regions for selected indicators are released by the OECD, with the support from the US National Centre for Education Statistics (NCES), and 19 countries have submitted their data for this edition of Indicator A3: Australia, Austria, Belgium, Canada, Colombia, Finland, Germany, Greece, Ireland, Italy, Poland, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. Subnational estimates were provided by countries using national data sources or by Eurostat based on data for Level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2). For the United Kingdom, the subnational regions are based on NUTS 1.

Data used in Box A3.1 are based on the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]).

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.

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 [13]).

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Indicator A3 Tables

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Table A3.1	**Employment rates of 25-64 year-olds, by educational attainment (2017)**
Table A3.2	**Trends in employment rates of 25-34 year-olds, by educational attainment and gender (2007 and 2017)**
Table A3.3	**Employment, unemployment and inactivity rates of 25-34 year-olds, by educational attainment (2017)**
Table A3.4	**Employment rates of native- and foreign-born 25-64 year-olds, by age at arrival in the country and educational attainment (2017)**

Cut-off date for the data: 18 July 2018. 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 A3.1. Employment rates of 25-64 year-olds, by educational attainment (2017)

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

			Upper secondary or post-secondary non-tertiary			Tertiary					
		Below upper secondary	Upper secondary	Post-secondary non-tertiary	Total	Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	Total	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Australia	59	77	83	78	82	85	84	89	84	77
OECD	Austria	54	76	81	77	86	80	89	92	86	76
OECD	Belgium	47	73	87	73	81	84	87	93	85	72
OECD	Canada	56	72	79	74	81	83	85[d]	x(7)	82	77
OECD	Chile[1]	62	72	a	72	80	86	95[d]	x(7)	84	71
OECD	Czech Republic	51	82[d]	x(2)	82	88	81	87	92	86	81
OECD	Denmark	62	81	93	81	85	84	89	94	86	79
OECD	Estonia	65	79	78	79	81	84	88	94	86	80
OECD	Finland	53	73	c	74	82	84	87	97	85	76
OECD	France	53	73	66	73	84	84	88	90	85	73
OECD	Germany	60	80	86	82	90	88	88	93	89	81
OECD	Greece	50	58	63	59	63	71	83	85	72	61
OECD	Hungary	55	77	84	78	86	83	88	93	85	76
OECD	Iceland	77	88	95	90	89	92	95	98	93	88
OECD	Ireland	51	70	75	72	80	85	89	90	85	74
OECD	Israel	52	74	a	74	84	87	90	93	87	78
OECD	Italy	52	71	75	71	c	73	83	93	81	65
OECD	Japan[2]	x(2)	79[d]	x(5)	m	79[d]	88[d]	x(6)	x(6)	84[d]	82
OECD	Korea	66	73	a	73	77	78[d]	x(6)	x(6)	77	74
OECD	Latvia	61	73	73	73	86	86	90	98	88	76
OECD	Luxembourg	60	74	80	75	82	81	89	93	86	76
OECD	Mexico	65	71	a	71	70	80	87	89	80	69
OECD	Netherlands	61	80	84	80	87	88	91	95	89	79
OECD	New Zealand	73	80	87	83	88	89	88	93	89	83
OECD	Norway	61	79	85	80	82	90	93	95	89	80
OECD	Poland	42	69	73	70	67	85	89	98	88	73
OECD	Portugal	68	82	83	82	c	83	88	92	87	76
OECD	Slovak Republic	39	75	77	75	91	73	83	86	82	74
OECD	Slovenia	46	70	a	70	78	89	88	93	87	73
OECD	Spain	56	70	78	70	79	79	84	90	81	68
OECD	Sweden	67	87	83	86	85	90	92	93	89	84
OECD	Switzerland	67	82[d]	x(2)	82	x(6, 7, 8)	88[d]	88[d]	92[d]	88	83
OECD	Turkey	52	63	a	63	66	77	85	93	75	59
OECD	United Kingdom[3]	63	83	a	81	82	86	86	88	85	80
OECD	United States	56	70[d]	x(2)	70	78	82	85	90	82	74
	OECD average	58	75	80	76	81	84	88	92	85	76
	EU22 average	55	75	79	76	82	83	87	92	85	75
Partners	Argentina	65	74	a	74	x(6)	85[d]	x(6)	x(6)	85	73
Partners	Brazil[1]	65	74[d]	x(2)	74	x(9)	x(9)	x(9)	x(9)	83	71
Partners	China	m	m	m	m	m	m	m	m	m	m
Partners	Colombia	72	75[d]	x(2)	75	x(9)	x(9)	x(9)	x(9)	83	75
Partners	Costa Rica	64	69	c	69	71	83	89[d]	x(7)	81	69
Partners	India	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia	73	74	m	74	78	87	94	98	85	75
Partners	Lithuania	52	71	77	73	a	90	91	94	91	79
Partners	Russian Federation[4]	51	68	75	72	77	88	85	89	81	75
Partners	Saudi Arabia[5]	60	65	a	65	x(6)	75[d]	x(6)	x(6)	75	65
Partners	South Africa	43	55	74	58	82	85	85[d]	x(7)	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 2015.

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 (17% of adults aged 25-64 are in this group).

4. Year of reference 2016.

5. Year of reference 2014.

Source: OECD/ILO (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2007 and 2017)

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	
		2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017	2007	2017
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	80[b]	65	46[b]	44	64[b]	55	91[b]	89	68[b]	67	81[b]	80	93[b]	91	80[b]	79	85[b]	84
	Austria	78	64	56	46	65	56	89	86	73	83	82	85	92	89	83	85	87	87
	Belgium	69[b]	60	44[b]	37	58[b]	50	88[b]	83	72[b]	70	81[b]	78	91[b]	89	89[b]	86	90[b]	87
	Canada	70	65	50	42	62	57	86	83	74	70	81	78	89	89	83	84	85	86
	Chile[1]	m	79	m	43	m	61	m	80	m	57	m	69	m	89	m	83	m	85
	Czech Republic	66[b]	71	35[b]	38	50[b]	54	93[b]	94	63[b]	66	79[b]	82	93[b]	93	70[b]	71	80[b]	80
	Denmark	84[b]	66	63[b]	41	74[b]	56	91[b]	83	82[b]	72	87[b]	78	91[b]	85	86[b]	81	89[b]	83
	Estonia	77	79	53	50	69	69	95	92	69	68	83	82	94	94	82	75	87	83
	Finland	74	58	53	m	66	48	85	79	70	67	78	74	94	90	81	79	87	83
	France	75	64	45	37	61	52	89	82	72	66	81	74	90	90	84	84	87	87
	Germany	68[b]	65	42[b]	43	55[b]	55	82[b]	86	72[b]	79	77[b]	83	93[b]	90	83[b]	84	88[b]	87
	Greece	89[b]	70	43[b]	31	71[b]	54	86[b]	68	62[b]	48	73[b]	59	84[b]	75	77[b]	63	80[b]	68
	Hungary	60	73	33	43	47	58	87	91	63	69	76	82	92	94	74	74	82	82
	Iceland	90	82	74	72	83	78	93	89	76	80	86	85	95	96	89	90	92	93
	Ireland	74[b]	56	45[b]	31	62[b]	46	90[b]	82	71[b]	63	81[b]	73	93[b]	90	87[b]	85	89[b]	87
	Israel	61[b]	74	22[b]	44	45[b]	62	74[b]	74	58[b]	66	67[b]	71	87[b]	90	81[b]	84	84[b]	87
	Italy	81[b]	65	42[b]	34	64[b]	52	83[b]	73	64[b]	53	73[b]	64	75[b]	69	69[b]	65	71[b]	66
	Japan[2]	m	m	m	m	m	m	m	m	m	m	m	m	92	93[d]	69	79[d]	80	86[d]
	Korea	71[b]	70	42[b]	58	61[b]	64	76[b]	71	51[b]	54	64[b]	65	84[b]	81	65[b]	69	74[b]	75
	Latvia	79	76	52	56	70	70	91	86	70	69	81	79	92	94	83	83	86	87
	Luxembourg	90[b]	83	71[b]	72	81[b]	78	88[b]	88	77[b]	79	83[b]	84	89[b]	90	86[b]	84	87[b]	87
	Mexico	93	92	40	42	64	66	91	89	58	54	73	71	90	88	77	74	83	81
	Netherlands	88[b]	75	59[b]	50	75[b]	65	94[b]	88	83[b]	77	88[b]	83	96[b]	93	92[b]	90	94[b]	91
	New Zealand	80	81	56	52	69	68	92	91	69	68	82	80	92	93	76	85	83	89
	Norway	77	68	61	52	70	61	90	85	81	74	86	80	91	87	88	88	89	88
	Poland	61[b]	59	38[b]	30	51[b]	48	84[b]	89	63[b]	60	74[b]	77	92[b]	95	85[b]	84	88[b]	88
	Portugal	87	80	71	68	80	76	80	82	77	82	78	82	87	85	84	86	85	86
	Slovak Republic	27[b]	48	21[b]	32	24[b]	40	89[b]	89	62[b]	62	76[b]	78	93[b]	90	76[b]	68	83[b]	77
	Slovenia	78[b]	75	59[b]	43	70[b]	64	89[b]	88	79[b]	76	85[b]	83	94[b]	90	88[b]	81	90[b]	84
	Spain	85	69	58	51	74	61	86	73	72	65	79	69	89	79	82	76	85	77
	Sweden	75[b]	73	51[b]	55	64[b]	66	89[b]	87	79[b]	81	84[b]	84	89[b]	88	86[b]	86	87[b]	87
	Switzerland	84[b]	71	59[b]	58	70[b]	65	91[b]	89	78[b]	82	84[b]	85	94[b]	91	84[b]	86	90[b]	89
	Turkey	83[b]	84	20[b]	27	49[b]	54	86[b]	87	31[b]	35	65[b]	65	87[b]	85	68[b]	64	79[b]	75
	United Kingdom[3]	78[b]	76	44[b]	49	60[b]	63	90[b]	91	73[b]	75	82[b]	83	93[b]	93	85[b]	84	89[b]	89
	United States	77	69	46	42	64	57	84	80	68	66	76	73	92	88	81	81	86	85
	OECD average	76	71	48	45	63	60	88	84	69	68	79	77	91	89	81	80	85	84
	EU22 average	75	68	49	44	63	58	88	85	71	70	80	78	91	88	82	80	86	83
Partners	Argentina	m	84	m	43	m	67	m	84	m	60	m	72	m	93	m	85	m	88
	Brazil[1]	88	83	56	50	72	68	90	86	69	64	79	75	92	91	86	83	89	86
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	m	90	m	51	m	72	m	88	m	62	m	75	m	89	m	78	m	83
	Costa Rica	94	85	45	41	71	66	95	88	59	55	77	71	94	84	85	77	89	80
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	92[b]	91	46	47	67[b]	68	80[b]	90	39[b]	49	60[b]	71	72[b]	91	54[b]	79	62[b]	84
	Lithuania	66[b]	57	53[b]	38	61[b]	51	87[b]	86	75[b]	69	81[b]	79	92[b]	94	89[b]	91	90[b]	92
	Russian Federation[4]	m	65	m	46	m	57	m	88	m	70	m	80	m	94	m	82	m	87
	Saudi Arabia[5]	m	94	m	24	m	65	m	91	m	12	m	59	m	92	m	35	m	62
	South Africa	m	47	m	29	m	40	m	58	m	43	m	50	m	86	m	81	m	83
	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 2017 refer to ISCED 2011 while data for 2007 years 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 2015 instead of 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 (17% of adults aged 25-64 are in this group).

4. Year of reference 2016 instead of 2017.

5. Year of reference 2014 instead of 2017.

Source: OECD/ILO (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2017)

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	Australia	55	80	84	13.4	4.4	4.1	36	17	12
	Austria	56	85	87	18.8	5.5	3.7	31	10	10
	Belgium	50	78	87	22.7	9.0	4.7	36	15	8
	Canada	57	78	86	14.0	7.5	5.0	34	16	10
	Chile[1]	61	69	85	11.6	9.2	6.7	32	24	9
	Czech Republic	54	82	80	13.9	3.2	1.6	37	15	19
	Denmark	56	78	83	10.2	5.6	7.8	37	17	10
	Estonia	69	82	83	12.3	6.0	3.0	22	13	15
	Finland	48	74	83	15.8	9.8	5.6	43	18	12
	France	52	74	87	26.3	12.7	5.8	30	15	8
	Germany	55	83	87	15.2	3.8	2.8	36	14	10
	Greece	54	59	68	30.0	28.1	25.4	23	17	9
	Hungary	58	82	82	13.7	3.8	2.4	33	15	16
	Iceland	78	85	93	3.4	3.8	1.9	19	11	5
	Ireland	46	73	87	19.7	9.7	4.2	43	19	9
	Israel	62	71	87	5.3	5.8	3.8	35	25	10
	Italy	52	64	66	23.8	15.7	13.7	32	25	23
	Japan[2]	m	m	86[d]	m	m	2.6[d]	m	m	11[d]
	Korea	64	65	75	4.4	7.0	6.6	33	31	20
	Latvia	70	79	87	14.7	9.7	4.6	18	12	9
	Luxembourg	78	84	87	c	4.0	4.8	15	13	9
	Mexico	66	71	81	3.2	4.4	5.7	32	26	14
	Netherlands	65	83	91	8.6	4.7	2.7	29	13	7
	New Zealand	68	80	89	8.5	5.0	2.5	26	15	9
	Norway	61	80	88	10.5	4.7	2.9	32	16	10
	Poland	48	77	88	16.0	6.1	3.2	42	18	9
	Portugal	76	82	86	11.3	10.0	8.1	15	9	7
	Slovak Republic	40	78	77	31.8	8.9	5.5	42	15	19
	Slovenia	64	83	84	14.8	8.3	8.8	24	9	7
	Spain	61	69	77	27.8	18.4	13.9	15	15	10
	Sweden	66	84	87	16.7	5.3	4.8	21	11	9
	Switzerland	65	85	89	14.6	4.7	4.5	24	10	7
	Turkey	54	65	75	11.7	11.3	13.1	39	27	14
	United Kingdom[3]	63	83	89	9.5	3.8	2.7	31	13	9
	United States	57	73	85	13.2	6.2	2.8	34	22	13
	OECD average	60	77	84	14.8	7.8	5.8	30	17	11
	EU22 average	58	78	83	17.8	8.7	6.4	30	15	11
Partners	Argentina	67	72	88	11.1	8.1	4.3	25	22	8
	Brazil[1]	68	75	86	10.6	10.9	6.5	23	16	8
	China	m	m	m	m	m	m	m	m	m
	Colombia	72	75	83	8.5	11.5	11.0	21	15	7
	Costa Rica	66	71	80	10.0	11.2	8.8	27	20	12
	India	m	m	m	m	m	m	m	m	m
	Indonesia	68	71	84	3.1	5.2	5.3	30	25	11
	Lithuania	51	79	92	18.6	8.1	2.8	37	14	5
	Russian Federation[4]	57	80	87	16.5	8.5	4.4	32	12	9
	Saudi Arabia[5]	65	59	62	2.1	8.4	19.6	33	35	23
	South Africa	40	50	83	38.8	34.3	9.7	35	24	8
	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 2015.

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 (17% of adults aged 25-64 are in this group).

4. Year of reference 2016.

5. Year of reference 2014.

Source: OECD/ILO (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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A3

Table A3.4. Employment rates of native- and foreign-born 25-64 year-olds, by age at arrival in the country and educational attainment (2017)

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

		Below upper secondary					Upper secondary or post-secondary non-tertiary					Tertiary				
			Foreign-born					Foreign-born					Foreign-born			
		Native-born	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total	Native-born	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total	Native-born	Arrived in the country by the age of 15	Arrived in the country at 16 or older	Total	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	61	x(4)	x(4)	54	59	80	x(9)	x(9)	73	78	87	x(14)	x(14)	81	84
	Austria	56	57	51	52	54	77	84	71	73	77	89	87	77	78	86
	Belgium	48	38	44	43	47	76	64	63	63	73	87	83	74	76	85
	Canada	56	63	53	55	56	75	73	71	71	74	84	85	79	80	82
	Chile[1]	62	54	83	81	62	71	78	83	81	72	84	90	87	85	84
	Czech Republic	50	x(4)	x(4)	59	51	82	x(9)	x(9)	85	82	86	x(14)	x(14)	83	86
	Denmark	64	56	53	53	62	83	64	69	69	81	88	77	75	76	86
	Estonia	66	68	61	64	65	80	74	67	71	79	87	73	77	76	86
	Finland	m	m	m	m	53	m	m	m	m	74	m	m	m	m	85
	France	54	52	48	49	53	74	64	61	63	73	87	78	71	73	85
	Germany	62	63	57	58	60	82	82	75	77	82	91	90	76	78	89
	Greece	48	57	57	57	50	60	61	52	54	59	73	72	52	56	72
	Hungary	55	57[r]	79	75	55	78	89	80	81	78	85	75	83	82	85
	Iceland	m	m	m	m	77	m	m	m	m	90	m	m	m	m	93
	Ireland	51	49	48	48	51	72	63	71	70	72	87	84	80	80	85
	Israel	47	65	73	71	52	72	79	79	79	74	88	88	84	85	87
	Italy	50	56	61	61	52	71	69	67	68	71	82	88	68	71	81
	Japan[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	84[d]
	Korea	m	m	m	m	66	m	m	m	m	73	m	m	m	m	77
	Latvia	62	53	56	53	61	74	70	58	63	73	89	84	70	77	88
	Luxembourg	52	66	65	65	60	76	71	74	74	75	89	80	86	85	86
	Mexico	65	x(4)	x(4)	63	65	71	x(9)	x(9)	64	71	80	x(14)	x(14)	75	80
	Netherlands	64	x(4)	x(4)	49	61	82	x(9)	x(9)	68	80	90	x(14)	x(14)	80	89
	New Zealand	74	69	65	67	73	85	84	77	79	83	91	90	85	86	89
	Norway	m	m	m	m	61	m	m	m	m	80	m	m	m	m	89
	Poland	42	x(4)	x(4)	c	42	70	x(9)	x(9)	76	70	88	x(14)	x(14)	79	88
	Portugal	68	76	71	73	68	82	86	74	80	82	87	92	73	83	87
	Slovak Republic	39	c	c	c	39	75	74	69	71	75	82	83	82	82	82
	Slovenia	48	58[r]	53	54	46	73	71	70	70	70	88	86	78	81	87
	Spain	55	57	58	58	56	71	68	68	68	70	82	78	70	71	81
	Sweden	74	67	56	57	67	88	80	73	75	86	93	91	77	80	89
	Switzerland	66	71	67	68	67	83	81	78	79	82	92	88	81	82	88
	Turkey	m	m	m	m	52	m	m	m	m	63	m	m	m	m	75
	United Kingdom[3]	m	m	m	m	63	m	m	m	m	81	m	m	m	m	85
	United States	46	68	66	66	56	69	77	73	74	70	83	82	76	78	82
	OECD average	57	60	60	60	58	76	74	71	72	76	86	84	76	78	85
	EU22 average	55	58	57	57	55	76	73	68	71	76	86	82	75	77	85
Partners	Argentina	m	m	m	m	65	m	m	m	m	74	m	m	m	m	85
	Brazil[1]	m	m	m	m	65	m	m	m	m	74	m	m	m	m	83
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	72	m	m	m	m	75	m	m	m	m	83
	Costa Rica	63	x(4)	x(4)	69	64	69	x(9)	x(9)	67	69	81	x(14)	x(14)	74	81
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	73	m	m	m	m	74	m	m	m	m	85
	Lithuania	46	c	c	c	52	74	c	66	67	73	91	c	80	81	91
	Russian Federation[4]	m	m	m	m	51	m	m	m	m	72	m	m	m	m	81
	Saudi Arabia[5]	m	m	m	m	60	m	m	m	m	65	m	m	m	m	75
	South Africa	m	m	m	m	43	m	m	m	m	58	m	m	m	m	85
	G20 average	m	m	m	m	m	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 2015.

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 (17% of adults aged 25-64 are in this group).

4. Year of reference 2016.

5. Year of reference 2014.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

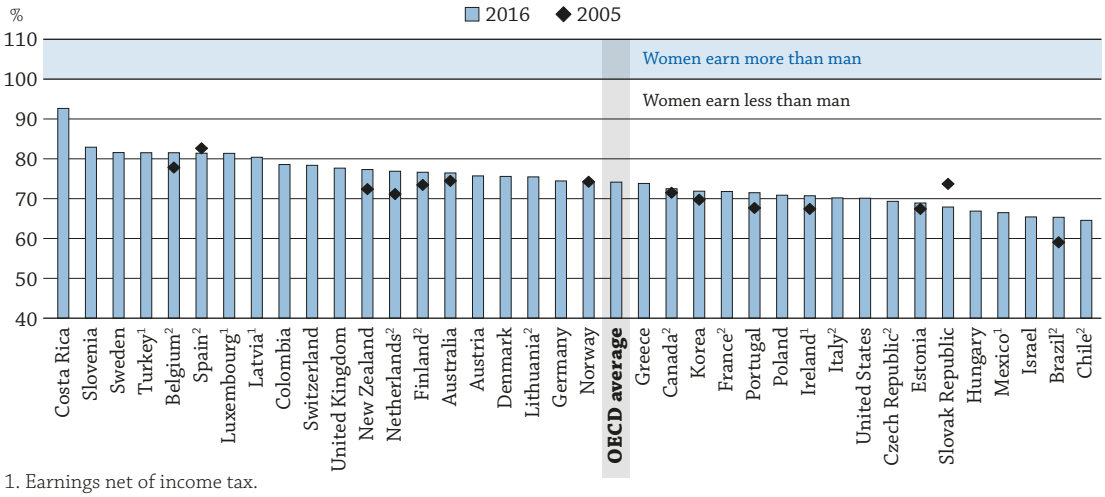
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WHAT ARE THE EARNINGS ADVANTAGES FROM EDUCATION?

- On average across OECD countries, 25-64 year-old adults with a tertiary degree earn 54% more than those with only upper secondary education, while those with below upper secondary education earn 22% less.
- Across all levels of educational attainment, the gender gap in earnings persists, and a large gender gap in earnings is seen between male and female full-time workers with tertiary education: across OECD countries, tertiary-educated women earn only 74% as much as tertiary-educated men.
- Countries with a lower share of people with low educational attainment tend to enjoy lower income inequality. Income inequality is largest in countries with a high share of people without upper secondary education, such as Brazil, Costa Rica and Mexico, and smallest in countries with a low share of people without upper secondary education, such as the Czech Republic and the Slovak Republic.

Figure A4.1. Trends in women's earnings as a percentage of men's earnings for full-time workers with tertiary education (2005, 2016)

25-64 year-old full-time workers



1. Earnings net of income tax.
2. Year of reference differs from 2016. Refer to the source table for details.

Countries are ranked in descending order of the earnings of 25-64 year-old women as a percentage of men's earnings in 2016.

Source: OECD (2018), Table 4.3 and Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Higher levels of education usually translate into better employment opportunities (see Indicator A3) and higher earnings. While people with higher qualifications are generally better placed to see their earnings strongly increase over time, those without upper secondary education (who usually have lower earnings at the start of their career) tend to see only a slight increase of their earnings with age (see Indicator A6 in *Education at a Glance 2017* [OECD, 2017[1]]). Hence, the potential for higher earnings and faster earnings progression can be an important incentive for individuals to pursue education and training. It may also be one of the decisive factors in their choice of field of study at tertiary level.

A number of factors other than education also play a role in individuals' earnings. In many countries, earnings are systematically lower for women than men across all levels of educational attainment. This may be related to gender differences in the sectors where they work and the types of occupation (OECD, 2016[2]). Variations in earnings also reflect other factors, 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. In some countries, earnings vary little, while in other countries there are large earnings disparities, leading to wide inequalities.

With the recent increase in migration flows to OECD countries, the labour-market situation of foreign-born adults stimulates the public debate. According to the *International Migration Outlook 2017* (OECD, 2017[3]), 13% of the total population in OECD countries are foreign-born. The size and the characteristics of this group vary across countries, and it is important to analyse these elements to better understand the composition of a country's population. Data from the *International Migration Outlook 2017* show that in 2015, 11% of the permanent migration flow was under the work category, 33% under the free-movement category, 32% under the family category and 13% under the humanitarian category. *Migration Policy Debates* (OECD, 2014[4]) shows that there is evidence of the positive social and economic returns to migration. Overall, foreign-born adults largely contribute to increasing the workforce, and they generally contribute more in taxes and social contributions than they receive in benefits.

Other findings

- Across countries, the likelihood of earning more than the median increases with educational attainment. On average across OECD countries, 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 one out of four adults without upper secondary education do so.
- In most of countries with available data, the gender gap between the earnings of men and women with tertiary education working full time has decreased between 2005 and 2016. The decrease is 5 or more percentage points in Brazil, the Netherlands and New Zealand.
- In Belgium, Chile, Colombia, France, Germany, Luxembourg, Slovenia, Switzerland and the United States, the earnings of foreign-born workers with tertiary education are at the same level or even higher than the earnings of their native-born peers.

A4

Analysis

Differences in earnings between women and men, by educational attainment

Women do not earn as much as men in any OECD and partner countries. Across OECD countries, tertiary-educated women working full time earn only 74% of the earnings of tertiary-educated men. This gender gap of 26% in earnings is slightly higher than the gap for adults with below upper secondary and for adults with upper secondary or post-secondary non-tertiary education (both 22%) (Figure A4.1 and Table A4.1).

There is a high variation in the earnings level of women working full time compared to that of men. Tertiary-educated women earn 65% of men's earnings in Brazil, Chile, and Israel and 80% or more in Belgium, Costa Rica, Latvia, Luxembourg, Slovenia, Spain, Sweden and Turkey. Costa Rica is the country where the earning of tertiary-educated women are closest to men's earnings, but they are still 7% lower (Figure A4.1).

As women are more likely to work part time than men, the gender gap in the average earnings of workers (including full-time and part-time earners) is even larger (OECD, 2016[5]). Across OECD countries, 24% of women aged 25-64 and 17% of men in the same age group work part time or part year (OECD, 2018[6]). On average, among those with tertiary education, female workers in full-time or part-time work earn only 68% of the earnings of tertiary-educated men across OECD countries. The gender gap among women with an upper secondary education or those with below upper secondary education is about the same as among those with tertiary education (both around 68% [OECD, 2018[6]]).

Reasons for the gender gap include gender stereotyping, social conventions and discrimination against women (OECD, 2017[7]), but also differences between men and women in the 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 science, mathematics and computing, while a higher share of women enrol in fields associated with lower earnings, including teacher training and education science, and humanities, languages and arts (see Indicator A6 in *Education at a Glance 2016*, [OECD, 2016[5]]). Other reasons may relate to difficulties in combining a professional career with household and family responsibilities. To manage these different commitments, women are more likely to seek less competitive career paths and greater flexibility at work, leading to lower earnings than men with the same educational attainment (OECD, 2016[2]).

In recent years, awareness of the differences in pay of men and women has increased. 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[7]). In most of the countries with available data, the gender gap between the earnings of men and women with tertiary education has decreased between 2005 and 2016 (Figure A4.1).

Relative earnings, by educational attainment

On average across OECD countries, adults (age 25-64) without upper secondary education earn about 20% less for part-time or full-time employment than those with upper secondary education, while those with a tertiary degree have an earnings advantage of about 55% (Table A4.1).

The relative earnings disadvantages for adults without an upper secondary qualification are generally smaller than the earnings advantages of the tertiary-educated. In Austria, Brazil, Chile, Mexico and the Slovak Republic, adults without upper secondary education earn about 35% less for part-time or full-time work than adults with upper secondary education. The earnings disadvantage represents about 40% for those without an upper secondary qualification in Brazil and Mexico (the highest earnings disadvantage across OECD and partner countries), but 15% or less in Australia, Estonia, Finland, Latvia, Lithuania and New Zealand (Table A4.1).

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 largest in Brazil, where adults with a tertiary education earn 150% more than adults with an upper secondary education. In Chile, Colombia, Costa Rica, Hungary and Mexico, tertiary-educated adults earn about twice as much as their peers with lower educational attainment (Table A4.1). 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 partly explains the large earnings advantage of tertiary-educated workers (see Indicator A6 in *Education at a Glance 2017* [OECD, 2017[1]]).

In some countries, the relative earnings are below the OECD average even though the share of tertiary-educated people is large (see Indicator A1). For example, in Australia, Denmark, Estonia, New Zealand and Norway, where

about 40% of adults are tertiary-educated, the earnings advantage from a tertiary degree is only about 30%, and in Sweden, with a similar share of tertiary-educated people, it is just 15% (Table A4.1). However, tertiary-educated people have among the highest employment rates in these countries (see Indicator A3).

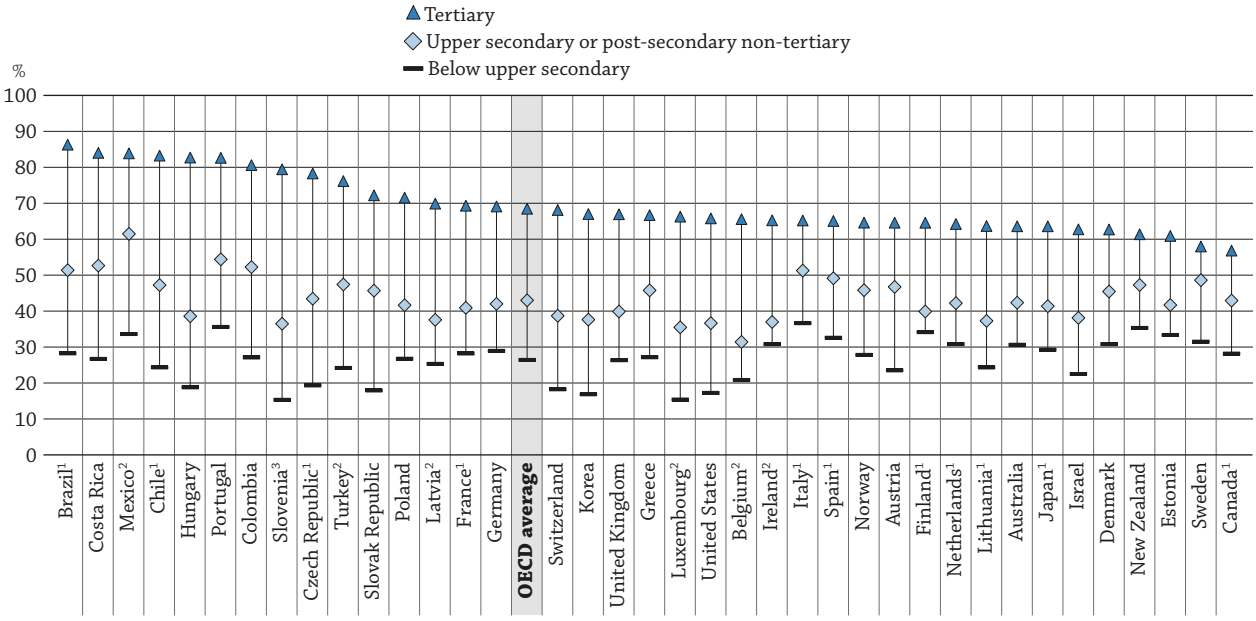
Distribution of earnings, by educational attainment

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 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. In Brazil, Chile, Colombia, Costa Rica, Hungary, Mexico and Portugal, more than 80% of tertiary-educated adults earn more than the median. With the exception of Colombia, Hungary and Portugal, most of these adults earn more than twice the median. The strongly skewed earnings distribution signals income inequality, which may affect the social cohesion of communities (Figure A4.2 and Table A4.2, and see the section below on income inequality and the share of adults without upper secondary education).

Figure A4.2. Percentage of adults earning more than the median, by educational attainment (2016)

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



1. Year of reference differs from 2016. Refer to the source table for details.
2. Earnings net of income tax.
3. Data refer to full-time, full-year earners only.

Countries are ranked in descending order of the percentage of 25-64 year-olds with tertiary education earning more than the median.

Source: OECD (2018), Table A4.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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In contrast, on average across OECD countries, only 26% of adults without upper secondary education earn more than the median. In Italy, New Zealand and Portugal, at least 35% of adults without upper secondary education earn more than the median earnings. The share of workers without upper secondary education earning more than twice the median is only 3% on average across OECD countries. However, in Brazil, Canada, Estonia, Mexico, Portugal and Spain, 5% or more of workers without upper secondary education reach this earnings level, suggesting that factors other than educational attainment play an important role in high remuneration in these countries (Figure A4.2 and Table A4.2).

A4

Among adults with upper secondary or post-secondary non-tertiary education, the shares of those earning more than the median earnings in a country are between the shares for those with tertiary and below upper secondary education. On average, 43% of adults with upper secondary or post-secondary non-tertiary education earn more than the median earnings across OECD countries. In Brazil, Costa Rica, Colombia, Italy, Mexico and Portugal, the share exceeds 50%. In most of these countries, the share of adults without upper secondary education is more than double the OECD average of 15%, which partly explains the higher share of workers with above-median earnings (Figure A4.2 and see Table A1.2).

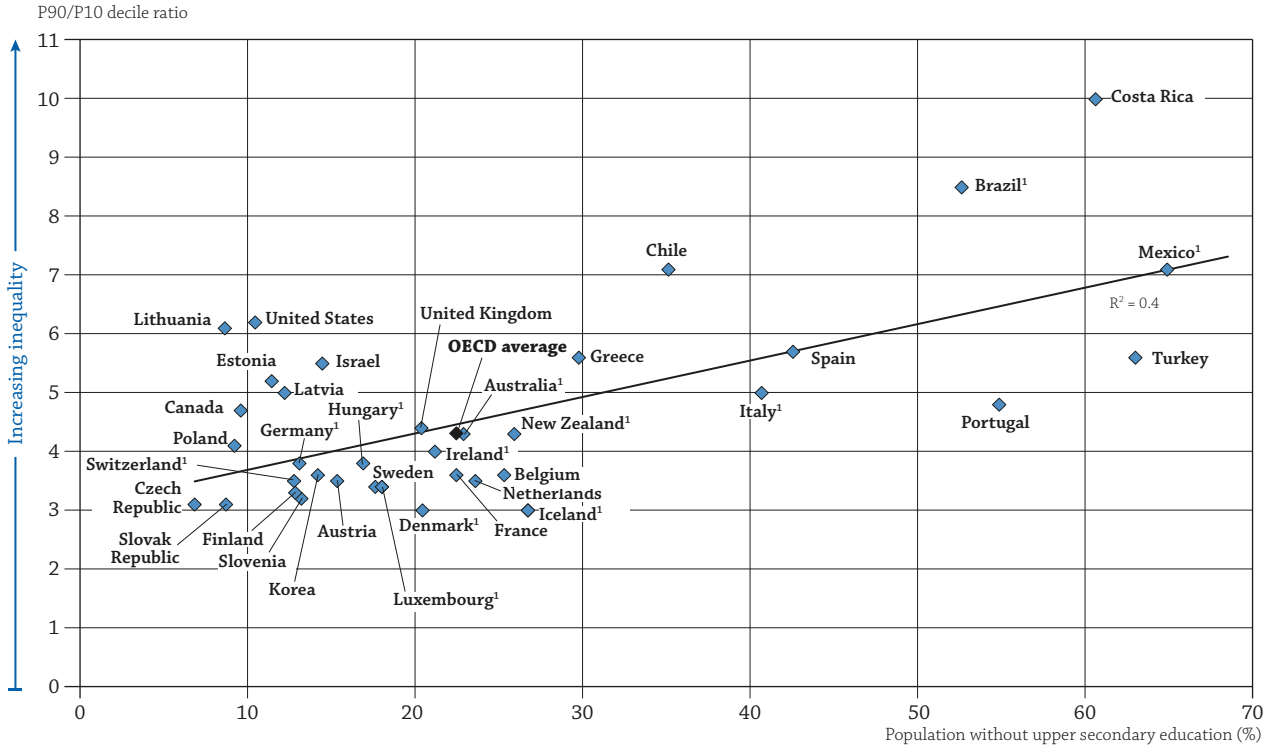
Income inequality and the share of adults without upper secondary education

Over the past few decades, income inequality has risen in OECD countries. Rising income inequality has a significant impact on economic growth, as it reduces the capacity of the poorer population to invest in their own skills and education. More equal societies tend to be able to provide better education opportunities to their population and cultivate the conditions for inclusive economic growth (OECD, 2015[8]).

One common approach to measure income inequality is the ratio of the disposable income of the 90th decile to the 10th decile of the population aged 18-65 (the P90/P10 decile ratio). As shown in Figure A4.3, in Costa Rica, the per capita income of an individual at the top decile of the income distribution is ten times higher than that of an individual at the bottom decile, indicated by a P90/P10 ratio of 10. In terms of income inequality, Costa Rica is followed by Brazil, Chile, Estonia, Greece, Israel, Lithuania, Mexico, Spain, Turkey and the United States, where the P90/P10 ratio exceeds 5. The lowest income inequality can be found in the Czech Republic, Denmark, Iceland and the Slovak Republic (P90/P10 ratio of 3) (Figure A4.3 and [OECD, 2018[9]]).

Figure A4.3. Percentage of 25-64 year-olds without upper secondary education and income inequality (2015)

Income inequality measured as the P90/P10 decile ratio



Note: The P90/P10 decile ratio is the ratio of the upper bound value of the ninth decile (i.e. the 10% of people with highest income) to that of the upper bound value of the first decile. The income distribution is measured with regard to the disposable income of the population aged 18-65.
1. Year of reference 2014.

Source: OECD (2018), Education at a Glance Database and OECD Income Distribution database (IDD), http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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When comparing P90/P10 decile income ratios across OECD and partner countries with the shares of adults without upper secondary education in their population, it seems that countries with a lower share of people without upper secondary education tend to enjoy lower income inequality. Income inequality is largest in countries with a high share of people without upper secondary education, such as Brazil, Costa Rica and Mexico, and lowest in countries with a small share of people without upper secondary education, such as the Czech Republic and the Slovak Republic. Although Figure A.4.3 suggests a relatively strong linear relationship, this correlation weakens when removing Brazil and Costa Rica, the countries with the largest income inequality (Figure A4.3).

Differences in earnings between native-born and foreign-born workers, by educational attainment

Foreign-born adults have more difficulty finding a job than their native-born peers, as they face various problems, such as recognition of credentials obtained abroad, lack of skills needed, language difficulties or discrimination when looking for work. Therefore, foreign-born workers (full-time workers) are more likely to accept any job they can get, which affects their level of earnings compared to their native-born peers (OECD, 2017[3]) (FRA, 2017[10]).

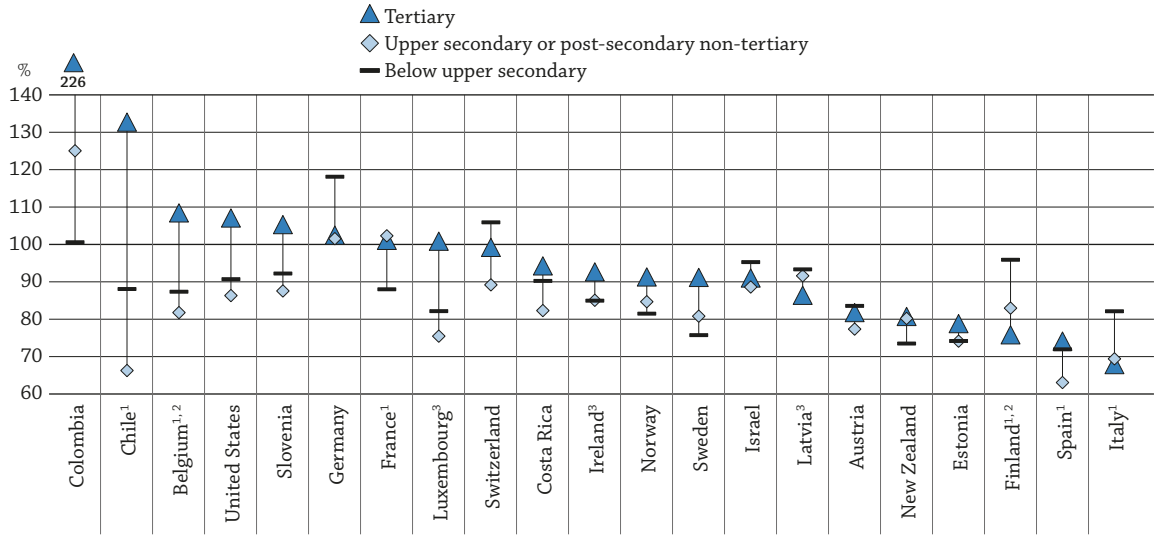
In most OECD and partner countries, earnings of foreign-born adults working full time are lower than those of their native-born peers, across educational attainment levels.

In many countries, foreign-born workers with below upper secondary education earn less than their native-born peers. This is especially true in Estonia, New Zealand, Spain and Sweden, where the earnings gap is about 20% or more. The exceptions, where foreign-born workers without upper secondary education earn more than native-born peers, are Germany (18%) and Switzerland (6%) (Figure A4.4).

Foreign-born workers with upper secondary or post-secondary education also face a disadvantage in earnings compared to native-born workers. The earnings gap between foreign-born and native-born workers with upper secondary or post-secondary education is 30 or more percentage points in Chile, Italy and Spain. In contrast, in France and Germany, earnings of foreign-born workers with upper secondary or post-secondary non-tertiary education are similar to those of native-born workers with the same educational attainment, and in Colombia, foreign-born workers earn about 25% more than their native-born peers (Figure A4.4).

Figure A4.4. Earnings of foreign-born workers as a percentage of earnings of native-born full-time workers, by educational attainment (2016)

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



1. Year of reference differs from 2016. Refer to the source table for details.
2. Data refer to full-time and part-time workers.
3. Earnings net of income tax.

Countries are ranked in descending order of the earnings of tertiary-educated foreign-born workers as a percentage of earnings of tertiary-educated native-born workers.

Source: OECD (2018), Table A4.4. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802323

In Belgium, Chile, Colombia, France, Germany, Luxembourg, Slovenia, Switzerland and the United States, the earnings of foreign-born workers with tertiary education are at the same level or even higher than the earnings of their native-born peers. In Chile, foreign-born workers with tertiary education earn 30% more than native-born tertiary-educated adults, and in Colombia, the earnings advantage increases to about 125%. In contrast, in Estonia, Finland, Italy and Spain, foreign-born workers with tertiary education earn less than 80% of the earnings of their native-born peers (Figure A4.4).

There is a high variation in the earnings differences between native-born and foreign-born workers across countries and educational attainment levels. In Belgium, Chile, Colombia, Finland and the United States the earnings gap between educational attainment levels exceeds 20 percentage points. On the other hand, in Austria and Estonia, the difference in the earnings gap between foreign-born and native-born workers across educational attainment levels is low (less than 7 percentage points, Figure A4.4).

Box A4.1. Qualification match or mismatch and earnings

Based on data from the Survey of Adult Skills (PIAAC) (see *Source* section at the end of this indicator), this box explores the relationship between overqualification and underqualification and earnings. It complements Box A3.1 on qualification match or mismatch among workers, as it provides details on how qualification match or mismatch relates to earnings (see Indicator A3).

Earnings appear more closely related to job levels than to educational attainment (i.e. those working in a job requiring a tertiary degree earn similar wages independently of whether they are underqualified or well matched, but those with a tertiary degree working in a job requiring much lower qualification earn much less than well-matched workers). As shown in Figure A4.a, individuals with a qualification of upper secondary education (ISCED-97 level 3) or below working in a job needing a qualification of tertiary-type A or advanced research programmes (ISCED 5A or 6 degree) (i.e. underqualified workers) have a median earning of about USD 19 per hour, similar to well-matched workers in those jobs. In most countries no statistically significant differences can be observed between these two groups. Those holding an ISCED 5A or 6 degree working in a job needing ISCED level 3 or below (i.e. overqualified workers) have a median earning of about USD 11 per hour (Figure A4.a). The reasons for the qualification mismatch can vary across and within countries, but Box A3.1 demonstrates that those who are overqualified are likely to have lower numeracy skills. Overqualified people may be working in a job requiring lower skills than their education attainment level because they have not been able demonstrate sufficient skills to get a job at the level of their qualification (see Indicator A3).

There are differences across countries, but the patterns are fairly consistent. The largest gaps in median hourly earnings (over USD 10 per hour) between well-matched and overqualified workers are observed in Canada, Denmark, Germany, Ireland and the United States. The difference is particularly high in Canada (about USD 15 per hour), where workers with a degree at ISCED level 5A or 6 working in a job needing ISCED 3 or below earn less than half the median hourly earnings of those who are in a well-matched situation (Figure A4.a).

In contrast, in the Czech Republic, the difference in earnings between well-matched, overqualified and underqualified workers is not statistically significant. Earnings are generally low in the Czech Republic, Estonia, Greece and Turkey, but despite this low earnings level, overqualified workers are also likely to earn about half the earnings of well-matched workers. For example, in Turkey, well-matched workers with a degree at ISCED level 5A or 6 have median earnings of about USD 11 per hour, while those holding an ISCED 5A or 6 degree working in a job needing ISCED level 3 or below have median earnings of about USD 4 per hour. However, this is a limited issue, as the share of overqualified workers in Turkey (9%) is well below the average across countries that participated in the Survey of Adult Skills (PIAAC) (15%) (Figure A4.a and Table A3.a, available on line).

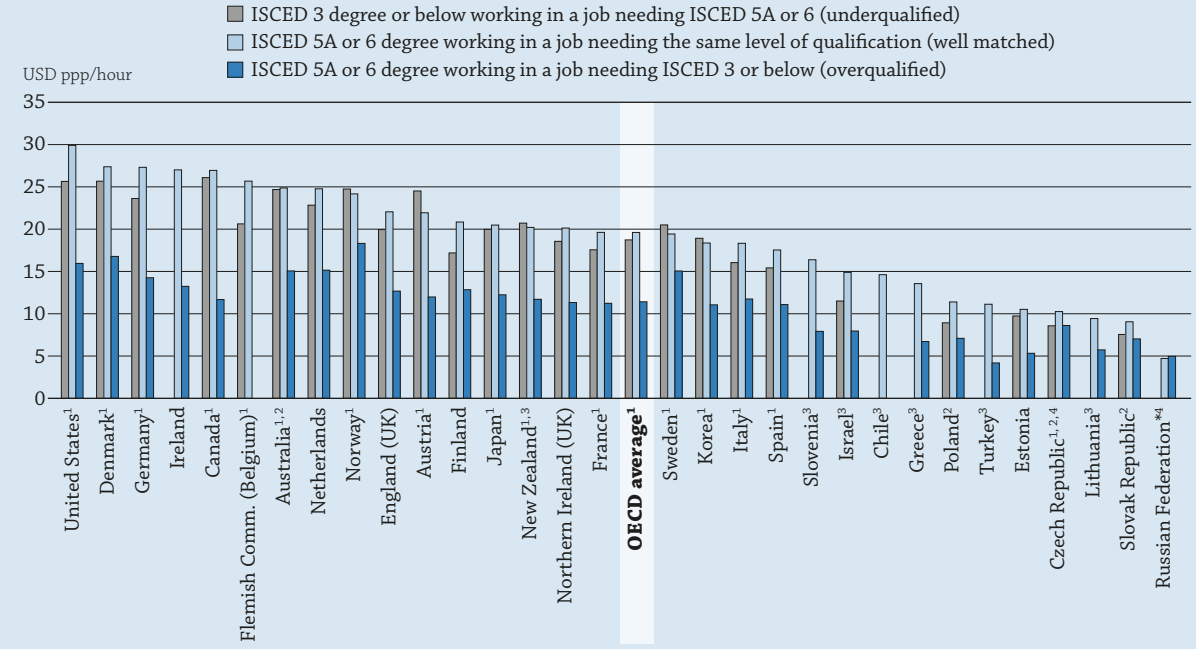
Data show that workers have to demonstrate skills commensurate with their formal level of qualification for employers to offer a salary they would expect with that level of qualification. The importance of skills is shown, in contrast, when underqualified workers have earnings surpassing their formal qualification,

...

as employers recognise their actual skills rather than their formal qualifications. It is, therefore, important to assess the mismatch situation more closely, especially for the overqualified population who invested in their human capital and for whom society invested in their education, without fully developing skills rewarded in the labour market.

Figure A4.a. Median hourly earnings, by selected qualification match or mismatch among workers (2012 or 2015)

Survey of Adult Skills (PIAAC), employed 25-64 year-olds, median hourly earnings in equivalent 2012 USD converted using PPPs for private consumption



Note: Some data points are not displayed because there are too few observations to provide a reliable estimate. Data from the Survey of Adult Skills (PIAAC) are based on ISCED-97. See *Definitions*, *Methodology* and *Source* sections for more information.

1. The earnings difference between well-matched and underqualified workers is not statistically significant at 5%.
2. The earnings difference between overqualified and underqualified workers is not statistically significant at 5%.
3. Reference year is 2015; for all other countries and economies the reference year is 2012.
4. The earnings difference between well-matched and overqualified workers is not statistically significant at 5%.

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

Countries are ranked in descending order of the median hourly earnings of the population reporting that their educational attainment matches the attainment level needed for their job (well matched).

Source: OECD (2018), Table A.4a, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Definitions

Adults refer to 25-64 year-olds.

Educational attainment refers to the highest level of education attained 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) in Box A4.1. See Indicator A3 for the definition of the different education levels based on ISCED-97.

Qualification match/mismatch: See Indicator A3 for this definition.

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Methodology

The analysis of relative earnings of the population with specific educational attainment (Table A4.1) includes full-time and part-time workers. The analysis of differences in earnings between men and women (Table A4.3) and the analysis of differences in earnings between native-born and foreign-born workers (Table A4.4) include full-time workers only. The analysis 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. For the definition of full-time earnings, countries were asked whether they had applied a self-designated full-time status or a threshold value of 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.

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[11]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

For the methodology used in Box A4.1 please see the *Methodology* section in Indicator A7.

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

The indicator is based on the data collection on education and earnings by the OECD LSO (Labour Market and Social Outcomes of Learning) Network. The data collection takes account of earnings for individuals working full time 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), European Union Statistics on Income and Living Conditions (EU-SILC) or other dedicated surveys collecting data on earnings. About one fourth of countries use data from tax or other registers.

Data used in Box A4.1 are based on the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]).

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.

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 [12]).

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Indicator A4 Tables

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Table A4.1	**Relative earnings of workers, by educational attainment (2016)**
Table A4.2	**Level of earnings relative to median earnings, by educational attainment (2016)**
Table A4.3	**Differences in earnings between female and male full-time workers, by educational attainment and age group (2016)**
Table A4.4	**Differences in earnings between native- and foreign-born full-time workers, by educational attainment and age group (2016)**

Cut-off date for the data: 18 July 2018. 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 A4.1. Relative earnings of workers, by educational attainment (2016)

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	Australia	87	101	107	135	152	131
	Austria	69	112	133	93	174	146
	Belgium[1]	82	c	c	126	165	141
	Canada[1]	83	126	121	152	186	144
	Chile[1]	68	a	142	264	472	237
	Czech Republic[1, 2]	74	m	112	142	180	169
	Denmark	80	136	116	111	166	129
	Estonia	89	89	90	124	139	127
	Finland[1]	98	118	124	125	169	141
	France[3]	80	c	125	142	210	155
	Germany	76	114	151	165	183	169
	Greece	77	99	145	133	174	140
	Hungary	76	98	110	172	234	194
	Iceland	m	m	m	m	m	m
	Ireland[4]	80	91	129	167	208	168
	Israel	77	a	115	149	216	159
	Italy[3]	78	m	x(5)	x(5)	138[d]	138
	Japan[5]	78	x(6)	x(6)	x(6)	x(6)	152[d]
	Korea	72	a	116	149	198	145
	Latvia[4]	89	97	118	136	166	145
	Luxembourg[4]	77	c	122	139	159	148
	Mexico[4]	59	a	133	192	303	195
	Netherlands[3]	82	124	132	132	184	150
	New Zealand	87	108	114	130	154	132
	Norway	76	102	118	114	156	127
	Poland	83	100	m	139	161	156
	Portugal	75	103	166	170[d]	x(4)	169
	Slovak Republic[2]	65	m	123	124	174	168
	Slovenia	m	m	m	m	m	m
	Spain[1]	73	101[r]	x(6)	x(6)	x(6)	151
	Sweden	82	109	98	105	135	115
	Switzerland[2]	78	m	x(4, 5)	141[d]	167[d]	155
	Turkey[4]	72	a	x(6)	x(6)	x(6)	171
	United Kingdom	76	a	125	148	172	150
	United States[2]	74	m	112	169	233	175
	OECD average	78	m	123	144	191	154
	EU22 average	79	107	125	136	173	151
Partners	Argentina	m	m	m	m	m	m
	Brazil[1, 2]	62	m	x(4)	235[d]	449	249
	China	m	m	m	m	m	m
	Colombia[2]	67	m	m	m	m	236
	Costa Rica	69	c	119	207	337	203
	India	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m
	Lithuania[3]	86	113	a	155	213	179
	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 2015.
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 2014.
4. Earnings net of income tax.
5. Year of reference 2012.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table A4.2. Level of earnings relative to median earnings, by educational attainment (2016)

Median earnings from work for the 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	Australia	13	57	22	4	4	8	50	29	8	6	5	31	36	14	14
	Austria	37	39	18	4	1	21	32	29	11	7	16	19	24	17	23
	Belgium[1]	12	68	20	1	0	6	63	29	2	0	2	33	49	12	4
	Canada[2]	38	34	16	6	6	28	29	21	11	11	21	22	21	15	21
	Chile[2]	23	53	16	5	3	11	41	24	12	11	3	14	17	17	50
	Czech Republic[2]	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	23	38	14	11
	Estonia	19	48	20	6	7	13	46	26	7	9	8	31	30	13	18
	Finland[2]	29	37	25	6	3	22	38	30	7	3	14	22	33	17	15
	France[3]	34	37	20	5	3	21	38	27	8	5	11	20	32	18	19
	Germany	41	30	19	7	2	22	36	28	10	4	13	18	26	19	24
	Greece	30	43	19	5	4	19	35	31	9	6	11	22	33	18	15
	Hungary	2	79	15	3	1	0	61	24	9	6	0	17	28	22	32
	Iceland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Ireland[1]	41	28	20	6	4	30	33	21	9	7	15	20	21	19	26
	Israel	28	50	14	4	4	17	45	21	8	9	11	26	20	15	28
	Italy[3]	31	32	24	8	4	19	30	30	12	10	16	19	27	16	22
	Japan[4]	37	33	18	7	4	29	29	19	12	11	17	20	21	16	27
	Korea	27	56	13	3	1	14	48	23	8	6	6	27	29	17	21
	Latvia[1]	9	66	18	5	2	6	57	26	8	3	2	28	35	19	16
	Luxembourg[1]	20	65	11	4	1	12	52	20	12	3	3	30	30	21	16
	Mexico[1]	29	38	21	8	6	12	26	25	15	21	5	11	15	17	52
	Netherlands[3]	33	36	24	5	2	22	35	28	10	5	15	21	26	18	20
	New Zealand	23	42	23	8	4	19	34	27	12	8	13	25	27	17	17
	Norway	31	41	21	5	2	16	38	32	9	5	12	23	39	14	12
	Poland	0	73	20	5	2	0	58	28	9	5	0	28	34	17	20
	Portugal	9	55	24	6	5	6	40	29	11	15	3	14	22	20	41
	Slovak Republic	37	45	13	3	1	18	36	28	11	6	12	16	28	19	26
	Slovenia[5]	0	85	14	1	0	0	64	28	6	2	0	21	32	25	22
	Spain[2]	37	31	20	8	5	24	26	22	14	13	17	18	17	15	33
	Sweden	19	49	26	4	2	11	40	34	10	4	15	27	36	12	10
	Switzerland	32	50	17	1	1	22	39	30	6	2	10	22	34	19	15
	Turkey[1]	33	43	18	5	2	17	35	26	13	8	11	13	15	27	35
	United Kingdom	28	46	20	5	2	21	39	25	9	5	10	23	28	18	20
	United States	42	40	11	3	3	26	37	20	9	8	13	21	23	15	28
	OECD average	26	48	19	5	3	16	41	27	9	7	10	22	28	17	23
	EU22 average	24	50	20	5	2	15	43	28	9	6	9	22	30	18	21
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil[2]	29	42	15	6	7	9	40	22	12	18	2	12	13	13	60
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	38	35	20	4	3	19	28	32	10	10	7	13	21	13	47
	Costa Rica	23	51	20	4	3	11	37	29	13	11	3	13	19	16	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
	Lithuania[3]	31	44	13	8	3	20	43	19	11	7	15	22	20	17	27
	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 are available at http://stats.oecd.org/, Education at a Glance Database.

1. Earnings net of income tax.
2. Year of reference 2015.
3. Year of reference 2014.
4. Year of reference 2012.
5. Data refer to full-time, full-year earners only.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table A4.3. Differences in earnings between female and male full-time workers, by educational attainment and age group (2016)

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	Australia	82	81	80	77	74	70	76	79	73
	Austria	76	71	70	82	81	80	76	73	80
	Belgium[1]	c	c	c	86	89	c	82	86	c
	Canada[1]	70	73	74	69	66	72	72	76	66
	Chile[1]	78	81	74	73	72	74	65	71	59
	Czech Republic[1]	81	82	83	79	75	86	69	66	82
	Denmark	84	81	83	81	79	83	76	78	72
	Estonia	62	62	61	63	60	72	69	77	69
	Finland[1]	81	79	80	79	76	79	77	76	74
	France[2]	76	c	c	83	87	95	72	80	c
	Germany	75	c	76	84	80	89	74	83	82
	Greece	71	71	70	80	85	67	74	80	63
	Hungary	83	81	84	84	81	87	67	62	76
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland[3]	92	c	c	73	84	59	71	77	75
	Israel	66	63	54	70	67	73	65	65	66
	Italy[2]	80	75	79	79	77	77	70	67	73
	Japan	m	m	m	m	m	m	m	m	m
	Korea	70	77	66	65	68	62	72	75	74
	Latvia[3]	76	77	85	73	69	78	80	83	90
	Luxembourg[3]	83	c	c	81	c	c	81	87	c
	Mexico[3]	74	72	75	78	73	93	66	76	35
	Netherlands[2]	87	90	88	83	89	79	77	87	75
	New Zealand	80	75	85	76	75	84	77	80	73
	Norway	82	80	81	79	77	78	74	75	71
	Poland	75	73	76	80	74	87	71	69	74
	Portugal	77	77	74	74	75	68	71	76	69
	Slovak Republic	74	74	74	75	71	81	68	62	73
	Slovenia	83	81	83	87	82	95	83	81	87
	Spain[1]	78	72	89	78	70	80	81	79	82
	Sweden	90	c	93	85	84	84	82	82	77
	Switzerland	77	76	73	83	85	82	78	88	78
	Turkey[3]	67	68	c	80	77	c	82	88	c
	United Kingdom	79	73	84	74	70	73	78	79	67
	United States	74	73	87	73	68	78	70	70	71
	OECD average	78	76	78	78	76	79	74	77	73
	EU22 average	79	76	80	79	78	80	75	77	76
Partners	Argentina	m	m	m	m	m	m	m	m	m
	Brazil[1]	69	69	68	65	66	60	65	66	63
	China	m	m	m	m	m	m	m	m	m
	Colombia	78	79	75	79	76	78	79	80	69
	Costa Rica	85	92	73	78	76	c	93	97	99
	India	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m
	Lithuania[2]	79	76	73	79	76	85	75	70	80
	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 2015.
2. Year of reference 2014.
3. Earnings net of income tax.
Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
StatLink https://doi.org/10.1787/888933802228

A4

Table A4.4. Differences in earnings between native- and foreign-born full-time workers, by educational attainment and age group (2016)

Adults with income from employment (full-time workers), average annual earnings of foreign-born workers as a percentage of native-born workers' 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	Australia	m	m	m	m	m	m	m	m	m
	Austria	84	86	76	77	83	70	82	86	72
	Belgium[1]	87	m	m	82	m	m	108	m	m
	Canada	m	m	m	m	m	m	m	m	m
	Chile[2]	88	113	c	66	71	c	133	128	c
	Czech Republic	m	m	m	m	m	m	m	m	m
	Denmark	m	m	m	m	m	m	m	m	m
	Estonia	74	c	89	74	85	82	79	93	71
	Finland[1, 2]	96	99	109	83	81	85	76	79	77
	France[3]	88	c	c	102	c	c	101	c	c
	Germany	118	m	m	102	m	m	102	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[4]	85	c	c	85	72	c	93	78	c
	Israel	95	m	m	89	m	m	91	m	m
	Italy[3]	82	88	73	69	70	58	68	56	88
	Japan	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m
	Latvia[4]	93	c	116[r]	92	97	99	86	73	102
	Luxembourg[4]	82	c	c	75	c	m	101	c	m
	Mexico	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	m
	New Zealand	73	51	35	80	73	95	81	87	80
	Norway	81	80	99	85	81	100	91	96	154
	Poland	m	m	m	m	m	m	m	m	m
	Portugal	m	m	m	m	m	m	m	m	m
	Slovak Republic	m	m	m	m	m	m	m	m	m
	Slovenia	92	90	96	88	87	88	105	106	100
	Spain[2]	72	79	74[r]	63	63	62[r]	74	56	100[r]
	Sweden	76	c	c	81	73	87	91	97	87
	Switzerland	106	99[r]	116	89	90	89	99	99	99
	Turkey	m	m	m	m	m	m	m	m	m
	United Kingdom	m	m	m	m	m	m	m	m	m
	United States	91	74	118	86	85	82	107	112	92
	OECD average	m	m	m	m	m	m	m	m	m
	EU22 average	m	m	m	m	m	m	m	m	m
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
	Colombia	101	c	c	125	96[r]	c	226	161[r]	c
	Costa Rica	90	91	c	82	c	c	94	c	c
	India	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m
	Lithuania	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

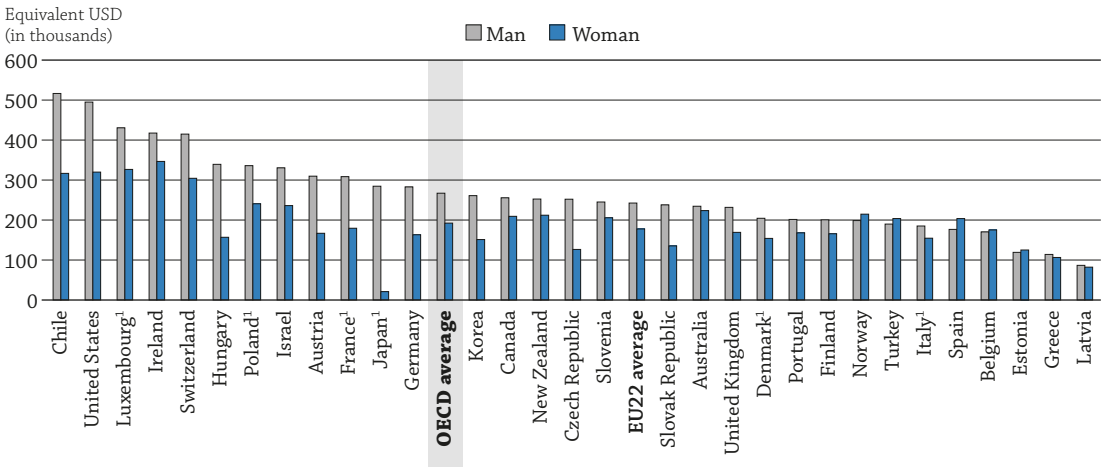
Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Earnings refer to full-time and part-time workers.
2. Year of reference 2015.
3. Year of reference 2014.
4. Earnings net of income tax.
Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
StatLink https://doi.org/10.1787/888933802247

WHAT ARE THE FINANCIAL INCENTIVES TO INVEST IN 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 through, for instance, greater tax revenues and social contributions.
- Adults who complete tertiary education benefit from substantial returns on investment, because they are more likely to be employed and to earn more than adults without tertiary education.
- Across OECD countries on average, a man invests around USD 52 500 (direct costs plus foregone earnings) to earn a tertiary degree, while a woman invests around USD 41 700. Because men tend to have higher earnings and employment rates, they also have higher total benefits over their career: USD 319 600 for men, compared to USD 234 000 for women.

Figure A5.1. Private net financial returns for a man or a woman attaining tertiary education (2015)

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. Reference year differs from 2015. Refer to the source table for more details.

Countries are ranked in descending order of private net financial returns for a man.

Source: OECD (2018), Tables A5.1a and A5.1b. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802494

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 reduced public expenditure on social welfare programmes and higher revenues earned through taxes 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 completion and access to higher education (see Indicator B7).

It is crucial for policy makers to understand the economic incentives to invest in education. For instance, large increases in labour-market demand for more highly educated workers can drive up earnings and returns until supply catches up. Such conditions signal a need for additional investment in education.

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 boosting economic growth, and social outcomes, such as higher involvement towards environmental protection (see Indicator A6).

Other findings

- In most OECD countries, the main cost for tertiary education is not direct payments, such as tuition fees and living expenses, but the earnings individuals forego while they are in school. This is true even when taking into account the fact that many students work while pursuing further education.
- Private benefits from investing in education depend on countries' tax and social benefits systems. For example, in Chile, Estonia and Korea, income taxes and social contributions amount to less than a quarter of the gross earning benefits for a man attaining tertiary education, while in Belgium, they add up to more than half of the gross earning benefits.
- For all countries with available data, the private net financial returns from obtaining a bachelor's, master's or doctoral degree are at least 40% higher 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 rate 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 degree
2) investing in upper secondary education versus entering the labour market without an upper secondary degree.

Two types of investors are considered:

1) the individual (referred to here as "private") who chooses to pursue higher levels of education and the additional net earnings and costs he or she can expect
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. Values are presented separately for men and women, to account for gender differences in earnings and unemployment rates. The direct costs to 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.

A5

Analysis

Financial incentives for individuals to invest in tertiary education

Figure A5.1 shows that, 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 returns from tertiary education for a man are USD 267 100. Although young women tend to complete higher education more often than young men (see Indicator A1), women tend to have lower relative net financial returns to investing in tertiary education than men. For a woman, on average, net financial returns from tertiary education are USD 192 300, representing less than three-quarters of those for a man (Figure A5.1).

The private financial returns from tertiary education are higher for men than for women in all OECD countries with available data, with the exception of Belgium, Estonia, Norway, Spain and Turkey. Women in these countries still faced lower earnings and employment rates than men in 2016, but the gain from a tertiary degree, as compared to attaining only upper secondary, is higher for women than for men. This means that, in these countries, the gap between earnings and employment by level of educational attainment is higher 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 higher 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. Japan has the largest gender difference, with net financial returns for a tertiary-educated man about 13 times higher than for a woman with a similar level of education. In Japan, the tax system and the labour-market structure tend to drive down women's returns from tertiary education. However, private net financial returns may increase for Japanese women in the future, as the current government aims to promote higher labour-market participation among women by introducing a number of specific policy measures (Cabinet Secretariat, 2016[1]) (Tables A5.1a and b).

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 the 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 14% for men and 16% 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

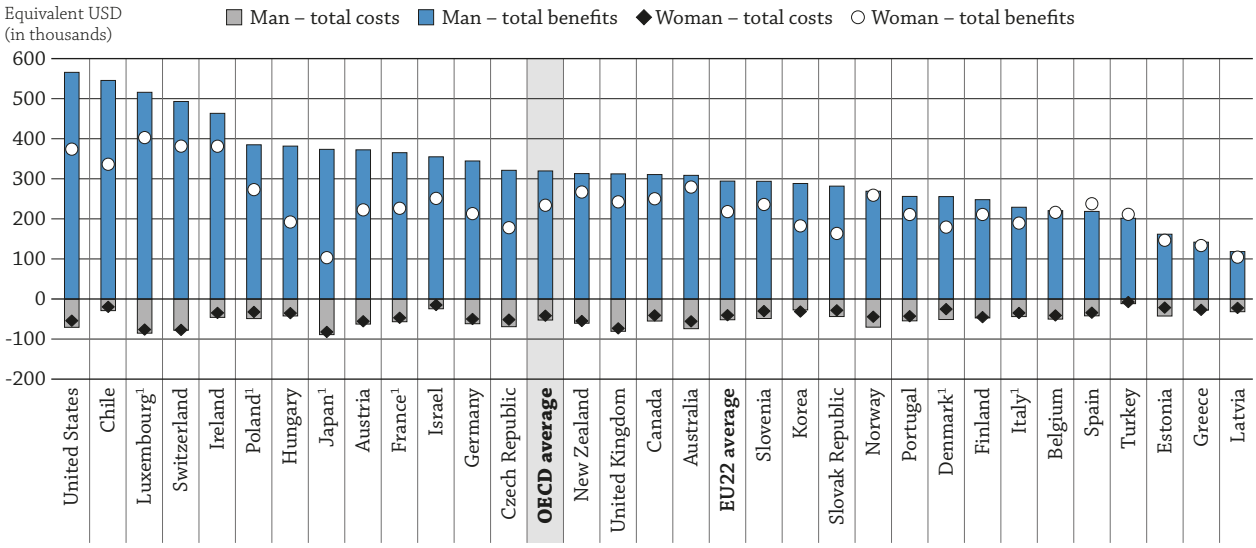
Private net financial returns are the difference between the costs and benefits associated with attaining an additional level of education. In this analysis, the costs include direct costs of attaining education and foregone earnings, while the benefits include earnings from employment and unemployment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

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 to attain tertiary education is about USD 9 000. However, in most countries, the main costs are foregone earnings, i.e. the earnings an individual could expect to receive if he/she 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 decreasing their foregone earnings and the total cost of education. Indicator A6 in *Education at a Glance 2017* (OECD, 2017[2]) shows the prevalence of student employment and the level of student earnings across OECD and partner countries.

Foregone earnings for a man while attaining tertiary education vary from USD 8 500 in Turkey to more than USD 80 000 in Luxembourg. When direct costs and foregone earnings are combined, Japan has the highest total private costs. A man or woman attaining tertiary education in Japan can expect total costs to be more than seven times higher than those in Turkey (Tables A5.1a and b).

Figure A5.2. Private costs and benefits of education for a man or a woman attaining tertiary education (2015)

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. Reference year differs from 2015. Refer to the source table for more details.

Countries are ranked in descending order of total private benefits for a man.

Source: OECD (2018), Tables A5.1a and A5.1b. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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 319 600, while the total benefit for a tertiary-educated woman is USD 234 000. This means that, over a career of 40 years, a tertiary-educated man will get about USD 2 100 more per year in total benefits (compared to a man with only upper secondary education) than a woman with the same level of education. 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 career of an individual, private benefits from investing in education also depend on countries' tax and social benefits systems (Brys and Torres, 2013[3]). For instance, in Chile, Estonia and Korea, income taxes and social contributions amount to less than a quarter of the gross earning benefits for a man attaining tertiary education, while in Belgium they add up to more than half of the gross earning benefits. As women tend to have lower earnings, they often fall into lower income tax brackets. For example, in Greece, 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

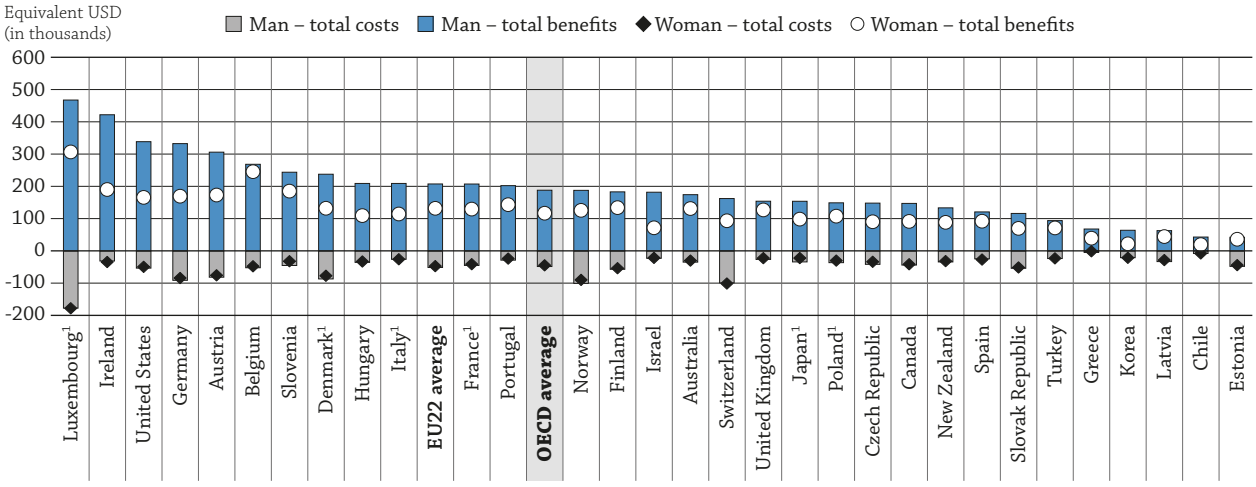
Governments are major investors in education (see Indicator C3). From a budgetary point of view, it is important to analyse if these investments will be recovered, particularly in an era of substantial fiscal constraints. Since higher levels of educational attainment tend to translate into higher earnings (see Indicator A4), investments in education generate higher public returns, because tertiary-educated adults pay higher income taxes and social contributions and require fewer social transfers. On average across OECD countries, the public net financial returns are about USD 135 600 for a man who has completed tertiary education and USD 72 100 for a woman (Tables A5.2a and b).

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. 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 the highest private returns for a man attaining tertiary education, but because it collects a smaller share of individuals' additional earnings in the form of taxes and social contributions, it has the third-lowest public returns (Tables A5.1a and A5.2a).

Figure A5.3. Public costs and benefits of education for a man or a woman attaining tertiary education (2015)

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. Reference year differs from 2015. Refer to the source table for more details.

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

Source: OECD (2018), Tables A5.2a and A5.2b. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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The costs and benefits of tertiary education for governments

Public net financial returns are based on the difference between costs and 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, social contributions, social transfers and unemployment benefits.

For governments, direct costs 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). Countries with high direct costs are also the countries with the largest total public costs, reaching over USD 100 000 for men in Luxembourg and Norway. In contrast, Chile and Greece have the lowest total public costs (less than USD 10 000 for men and women) of all OECD countries. On average across OECD countries, the total public cost to attain tertiary education is USD 48 500 for a man and USD 44 700 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 188 100 for a man with tertiary education and USD 116 800 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, in order to assure higher gains from the large investment that women make in their education. On average, the total public benefits of education for a man attaining tertiary education are about 60% larger than the total public benefits for a tertiary-educated woman. Across OECD countries, Luxembourg has the largest total public benefits of tertiary education for a man (USD 467 700) and for a woman (above USD 306 800) (Tables A5.2a and b).

The internal rate of return to governments is higher for a man (10% for tertiary and 9% for upper secondary) than for a woman with similar levels of education (8% for tertiary and 5% for upper secondary). 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 higher 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 188 100) for a tertiary-educated man can be broken down into income tax effect (USD 132 500), social contribution effect (USD 51 900), transfers effect (USD 600) and unemployment benefits effect (USD 3 100). For a tertiary-educated woman, the total public benefits (USD 116 800) can be broken down into USD 74 700 in income tax effect, USD 37 400 in social contribution effect, USD 2 700 in transfers effect and USD 2 000 in unemployment benefits effect (Tables A5.2a and b). The transfers effect for a tertiary-educated man are low on average and close to zero in most countries, because even those with only upper secondary attainment are likely to reach earnings that are high enough to not qualify for substantial social transfers from the government. For women, the transfers effect is positive in most countries and higher on average. This difference reflects the generally lower earnings of women compared to men, particularly among those without tertiary education, which makes them more likely to receive social transfers from the government.

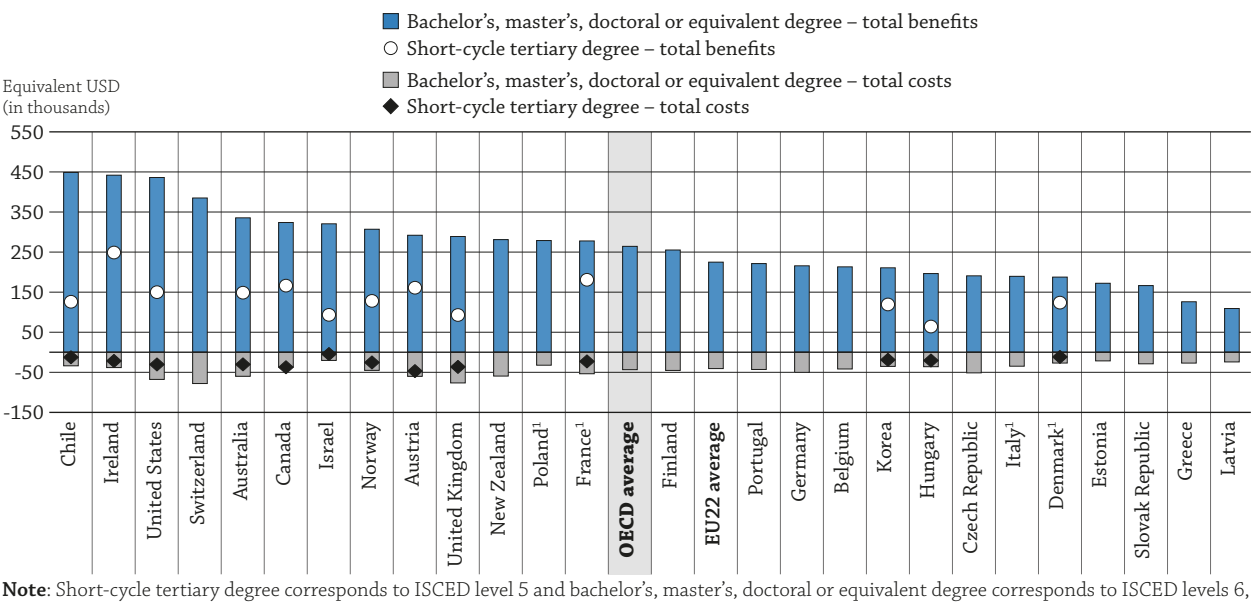
Higher taxes can sometimes deter private investment in different areas (including education), and a number of countries have tax policies that effectively lower the actual tax paid by adults, particularly by those in high-income brackets. For example, tax relief for interest payments on mortgage debt has been introduced in many OECD countries to encourage home ownership. These benefits favour those with higher levels of education and high marginal tax rates. The tax incentives for housing are particularly large in the Czech Republic, Denmark, Finland, Norway and the United States (Andrews, Caldera Sánchez and Johansson, 2011[4]).

Private and public costs and benefits by level of tertiary education

The returns for tertiary education can be broken down 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 the aggregate tertiary level (Figure A5.4).

Figure A5.4. Private costs and benefits of education for a woman attaining a short-cycle tertiary degree or a bachelor's, master's and doctoral or equivalent degree (2015)

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 2015. Refer to the source table for further details.

Countries are ranked in descending order of total private benefits for a woman with a bachelor's, master's, doctoral or equivalent degree.

Source: OECD (2018), Table A5.3b. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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For all countries with available data, the private net financial returns from obtaining a bachelor's, master's, doctoral or equivalent degree are greater than from obtaining a short-cycle tertiary degree. With the exception of Korea, this is also the case for the public net financial returns. 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 along individuals' working lives compensate for the higher initial costs (Tables A5.3a and b).

Therefore, private financial returns for the aggregate tertiary level will underestimate the value of investing in bachelor's, master's and doctoral degrees, especially in countries with a larger share of adults whose highest level of attainment is short-cycle tertiary.

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.

OECD countries that perform similar cost-benefit analysis use higher discount rates than 2%, but the rate used varies widely across countries. Table A5.a shows the discount rate used by some OECD governments to assess public investments, not necessarily education-related investments.

Table A5.a. Discount rates used by governments in national cost-benefit analysis

	Discount rate (%)
Australia	7.0
Canada	8.0
Chile	6.0
France	4.0
Germany	3.0
Ireland	5.0
Italy	5.0
New Zealand	6 to 8
Norway	3.5
United Kingdom	3.5
United States	7.0

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933802570

In order to assess the magnitude of the impact of the discount rate it is helpful to perform a sensitivity analysis. Table A5.b shows how the net present value 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 over 70% in all countries and even becomes negative in Norway. These comparisons highlight the sensitivity of the NPV results to changes in the discount rate.

...

Table A5.b. Net financial returns for a man attaining tertiary education, by discount rate (2015)

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

	Discount rate		
	2%	3.75%	8%
	(1)	(2)	(3)
Australia	234 500	132 300	22 800
Austria	309 700	166 500	25 300
Belgium	170 300	94 600	15 400
Canada	255 600	152 500	41 000
Chile	516 500	334 300	134 300
Czech Republic	252 100	145 700	29 900
Denmark	204 400	115 200	21 800
Estonia	119 200	68 400	12 500
Finland	200 600	116 900	27 500
France[1]	308 500	178 300	43 500
Germany	282 800	166 300	41 400
Greece	114 000	64 300	12 800
Hungary	339 300	221 500	85 800
Ireland	417 500	268 000	101 800
Israel	330 500	224 100	98 100
Italy[1]	185 100	93 600	4 500
Japan[2]	284 600	160 400	28 200
Korea	261 000	168 900	67 100
Latvia	86 700	52 400	13 000
Luxembourg[1]	430 600	249 100	58 800
New Zealand	252 500	151 300	42 200
Norway	198 700	98 700	- 2 400
Poland[1]	336 000	210 300	70 300
Portugal	201 500	107 300	13 300
Slovak Republic	237 900	143 400	39 500
Slovenia	245 100	141 900	33 400
Spain	176 600	100 900	22 200
Switzerland	414 900	248 500	69 500
Turkey	189 900	124 300	51 100
United Kingdom	231 700	134 800	27 700
United States	495 000	311 400	108 700
OECD average	267 100	159 552	43 903
EU22 average	242 500	147 043	36 662

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.

1. Year of reference 2014.

2. Year of reference 2012. Students' earnings are not included in the calculation of foregone earnings.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802589

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 to 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 would have had if he or she had entered the labour market and successfully found a job minus the net earnings an individual can expect to have while studying.

Foregone taxes on earnings are the additional tax revenues the government would have received if the individual had chosen to enter the labour force and successfully found a job instead of choosing to pursue 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, provided that the individual successfully enters the labour market.

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.

The **social contribution effect** is the discounted sum of additional employee social contributions paid by the private individual or received by the government over the course of a working-age life and associated with a higher level of education.

The **transfers effect** is the discounted sum of additional social transfers from the government to the private individual associated with a higher education level over the course of a working-age life. Social transfers include two types of benefits: housing benefits and social assistance.

The **unemployment benefit effect** is the discounted sum of additional unemployment benefits associated with a higher education level over the course of a working-age life and received during periods of unemployment.

Methodology

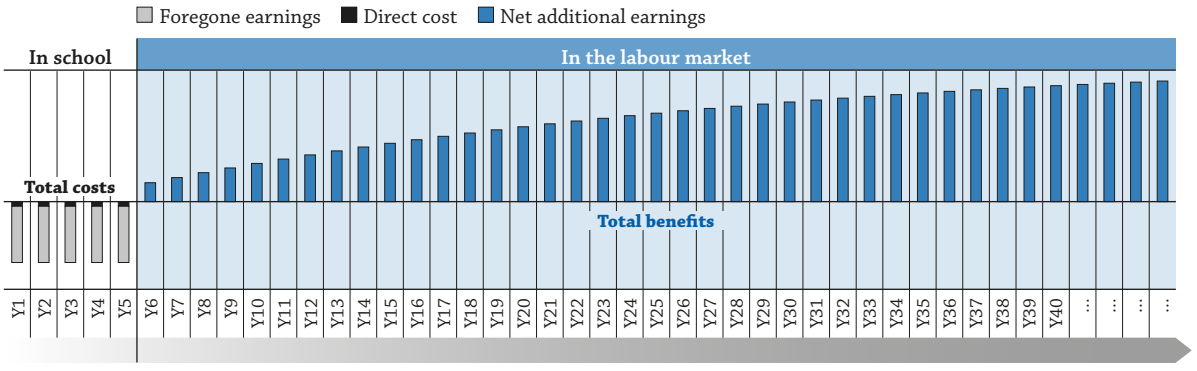
This indicator estimates the financial returns on investment in education from the age of entry into further education to a theoretical retirement age of 64. Returns to education are studied purely from the perspective of financial investment that weighs the costs and benefits of the investment.

Two periods are considered (Diagram 1):

1) time spent in school during which the private individual and the government pay the cost of education
2) time spent in the labour market 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 life-time 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 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).

Changes in the methodology between *Education at a Glance 2018* and *2017*

Three important methodological changes were introduced in this edition:

1) The current model includes student earnings in the calculation of the foregone earnings. In the previous edition, it was assumed that students did not work and did not have earnings or pay taxes. The model continues to assume that students do not receive any transfers from the government.
2) The current model takes into account the probability of individuals being inactive, by using the employment rate instead of 1 minus the unemployment rate as the probability of having earnings.
3) Pooled earnings data from three different years are used instead of the earnings from a single reference year.

In addition, the reference year for this indicator has been moved one year forward. The reference year for this edition is 2015, while the reference year for last year's edition was 2013.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[5]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

The source for the direct costs of education is the UOE data collection on finance (year of reference 2015 unless otherwise specified in the tables).

The data on gross earnings are from the OECD Network on Labour Market and Social Outcomes earnings data collection. Earnings are age-, gender- and attainment-level specific. For the calculation of this indicator, data on earnings has been pooled from three different years (2013-15). A moving average will be used for future editions.

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 2017* (OECD, 2017[6]).

Employee social contributions are computed using the OECD Taxing Wages model's scenario of a single worker of age 40 with no children. For country-specific details on employee social contributions in this model, see *Taxing Wages 2017* (OECD, 2017[6]).

Social transfers and unemployment benefits are computed using the OECD Tax-Benefit model, assuming a single worker of age 40 with no children. Individuals are considered eligible for full unemployment benefits during unemployment. For country-specific details on social transfers or unemployment benefits in the Tax-Benefit model, see OECD Benefits and Wages country-specific information, available on line at www.oecd.org/els/soc/benefits-and-wages-country-specific-information.htm.

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

StatLink https://doi.org/10.1787/888933802361

Table A5.1a Private costs and benefits for a man attaining tertiary education (2015)
Table A5.1b Private costs and benefits for a woman attaining tertiary education (2015)

Table A5.2a Public costs and benefits for a man attaining tertiary education (2015)
Table A5.2b Public costs and benefits for a woman attaining tertiary education (2015)

Table A5.3a Private/public costs and benefits for a man attaining tertiary education, by level of tertiary education (2015)
Table A5.3b Private/public costs and benefits for a woman attaining tertiary education, by level of tertiary education (2015)

WEB **Table A5.4a Private costs and benefits for a man attaining upper secondary education (2015)**
WEB **Table A5.4b Private costs and benefits for a woman attaining upper secondary education (2015)**

WEB **Table A5.5a Public costs and benefits for a man attaining upper secondary education (2015)**
WEB **Table A5.5b Public costs and benefits for a woman attaining upper secondary education (2015)**

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

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Table A5.1a. Private costs and benefits for a man attaining tertiary education (2015)

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 unemployment effect)				Unemployment benefits effect	Total benefits	Net financial returns	Internal rate of return
					Gross earnings benefits	Income tax effect	Social contribution effect	Transfers effect				
		(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)	(7)	(8)	(9)=(4)+(5)+(6)+(7)+(8)	(10)=(9)+(3)	(11)
OECD	Australia	- 31 500	- 42 600	**- 74 100**	482 900	- 171 800	0	0	- 2 500	**308 600**	**234 500**	10%
OECD	Austria	0	- 62 600	**- 62 600**	678 400	- 208 100	- 95 700	0	- 2 300	**372 300**	**309 700**	10%
	Belgium	- 1 400	- 48 800	**- 50 200**	489 000	- 187 100	- 70 300	0	- 11 100	**220 500**	**170 300**	10%
	Canada	- 20 800	- 34 200	**- 55 000**	457 800	- 125 300	- 14 900	0	- 7 000	**310 600**	**255 600**	13%
	Chile	- 10 400	- 18 600	**- 29 000**	588 400	- 13 200	- 41 200	0	11 500	**545 500**	**516 500**	31%
	Czech Republic	- 4 200	- 64 900	**- 69 100**	469 300	- 92 500	- 51 600	0	- 4 000	**321 200**	**252 100**	11%
	Denmark[1]	0	- 51 200	**- 51 200**	493 300	- 223 500	0	- 15 600	1 400	**255 600**	**204 400**	11%
	Estonia	0	- 42 500	**- 42 500**	204 000	- 37 700	- 2 800	0	- 1 800	**161 700**	**119 200**	10%
	Finland	0	- 47 300	**- 47 300**	430 900	- 152 200	- 35 100	0	4 300	**247 900**	**200 600**	12%
	France[1]	- 5 400	- 51 300	**- 56 700**	572 500	- 134 600	- 74 600	- 100	2 000	**365 200**	**308 500**	12%
	Germany	- 3 400	- 58 300	**- 61 700**	677 100	- 208 700	- 118 500	0	- 5 400	**344 500**	**282 800**	12%
	Greece	- 3 300	- 24 600	**- 27 900**	209 700	- 30 900	- 32 800	0	- 4 100	**141 900**	**114 000**	11%
	Hungary	- 9 000	- 33 300	**- 42 300**	590 700	- 94 500	- 109 300	0	- 5 300	**381 600**	**339 300**	20%
	Iceland	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Ireland	0	- 45 900	**- 45 900**	885 500	- 366 900	- 35 700	- 900	- 18 600	**463 400**	**417 500**	22%
	Israel	- 7 600	- 16 800	**- 24 400**	536 800	- 119 200	- 60 200	0	- 2 500	**354 900**	**330 500**	30%
	Italy[1]	- 8 600	- 35 300	**- 43 900**	438 100	- 161 600	- 42 500	0	- 5 000	**229 000**	**185 100**	8%
	Japan[2]	- 29 600	- 59 300	**- 88 900**	527 300	- 77 700	- 70 300	0	- 5 800	**373 500**	**284 600**	10%
	Korea	- 7 600	- 19 700	**- 27 300**	352 200	- 37 100	- 29 500	0	2 700	**288 300**	**261 000**	25%
	Latvia	- 9 200	- 22 500	**- 31 700**	181 200	- 35 800	- 19 000	0	- 8 000	**118 400**	**86 700**	11%
	Luxembourg[1]	0	- 85 300	**- 85 300**	983 600	- 344 000	- 121 100	0	- 2 600	**515 900**	**430 600**	12%
	Mexico	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Netherlands	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	New Zealand	- 18 700	- 41 800	**- 60 500**	446 400	- 131 400	0	0	- 2 000	**313 000**	**252 500**	13%
	Norway	0	- 70 300	**- 70 300**	456 700	- 147 600	- 37 500	0	- 2 600	**269 000**	**198 700**	8%
	Poland[1]	- 3 000	- 45 900	**- 48 900**	533 900	- 45 900	- 95 200	0	- 7 900	**384 900**	**336 000**	16%
	Portugal	- 8 400	- 46 100	**- 54 500**	458 300	- 157 100	- 50 400	0	5 200	**256 000**	**201 500**	9%
	Slovak Republic	- 6 500	- 37 300	**- 43 800**	397 800	- 63 200	- 53 300	0	400	**281 700**	**237 900**	13%
	Slovenia	- 500	- 48 200	**- 48 700**	537 700	- 116 200	- 118 800	0	- 8 900	**293 800**	**245 100**	12%
	Spain	- 10 500	- 31 500	**- 42 000**	339 400	- 85 000	- 21 500	0	- 14 300	**218 600**	**176 600**	11%
	Sweden	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Switzerland	- 6 600	- 71 500	**- 78 100**	655 300	- 129 800	- 40 800	0	8 300	**493 000**	**414 900**	14%
	Turkey	- 3 100	- 8 500	**- 11 600**	295 400	- 54 000	- 44 300	0	4 400	**201 500**	**189 900**	31%
	United Kingdom	- 39 500	- 41 100	**- 80 600**	466 300	- 97 400	- 52 600	- 1 000	- 3 000	**312 300**	**231 700**	11%
	United States	- 35 700	- 35 000	**- 70 700**	904 300	- 257 500	- 69 200	0	- 11 900	**565 700**	**495 000**	18%
	OECD average	- 9 200	- 43 300	**- 52 500**	507 700	- 132 500	- 51 900	- 600	- 3 100	**319 600**	**267 100**	14%
	EU22 average	- 5 600	- 46 200	**- 51 800**	501 800	- 142 100	- 60 000	- 900	- 4 500	**294 300**	**242 500**	12%

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 2014.

2. Year of reference 2012. Students' earnings are not included in the calculation of foregone earnings.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table A5.1b. Private costs and benefits for a woman attaining tertiary education (2015)

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 unemployment effect)				Unemployment benefits effect	Total benefits	Net financial returns	Internal rate of return
					Gross earnings benefits	Income tax effect	Social contribution effect	Transfers effect				
		(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)	(7)	(8)	(9)=(4)+(5)+(6)+(7)+(8)	(10)=(9)+(3)	(11)
OECD	Australia	- 31 500	- 24 300	**- 55 800**	410 700	- 125 300	0	- 100	- 5 900	**279 400**	**223 600**	14%
	Austria	0	- 55 600	**- 55 600**	395 700	- 95 600	- 75 300	0	- 2 300	**222 500**	**166 900**	9%
	Belgium	- 1 400	- 39 600	**- 41 000**	461 800	- 149 500	- 87 000	0	- 9 100	**216 200**	**175 200**	15%
	Canada	- 20 800	- 20 100	**- 40 900**	341 600	- 64 500	- 27 300	- 800	1 200	**250 200**	**209 300**	17%
	Chile	- 10 400	- 9 200	**- 19 600**	355 800	- 2 000	- 24 900	0	7 400	**336 300**	**316 700**	35%
	Czech Republic	- 4 200	- 47 300	**- 51 500**	268 300	- 50 000	- 29 500	- 4 500	- 6 300	**178 000**	**126 500**	8%
	Denmark[1]	0	- 25 300	**- 25 300**	311 600	- 120 600	0	- 6 300	- 5 300	**179 400**	**154 100**	18%
	Estonia	0	- 21 500	**- 21 500**	182 700	- 33 100	- 2 700	0	- 300	**146 600**	**125 100**	19%
	Finland	0	- 45 300	**- 45 300**	345 100	- 105 500	- 28 400	- 200	0	**211 000**	**165 700**	13%
	France[1]	- 5 400	- 41 500	**- 46 900**	356 000	- 70 200	- 49 100	- 6 200	- 4 100	**226 400**	**179 500**	13%
	Germany	- 3 400	- 46 500	**- 49 900**	382 700	- 88 400	- 78 300	- 1 000	- 1 900	**213 100**	**163 200**	10%
	Greece	- 3 300	- 23 700	**- 27 000**	172 800	- 7 300	- 26 900	0	- 5 200	**133 400**	**106 400**	12%
	Hungary	- 9 000	- 26 300	**- 35 300**	301 600	- 48 300	- 55 800	0	- 5 300	**192 200**	**156 900**	14%
	Iceland	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Ireland	0	- 34 700	**- 34 700**	571 600	- 160 400	- 24 400	- 600	- 4 900	**381 300**	**346 600**	29%
	Israel	- 7 600	- 7 400	**- 15 000**	322 700	- 42 900	- 32 200	0	3 500	**251 100**	**236 100**	35%
	Italy[1]	- 8 600	- 26 200	**- 34 800**	303 800	- 83 900	- 28 800	0	- 1 700	**189 400**	**154 600**	10%
	Japan[2]	- 29 600	- 52 600	**- 82 200**	201 700	- 16 600	- 27 600	- 50 200	- 4 100	**103 200**	**21 000**	3%
	Korea	- 7 600	- 23 700	**- 31 300**	204 400	- 7 400	- 17 100	0	2 600	**182 500**	**151 200**	19%
	Latvia	- 9 200	- 13 100	**- 22 300**	148 900	- 29 200	- 15 600	0	400	**104 500**	**82 200**	13%
	Luxembourg[1]	0	- 76 300	**- 76 300**	709 700	- 225 100	- 88 100	0	6 400	**402 900**	**326 600**	14%
	Mexico	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Netherlands	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	New Zealand	- 18 700	- 36 200	**- 54 900**	355 500	- 78 200	0	- 2 100	- 8 200	**267 000**	**212 100**	15%
	Norway	0	- 44 300	**- 44 300**	384 700	- 92 700	- 31 500	0	- 1 500	**259 000**	**214 700**	14%
	Poland[1]	- 3 000	- 29 300	**- 32 300**	380 700	- 31 000	- 67 900	0	- 8 800	**273 000**	**240 700**	19%
	Portugal	- 8 400	- 34 500	**- 42 900**	354 200	- 108 400	- 39 000	0	4 100	**210 900**	**168 000**	11%
	Slovak Republic	- 6 500	- 21 800	**- 28 300**	233 400	- 34 700	- 31 700	0	- 3 400	**163 600**	**135 300**	12%
	Slovenia	- 500	- 29 700	**- 30 200**	421 200	- 79 200	- 93 100	0	- 13 000	**235 900**	**205 700**	15%
	Spain	- 10 500	- 23 700	**- 34 200**	329 800	- 68 800	- 20 900	0	- 2 300	**237 800**	**203 600**	15%
	Sweden	m	m	**m**	m	m	m	m	m	**m**	**m**	m
	Switzerland	- 6 600	- 70 500	**- 77 100**	474 900	- 67 300	- 29 700	0	3 600	**381 500**	**304 400**	14%
	Turkey	- 3 100	- 4 500	**- 7 600**	282 500	- 39 300	- 42 400	0	10 500	**211 300**	**203 700**	41%
	United Kingdom	- 39 500	- 33 800	**- 73 300**	369 500	- 71 200	- 42 300	- 12 200	- 1 300	**242 500**	**169 200**	10%
	United States	- 35 700	- 18 400	**- 54 100**	539 900	- 118 200	- 41 300	0	- 6 400	**374 000**	**319 900**	18%
	OECD average	- 9 200	- 32 500	**- 41 700**	350 800	- 74 700	- 37 400	- 2 700	- 2 000	**234 000**	**192 300**	16%
	EU22 average	- 5 600	- 34 800	**- 40 400**	350 100	- 83 000	- 44 200	- 1 600	- 3 200	**218 100**	**177 700**	13%

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 2014.

2. Year of reference 2012. Students' earnings are not included in the calculation of foregone earnings.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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A5

Table A5.2a. Public costs and benefits for a man attaining tertiary education (2015)

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 unemployment effect)			Unemployment benefits effect	Total benefits	Net financial returns	Internal rate of return
					Income tax effect	Social contribution effect	Transfers effect				
		(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)	(7)	(8)=(4)+(5)+(6)+(7)	(9)=(8)+(3)	(10)
OECD	Australia	- 29 600	- 5 300	**- 34 900**	171 800	0	0	2 500	**174 300**	**139 400**	11%
	Austria	- 65 500	- 16 100	**- 81 600**	208 100	95 700	0	2 300	**306 100**	**224 500**	8%
	Belgium	- 52 000	- 300	**- 52 300**	187 100	70 300	0	11 100	**268 500**	**216 200**	11%
	Canada	- 40 700	- 3 300	**- 44 000**	125 300	14 900	0	7 000	**147 200**	**103 200**	8%
	Chile	- 8 700	800	**- 7 900**	13 200	41 200	0	- 11 500	**42 900**	**35 000**	10%
	Czech Republic	- 30 000	- 11 700	**- 41 700**	92 500	51 600	0	4 000	**148 100**	**106 400**	9%
	Denmark[1]	- 80 400	- 6 600	**- 87 000**	223 500	0	15 600	- 1 400	**237 700**	**150 700**	7%
	Estonia	- 42 700	- 5 300	**- 48 000**	37 700	2 800	0	1 800	**42 300**	**- 5 700**	1%
	Finland	- 75 100	18 000	**- 57 100**	152 200	35 100	0	- 4 300	**183 000**	**125 900**	8%
	France[1]	- 51 700	6 600	**- 45 100**	134 600	74 600	100	- 2 000	**207 300**	**162 200**	10%
	Germany	- 68 700	- 22 600	**- 91 300**	208 700	118 500	0	5 400	**332 600**	**241 300**	9%
	Greece	- 12 800	9 300	**- 3 500**	30 900	32 800	0	4 100	**67 800**	**64 300**	17%
	Hungary	- 23 400	- 12 200	**- 35 600**	94 500	109 300	0	5 300	**209 100**	**173 500**	15%
	Iceland	m	m	**m**	m	m	m	m	**m**	**m**	m
	Ireland	- 43 900	12 500	**- 31 400**	366 900	35 700	900	18 600	**422 100**	**390 700**	21%
	Israel	- 24 200	1 100	**- 23 100**	119 200	60 200	0	2 500	**181 900**	**158 800**	16%
	Italy[1]	- 35 600	9 500	**- 26 100**	161 600	42 500	0	5 000	**209 100**	**183 000**	11%
	Japan[2]	- 23 000	- 11 200	**- 34 200**	77 700	70 300	0	5 800	**153 800**	**119 600**	10%
	Korea	- 19 200	- 1 900	**- 21 100**	37 100	29 500	0	- 2 700	**63 900**	**42 800**	7%
	Latvia	- 29 100	- 4 100	**- 33 200**	35 800	19 000	0	8 000	**62 800**	**29 600**	6%
	Luxembourg[1]	- 167 900	- 9 700	**- 177 600**	344 000	121 100	0	2 600	**467 700**	**290 100**	7%
	Mexico	m	m	**m**	m	m	m	m	**m**	**m**	m
	Netherlands	m	m	**m**	m	m	m	m	**m**	**m**	m
	New Zealand	- 32 000	- 2 300	**- 34 300**	131 400	0	0	2 000	**133 400**	**99 100**	10%
	Norway	- 81 600	- 19 200	**- 100 800**	147 600	37 500	0	2 600	**187 700**	**86 900**	4%
	Poland[1]	- 31 100	- 5 400	**- 36 500**	45 900	95 200	0	7 900	**149 000**	**112 500**	11%
	Portugal	- 33 800	5 100	**- 28 700**	157 100	50 400	0	- 5 200	**202 300**	**173 600**	11%
	Slovak Republic	- 52 800	- 1 200	**- 54 000**	63 200	53 300	0	- 400	**116 100**	**62 100**	6%
	Slovenia	- 35 700	- 9 600	**- 45 300**	116 200	118 800	0	8 900	**243 900**	**198 600**	11%
	Spain	- 35 500	10 700	**- 24 800**	85 000	21 500	0	14 300	**120 800**	**96 000**	9%
	Sweden	m	m	**m**	m	m	m	m	**m**	**m**	m
	Switzerland	- 96 200	- 3 000	**- 99 200**	129 800	40 800	0	- 8 300	**162 300**	**63 100**	4%
	Turkey	- 24 600	800	**- 23 800**	54 000	44 300	0	- 4 400	**93 900**	**70 100**	9%
	United Kingdom	- 27 900	1 500	**- 26 400**	97 400	52 600	1 000	3 000	**154 000**	**127 600**	16%
	United States	- 48 600	- 4 900	**- 53 500**	257 500	69 200	0	11 900	**338 600**	**285 100**	14%
	OECD average	- 45 900	- 2 600	**- 48 500**	132 500	51 900	600	3 100	**188 100**	**139 600**	10%
	EU22 average	- 49 800	- 1 600	**- 51 400**	142 100	60 000	900	4 500	**207 500**	**156 200**	10%

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 2014.

2. Year of reference 2012. Students' earnings are not included in the calculation of foregone earnings.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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A5

Table A5.2b. Public costs and benefits for a woman attaining tertiary education (2015)

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 unemployment effect)			Unemployment benefits effect	Total benefits	Net financial returns	Internal rate of return
					Income tax effect	Social contribution effect	Transfers effect				
		(1)	(2)	(3)=(1)+(2)	(4)	(5)	(6)	(7)	(8)=(4)+(5)+(6)+(7)	(9)=(8)+(3)	(10)
OECD	Australia	- 29 600	- 500	**- 30 100**	125 300	0	100	5 900	**131 300**	**101 200**	12%
	Austria	- 65 500	- 10 200	**- 75 700**	95 600	75 300	0	2 300	**173 200**	**97 500**	6%
	Belgium	- 52 000	4 200	**- 47 800**	149 500	87 000	0	9 100	**245 600**	**197 800**	13%
	Canada	- 40 700	- 800	**- 41 500**	64 500	27 300	800	- 1 200	**91 400**	**49 900**	7%
	Chile	- 8 700	800	**- 7 900**	2 000	24 900	0	- 7 400	**19 500**	**11 600**	7%
	Czech Republic	- 30 000	- 3 800	**- 33 800**	50 000	29 500	4 500	6 300	**90 300**	**56 500**	7%
	Denmark[1]	- 80 400	3 300	**- 77 100**	120 600	0	6 300	5 300	**132 200**	**55 100**	5%
	Estonia	- 42 700	- 1 500	**- 44 200**	33 100	2 700	0	300	**36 100**	**- 8 100**	1%
	Finland	- 75 100	21 400	**- 53 700**	105 500	28 400	200	0	**134 100**	**80 400**	7%
	France[1]	- 51 700	10 400	**- 41 300**	70 200	49 100	6 200	4 100	**129 600**	**88 300**	10%
	Germany	- 68 700	- 15 500	**- 84 200**	88 400	78 300	1 000	1 900	**169 600**	**85 400**	5%
	Greece	- 12 800	11 600	**- 1 200**	7 300	26 900	0	5 200	**39 400**	**38 200**	22%
	Hungary	- 23 400	- 9 500	**- 32 900**	48 300	55 800	0	5 300	**109 400**	**76 500**	9%
	Iceland	m	m	**m**	m	m	m	m	**m**	**m**	m
	Ireland	- 43 900	9 400	**- 34 500**	160 400	24 400	600	4 900	**190 300**	**155 800**	14%
	Israel	- 24 200	2 600	**- 21 600**	42 900	32 200	0	- 3 500	**71 600**	**50 000**	9%
	Italy[1]	- 35 600	9 600	**- 26 000**	83 900	28 800	0	1 700	**114 400**	**88 400**	8%
	Japan[2]	- 23 000	700	**- 22 300**	16 600	27 600	50 200	4 100	**98 500**	**76 200**	13%
	Korea	- 19 200	- 2 200	**- 21 400**	7 400	17 100	0	- 2 600	**21 900**	**500**	2%
	Latvia	- 29 100	600	**- 28 500**	29 200	15 600	0	- 400	**44 400**	**15 900**	4%
	Luxembourg[1]	- 167 900	- 10 100	**- 178 000**	225 100	88 100	0	- 6 400	**306 800**	**128 800**	5%
	Mexico	m	m	**m**	m	m	m	m	**m**	**m**	m
	Netherlands	m	m	**m**	m	m	m	m	**m**	**m**	m
	New Zealand	- 32 000	300	**- 31 700**	78 200	0	2 100	8 200	**88 500**	**56 800**	8%
	Norway	- 81 600	- 8 300	**- 89 900**	92 700	31 500	0	1 500	**125 700**	**35 800**	4%
	Poland[1]	- 31 100	1 000	**- 30 100**	31 000	67 900	0	8 800	**107 700**	**77 600**	10%
	Portugal	- 33 800	9 900	**- 23 900**	108 400	39 000	0	- 4 100	**143 300**	**119 400**	11%
	Slovak Republic	- 52 800	1 400	**- 51 400**	34 700	31 700	0	3 400	**69 800**	**18 400**	3%
	Slovenia	- 35 700	3 600	**- 32 100**	79 200	93 100	0	13 000	**185 300**	**153 200**	12%
	Spain	- 35 500	8 600	**- 26 900**	68 800	20 900	0	2 300	**92 000**	**65 100**	7%
	Sweden	m	m	**m**	m	m	m	m	**m**	**m**	m
	Switzerland	- 96 200	- 5 000	**- 101 200**	67 300	29 700	0	- 3 600	**93 400**	**- 7 800**	2%
	Turkey	- 24 600	1 400	**- 23 200**	39 300	42 400	0	- 10 500	**71 200**	**48 000**	8%
	United Kingdom	- 27 900	5 400	**- 22 500**	71 200	42 300	12 200	1 300	**127 000**	**104 500**	21%
	United States	- 48 600	- 900	**- 49 500**	118 200	41 300	0	6 400	**165 900**	**116 400**	10%
	OECD average	- 45 900	1 200	**- 44 700**	74 700	37 400	2 700	2 000	**116 800**	**72 100**	8%
	EU22 average	- 49 800	2 500	**- 47 300**	83 000	44 200	1 600	3 200	**132 000**	**84 700**	9%

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 2014.

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StatLink https://doi.org/10.1787/888933802437

A5

Table A5.3a. Private/public costs and benefits for a man attaining tertiary education, by level of tertiary education (2015)

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	Australia	- 38 800	155 600	**116 800**	- 15 200	84 100	**68 900**	- 80 400	361 400	**281 000**	- 39 600	207 300	**167 700**
	Austria	- 53 000	236 800	**183 800**	- 68 200	207 300	**139 100**	- 67 700	555 300	**487 600**	- 88 200	438 800	**350 600**
	Belgium	m	m	**m**	m	m	**m**	- 51 000	221 600	**170 600**	- 53 400	269 400	**216 000**
	Canada	- 46 700	186 700	**140 000**	- 29 200	86 500	**57 300**	- 53 300	406 100	**352 800**	- 49 400	201 900	**152 500**
	Chile	- 19 700	193 800	**174 100**	- 3 000	9 600	**6 600**	- 49 000	689 800	**640 800**	- 15 500	62 700	**47 200**
	Czech Republic	m	m	**m**	m	m	**m**	- 69 000	334 300	**265 300**	- 41 500	154 000	**112 500**
	Denmark[1]	- 23 500	127 400	**103 900**	- 40 100	103 200	**63 100**	- 54 500	289 200	**234 700**	- 92 700	276 200	**183 500**
	Estonia	a	a	**a**	a	a	**a**	- 42 500	193 800	**151 300**	- 48 000	50 100	**2 100**
	Finland	a	a	**a**	a	a	**a**	- 47 300	295 700	**248 400**	- 57 100	218 100	**161 000**
	France[1]	- 28 000	186 200	**158 200**	- 22 100	99 700	**77 600**	- 64 500	496 800	**432 300**	- 51 400	289 300	**237 900**
	Germany	m	m	**m**	m	m	**m**	- 61 900	361 900	**300 000**	- 91 700	349 600	**257 900**
	Greece	a	a	**a**	a	a	**a**	- 27 900	142 600	**114 700**	- 3 500	65 100	**61 600**
	Hungary	- 25 200	119 600	**94 400**	- 15 900	68 900	**53 000**	- 43 100	387 200	**344 100**	- 36 600	212 200	**175 600**
	Iceland	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Ireland	- 28 600	240 900	**212 300**	- 19 500	187 500	**168 000**	- 50 500	547 000	**496 500**	- 34 600	514 200	**479 600**
	Israel	- 8 800	134 500	**125 700**	- 6 200	37 100	**30 900**	- 31 000	458 600	**427 600**	- 32 100	261 600	**229 500**
	Italy[1]	m	m	**m**	m	m	**m**	- 43 900	229 000	**185 100**	- 26 100	209 100	**183 000**
	Japan	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Korea	- 16 200	196 600	**180 400**	- 7 800	34 600	**26 800**	- 30 700	310 100	**279 400**	- 26 000	71 800	**45 800**
	Latvia	m	m	**m**	m	m	**m**	- 34 500	125 500	**91 000**	- 36 600	64 100	**27 500**
	Luxembourg[1]	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	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	New Zealand	m	m	**m**	m	m	**m**	- 65 500	338 600	**273 100**	- 40 700	145 600	**104 900**
	Norway	- 39 300	126 900	**87 600**	- 40 400	91 700	**51 300**	- 71 600	348 600	**277 000**	- 103 500	243 600	**140 100**
	Poland[1]	m	m	**m**	m	m	**m**	- 48 900	402 100	**353 200**	- 36 400	155 100	**118 700**
	Portugal	m	m	**m**	m	m	**m**	- 54 500	268 400	**213 900**	- 28 700	213 900	**185 200**
	Slovak Republic	m	m	**m**	m	m	**m**	- 44 600	284 300	**239 700**	- 55 400	116 900	**61 500**
	Slovenia	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**
	Sweden	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Switzerland	m	m	**m**	m	m	**m**	- 79 000	485 700	**406 700**	- 100 500	159 400	**58 900**
	Turkey	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	United Kingdom	- 41 600	144 300	**102 700**	m	m	**m**	- 84 000	361 400	**277 400**	- 29 000	183 900	**154 900**
	United States	- 39 800	158 500	**118 700**	- 30 100	82 800	**52 700**	- 88 500	673 900	**585 400**	- 67 000	412 100	**345 100**
	OECD average	m	m	**m**	m	m	**m**	- 55 400	368 000	**312 600**	- 49 400	213 300	**163 900**
	EU22 average	m	m	**m**	m	m	**m**	- 52 400	323 300	**270 900**	- 47 700	222 400	**174 700**

Note: Values are based on the difference between men who attained a specific level of 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 2014.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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A5

Table A5.3b. Private/public costs and benefits for a woman attaining tertiary education, by level of tertiary education (2015)

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	Australia	- 30 200	148 700	**118 500**	- 13 000	60 900	**47 900**	- 59 900	335 500	**275 600**	- 34 300	160 800	**126 500**
	Austria	- 47 000	161 100	**114 100**	- 63 200	120 300	**57 100**	- 60 000	292 000	**232 000**	- 81 900	231 300	**149 400**
	Belgium	m	m	**m**	m	m	**m**	- 41 700	213 200	**171 500**	- 48 900	241 900	**193 000**
	Canada	- 37 400	166 300	**128 900**	- 27 600	55 700	**28 100**	- 37 300	323 800	**286 500**	- 46 600	126 800	**80 200**
	Chile	- 12 500	126 100	**113 600**	- 3 000	6 300	**3 300**	- 33 800	448 700	**414 900**	- 15 400	31 500	**16 100**
	Czech Republic	m	m	**m**	m	m	**m**	- 51 400	190 800	**139 400**	- 33 600	95 900	**62 300**
	Denmark[1]	- 11 600	123 900	**112 300**	- 35 500	63 200	**27 700**	- 26 900	187 600	**160 700**	- 82 100	146 200	**64 100**
	Estonia	a	a	**a**	a	a	**a**	- 21 500	172 200	**150 700**	- 44 200	42 300	**- 1 900**
	Finland	a	a	**a**	a	a	**a**	- 45 300	255 200	**209 900**	- 53 700	171 200	**117 500**
	France[1]	- 22 800	180 900	**158 100**	- 20 100	110 000	**89 900**	- 53 600	277 800	**224 200**	- 47 200	153 700	**106 500**
	Germany	m	m	**m**	m	m	**m**	- 50 100	215 800	**165 700**	- 84 500	172 300	**87 800**
	Greece	a	a	**a**	a	a	**a**	- 27 000	126 100	**99 100**	- 1 200	36 800	**35 600**
	Hungary	- 20 500	64 200	**43 700**	- 14 100	38 200	**24 100**	- 36 000	196 400	**160 400**	- 33 800	111 800	**78 000**
	Iceland	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Ireland	- 21 600	248 900	**227 300**	- 21 400	85 500	**64 100**	- 38 200	441 900	**403 700**	- 37 900	243 800	**205 900**
	Israel	- 4 400	93 400	**89 000**	- 5 500	10 100	**4 600**	- 20 300	320 600	**300 300**	- 30 300	102 800	**72 500**
	Italy[1]	m	m	**m**	m	m	**m**	- 34 800	189 500	**154 700**	- 26 000	114 400	**88 400**
	Japan	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Korea	- 18 800	119 300	**100 500**	- 8 000	10 700	**2 700**	- 35 200	210 800	**175 600**	- 26 400	28 900	**2 500**
	Latvia	m	m	**m**	m	m	**m**	- 24 100	109 200	**85 100**	- 31 400	46 500	**15 100**
	Luxembourg[1]	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	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	New Zealand	m	m	**m**	m	m	**m**	- 59 400	281 100	**221 700**	- 37 800	94 500	**56 700**
	Norway	- 25 400	128 200	**102 800**	- 34 500	50 100	**15 600**	- 45 100	307 000	**261 900**	- 92 400	152 300	**59 900**
	Poland[1]	m	m	**m**	m	m	**m**	- 32 300	278 800	**246 500**	- 30 000	109 700	**79 700**
	Portugal	m	m	**m**	m	m	**m**	- 42 900	221 300	**178 400**	- 23 900	151 700	**127 800**
	Slovak Republic	m	m	**m**	m	m	**m**	- 28 800	166 400	**137 600**	- 52 700	70 800	**18 100**
	Slovenia	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**
	Sweden	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Switzerland	m	m	**m**	m	m	**m**	- 78 000	385 000	**307 000**	- 102 600	94 400	**- 8 200**
	Turkey	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	United Kingdom	- 36 500	93 000	**56 500**	m	m	**m**	- 76 500	288 900	**212 400**	- 25 000	148 300	**123 300**
	United States	- 30 400	150 000	**119 600**	- 27 800	57 000	**29 200**	- 67 700	436 100	**368 400**	- 62 000	204 200	**142 200**
	OECD average	m	m	**m**	m	m	**m**	- 43 400	264 300	**220 900**	- 45 600	126 300	**80 700**
	EU22 average	m	m	**m**	m	m	**m**	- 40 700	224 900	**184 200**	- 43 400	134 600	**91 200**

Note: Values are based on the difference between women who attained a specific level of 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.

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1. Year of reference 2014.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

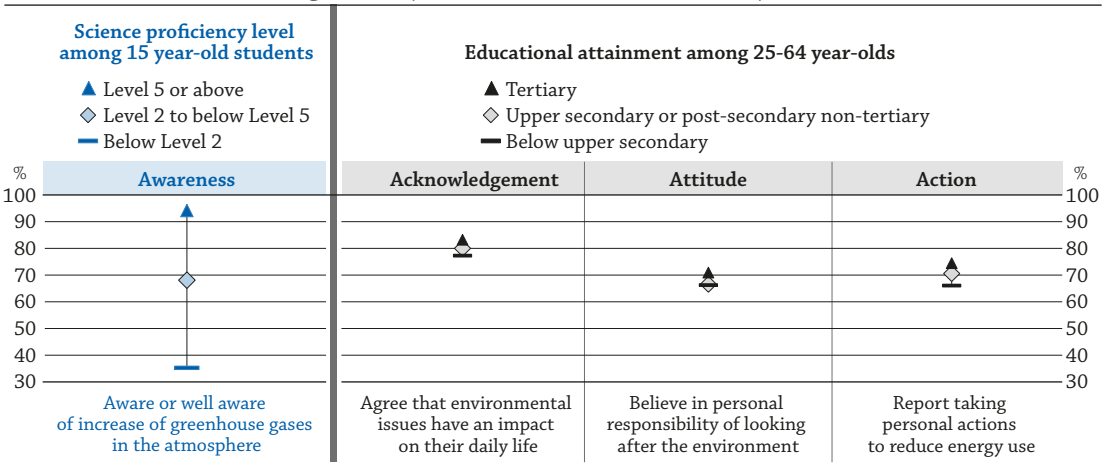
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HOW ARE SOCIAL OUTCOMES RELATED TO EDUCATION?

- Among 15-year-old students, environmental awareness increases significantly and systematically with higher levels of science proficiency.
- In most OECD countries, there is a positive, but not always statistically significant, correlation between higher educational attainment and environmental acknowledgement, attitude and action.
- Seven of the 17 United Nations Sustainable Development Goals (SDGs) are directly linked to the environment and environmental protection, but in some schools this topic is not included in the curriculum for eighth-grade students (13.5 years old on average).

Figure A6.1. Environmental awareness, acknowledgement, attitude and action, by science proficiency level or educational attainment (2014, 2015 or 2016)

Average for 15-year-old students and for 25-64 year-olds



Note: Data on awareness are from PISA (2015), data on acknowledgement are from Eurobarometer (2014) and data on attitude and action are from the European Social Survey (2016).

Items are ordered by the cognitive and behavioural processes that govern the complex dynamics in an individual's interactions with the environment.

Source: OECD (2018), Tables A6.1, A6.2, A6.3 and A6.4. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Environmental considerations are present in our everyday well-being, from adverse weather events to the loss of biodiversity and the quality of the air we breathe and the water we consume. The environment and environmental protection are fast emerging as the centrepiece of human development and a defining moment for humanity (UN, 2013[1]; World Economic Forum, 2018[2]). Over the past 150 years, the world has experienced unprecedented industrial and technological advances in parallel with phenomenal population growth. Along this unprecedented developmental path, the world's ecosystem has been put under ever-increasing pressure to absorb ecological damage resulting from extensive industrialisation and increased demands on its natural resources (Dimick, 2014[3]; WWF, 2016[4]). The prevailing scientific views put the ecosystem at a delicate crossroads in its ability to sustain a healthy and balanced habitation for all those living on earth (Ripple et al., 2017[5]; UNEP, 2016[6]; Waters et al., 2016[7]).

Amid mounting global challenges, there have been many examples over the last few decades of positive developments on a local or a national scale. More importantly, in recent years, we have seen the convergence of global forces calling for concerted policies and actions to halt and reverse environmental damage. These developments underline the fact that global efforts are key to ensuring environmental sustainability (Goosen, 2012[8]). The latest effort culminated in the United Nations Climate Change Conference in Bonn, Germany in November 2017. Of the 17 SDGs, 7 either explicitly deal with or are embedded in an environmental context (Box A6.2).

Education plays a fundamental role in achieving the SDGs. Education for Sustainable Development (ESD) is explicitly recognised as a target for the goal on inclusive and equitable education for all. Education empowers individuals to make changes in their own behaviour. It is through the transformation of individuals' own behaviour that they collectively contribute to sustainable development, by promoting the necessary societal, economic and political changes.

Reporting the relationship between education and the environment in *Education at a Glance 2018* is the first in a four-year reporting cycle to implement the new thematic framework for the indicator on education and social outcomes, as described in *Education at a Glance* 2017, Box A8.1 (OECD, 2017[9]). Over the next three years, the indicator on education and social outcomes will focus on work-life balance and social connections (in 2019), civic engagement, governance and personal safety (in 2020), and health status and subjective well-being (in 2021). That will complete the first full cycle of monitoring the well-being of societies in relation to education.

Other findings

- When adults are asked if they take personal action to reduce energy use, a large number of countries show statistically significant differences between levels of educational attainment. In contrast, when adults are asked if they agree that environmental issues have an impact on their daily life or whether they believe in personal responsibility for looking after the environment, only a few countries show statistically significant differences.
- Less than 30% of adults report signing a petition for environmental reasons or giving money to an environmental group. But despite this low share, the difference by educational attainment level is more significant than for other types of actions, such as reduction of energy use, which around 45% of adults report doing, regardless of their educational attainment.

Note

This indicator presents data drawn from a variety of sources. The Programme for International Student Assessment (PISA) 2015 and the European Social Survey (ESS) (Round 8 in 2016) are the principal data sources. It also includes data from the International Civics and Citizenship Education Study (ICCS) of eighth-grade students in 2016, as well as from three international population-based surveys used as supplementary sources: Eurobarometer (special modules 416 and 417 in 2014), the International Social Survey Programme (ISSP) (Environment III in 2010) and the World Values Survey (WVS) (Wave 6 in 2010-14).

For each international population-based survey, the percentages of adults for each educational attainment level were compared at a country level with their respective percentages in Indicator A1. In cases where data for a country were found to have major problems with ISCED compatibility that could not be satisfactorily resolved, the data were excluded from the analysis. More information on data assessment and different questions used in the surveys is included in the *Methodology* section at the end of this indicator.

As the questions asked in these surveys differ in some aspects, the results are not directly compared in the analysis. However, differences by level of educational attainment within countries and patterns across countries can still provide good insights into the links between education and environmental social outcomes.

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Analysis

The analysis presented in this indicator uses the following 4As framework, which describes the cognitive and behavioural processes that govern the dynamics of an individual's interactions with the environment. The processes follow incremental steps of intensity to construct a pathway towards enhanced engagement with environmental issues:

1. **Awareness** of environmental issues describes an individual's level of knowledge or perception of a situation, the circumstances surrounding the situation and future developments. This is largely a passive process, requiring no higher-level cognitive interaction beyond simple fact recognition.
2. **Acknowledgement** of environmental issues reflects what the individual and, by inference, the society accepts as the norm. Acknowledgement is one step beyond simply accepting or receiving, to explicitly admit knowledge of the issue. It implies undertaking cognitive fact processing.
3. **Attitude** towards environmental issues refers to a set of emotions and beliefs that is moderated by the individual's value system. Implicitly implied in attitude are the complex value judgements the individual has made, which constitute a higher-level cognitive process.
4. **Action** in response to environmental issues depicts the outward expression of the individual's attitudes, by way of taking a certain course of action. Action is clearly in the behavioural domain, but inaction on the part of an individual can be equally revealing.

Figure A6.1 pools data for countries from the main data sources to provide a high-level and schematic overview of the results across the 4As presented above. There is a marked and, in most cases, statistically significant improvement in social environmental outcomes among those with higher educational attainment. Overall levels across the 4As are high, although data points should not be compared across the 4As, as they were drawn from different sources and for different reference population groups. Among the 4As, awareness has the widest spread across the groups, and attitude has the narrowest spread. This suggests that students' proficiency in science has a large influence in raising awareness, while educational attainment does not seem to play a large role in shaping attitudinal beliefs.

Awareness of environmental issues

Data from PISA 2015 show a generally high level of self-reported awareness of a range of environmental issues among 15-year-old students. Across OECD countries, environmental issues pertaining to the use and preservation of natural resources (such as extinction of plants and animals, the consequences of deforestation and other land use, and water shortage) attract high levels of awareness. About seven out of ten students or more reported having at least some knowledge of these issues and being able to explain them in general terms. In comparison, there was a relatively lower level of awareness of environmental issues related to technology-induced products (such as the increase of greenhouse gases in the atmosphere, nuclear waste and the use of genetically modified organisms) (Table A6.1).

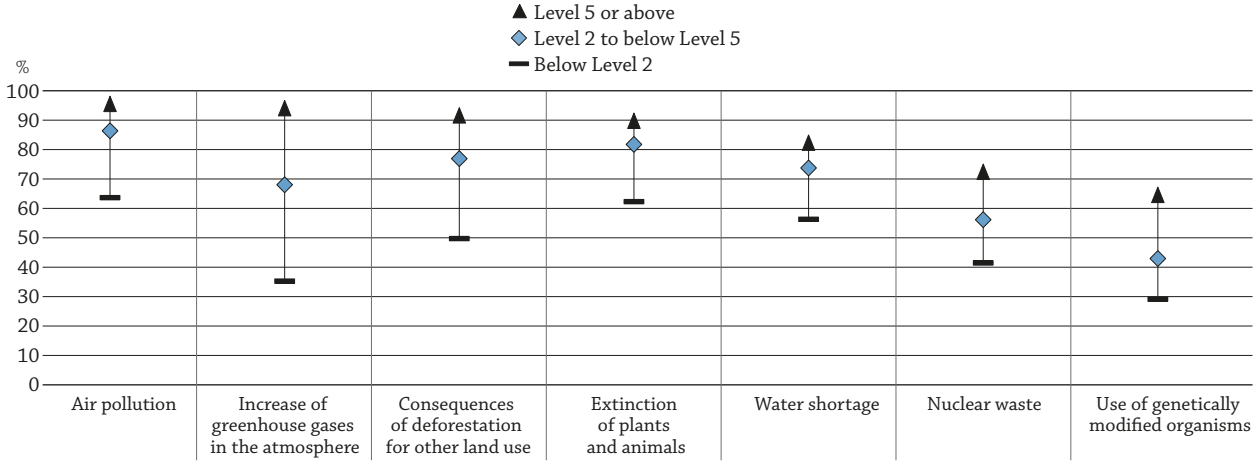
When looking at students' self-reported awareness according to their PISA science proficiency level, there is a sharp contrast between those with a high proficiency level and those with a low proficiency level. The percentage of students reporting awareness of environmental issues increases significantly with an increased science proficiency level, and that pattern is consistent across all seven environmental issues (Figure A6.2).

The awareness and science proficiency gradient is particularly steep for Japan, where students also tend to report lower overall levels of awareness across most environmental issues. Students' self-reported awareness of environmental issues relating to the use and preservation of natural resources shows a large difference by proficiency level in Belgium and France. In Korea and Luxembourg, self-reported awareness relating to technology-induced products shows a steep gradient by science proficiency level (Table A6.1).

Figure A6.2 also shows that, across OECD countries, the increase of greenhouse gases in the atmosphere is the issue that most separates students at different levels of PISA science proficiency. On average, students with proficiency Level 5 or above are more than two-and-a-half times more likely to report being aware of greenhouse gases than students with proficiency Level 2 or below. The same observation holds true in the majority of countries (Table A6.1).

Figure A6.2. Percentage of 15-year-old students who report being aware or well aware of environmental issues, by science proficiency level (2015)

Programme for International Student Assessment (PISA), OECD average



Note: "Aware or well aware" is measured by the categories "I know something about this and could explain the general issue" and "I am familiar with this and I would be able to explain this well".

Environmental issues are ranked in descending order of the percentage of 15-year-old students with a science proficiency of Level 5 or above who report being "aware or well aware" of the issue.

Source: OECD (2018), Table A6.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802722

Box A6.1. Environmental education at schools

The field of environmental education has a well-established history of over forty years (Stevenson et al., 2013[10]). Over these four decades, environmental education has emerged from being an isolated consideration into a discussion integrated with social issues of health, education, poverty and wider social progress. In recent years, this field has received considerably more attention, as topics such as conservation, biodiversity and sustainability gained prominence.

On average across OECD countries, between half and three-quarters of 15-year-old students reported that their school was the main source of information on a range of environmental issues. Environmental education at school helps young people to acquire the knowledge, skills and values necessary to support the transition to a more sustainable world. "Do today's 15-year-olds feel environmentally responsible?", *PISA in Focus*, No. 21 concludes that schools appear to play a central role as a source of knowledge on environmental issues (OECD, 2012[11]).

Education and environmental education were at the core of United Nations Decade of Education for Sustainable Development (2005-14), with its mission to integrate the principles, values and practices of sustainable development into all aspects of education and learning. According to the 2015 monitoring report by the United Nations Economic Commission for Europe, in over 90% of the member states that submitted a national implementation report, ESD is integrated in their national education policy documents (Creech and Buckler, 2015[12]). The vast majority of these countries have moved beyond a policy framework to curricula and/or standards. National efforts are commonly focused on addressing: 1) key sustainable development themes in curricula; 2) broad competencies and learning outcomes; and 3) pedagogical approaches.

Countries reported diverse approaches to addressing ESD in the curriculum, from embedding ESD in education frameworks and requirements for knowledge, skills, attitudes and competences to trialling experimental curricula with sustainability-focused modules and supporting extracurricular activities, such as field studies and competitions (Creech and Buckler, 2015[12]). Many countries reported increasing availability of tools and resources, but some countries underlined that the level of demand for these materials is unknown.

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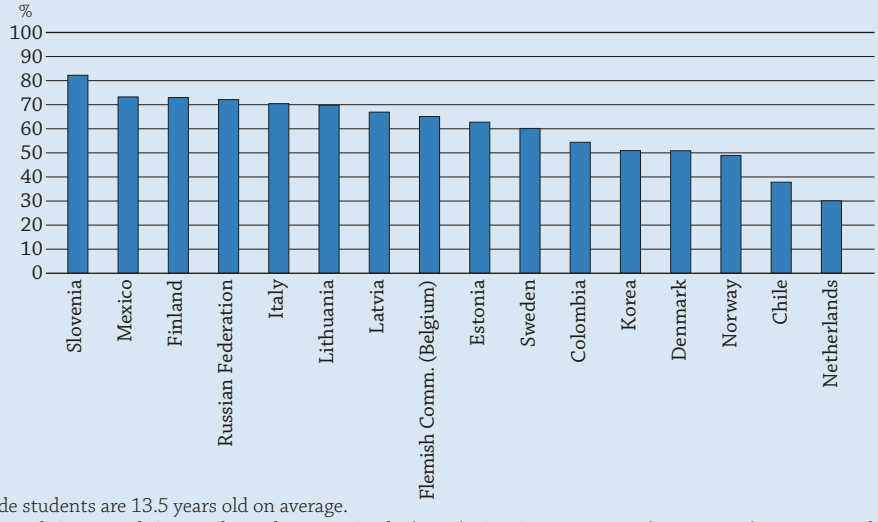
The 2016 ICCS, which gathered information from eighth-grade students (13.5 years old on average), their teachers and their school, found that the topic of the environment and environmental sustainability is commonly included in the Grade 8 curriculum. Among the 15 OECD member and partner countries that participated and responded to the question on curriculum topics, 11 countries indicated that this topic is part of the curriculum at this level of education (ICCS/IEA,2016[13]).

There is also evidence of widespread emphasis on environmental sustainability in teaching and school practice in some countries. Figure A6.a shows the proportion of schools where the principal reported that all or most eighth-grade students had the opportunity to take part in environmental sustainability activities in the current school year. As the unit of analysis is the individual school, the error range is relatively large.

In Finland, Italy, Lithuania, Mexico, the Russian Federation and Slovenia, 70% of schools or more reported that all or most of their eight-grade students took part in environmental sustainability activities in the 2016 school year. Chile, Denmark, Korea, the Netherlands and Norway reported a significantly lower proportion of schools where students participated in environmental sustainability activities (Figure A6.a).

Figure A6.a. Percentage of schools where all or most of the eighth-grade students take part in internal or external school activities related to environmental sustainability (2016)

International Civics and Citizenship Education Study



Note: Eighth-grade students are 13.5 years old on average.
Source: International Civics and Citizenship Education Study (2016). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933802760

Acknowledgement of environmental issues

Overall, there is a widespread consensus on the impact of environmental issues. Among countries participating in the Eurobarometer survey, which monitors public opinion in EU Member States, about 70% to 90% of adults agree that environmental issues are affecting their everyday lives. Among countries participating in the ISSP, a cross-national collaboration programme conducting annual surveys on diverse topics relevant to social sciences, data show a lower share of adults who agree that environmental issues have an impact on their daily life, but on average still more than 45% do so (Table A6.2). The difference between the two sources is partly explained by the way the question is asked (see *Methodology* section).

The level of acknowledgement of environmental issues differs substantially by educational attainment. On average across countries, the higher the educational attainment, the higher the level of acknowledgement of environmental issues. However, at country level, there are relatively few cases of statistically significant comparisons. This is because of the general nature of these surveys and the inherent imprecision in the statistical estimates derived from small sub-samples (Table A6.2).

The education gradient on the acknowledgement of environmental impacts is particularly steep in Belgium, Latvia, Turkey and the United Kingdom. In these countries, the proportion of adults who agree that environmental issues are having an impact on their everyday lives is significantly higher among with those with tertiary education than among those without tertiary education (Table A6.2).

Attitude towards environmental issues

On average, over two-thirds of adults identify themselves as having a positive attitude towards protecting the environment. Compared to the levels of awareness or acknowledgement, the level of positive attitude towards environmental protection seems more evenly spread across different educational attainment levels. This suggests that other dynamics, such as societal norms and social desirability, are involved in formulating attitudes. Nonetheless, an educational gradient is still clearly discernible. On average across countries, the level of positive attitude towards environmental protection increases with higher educational attainment (Table A6.3).

Adults with tertiary education reported a significantly higher level of positive attitude towards environmental protection than adults with less than tertiary education. This is particularly true for the Czech Republic and the United Kingdom. In the case of the Czech Republic, there is also a significant difference in the level of positive attitude between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education (Table A6.3).

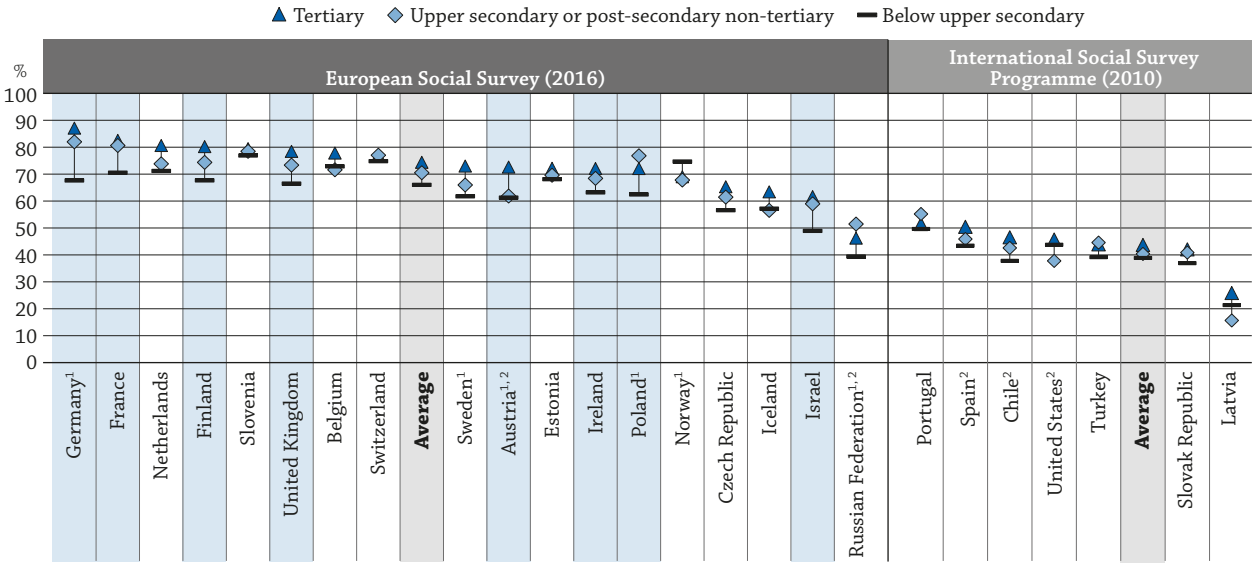
In contrast, Israel and Switzerland seem to have an inverse relationship between attitude towards environmental protection and educational attainment. However, the differences between educational attainment categories are not statistically significant (Table A6.3).

Taking actions on environmental issues

There is a wide spectrum of actions one can take for an environmental cause. General population-based social surveys tend to focus on either behavioural patterns and lifestyle changes in personal consumption or explicit participatory steps in support of certain environmental causes.

Figure A6.3. Percentage of adults who report taking personal action to reduce energy use, by educational attainment (2016 or 2010)

European Social Survey and International Social Survey Programme, 25-64 year-olds



Note: As the questions asked in the different surveys vary, survey results are not directly compared in the analysis (see *Definitions* section for more information). Blue zone denotes statistically significant differences between some or all educational attainment levels.

1. Some discrepancies remain in the survey sample distribution by highest educational attainment compared to data published in Indicator A1.

2. Data on survey respondents' highest educational attainment have been re-coded to improve compatibility with ISCED 2011. See Annex 3 for country-specific notes.

Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who report taking personal action to reduce energy use.

Source: OECD (2018), Table A6.4. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Among countries participating in the ESS (an academically driven cross-national survey conducted across Europe), on average more than 70% of adults reported that they always or often take action to reduce energy use for environmental reasons (Table A6.4). The overall level of positive action is slightly above the level of positive attitude noted in the previous section. However, as will be shown later, attitude is not always matched by actions.

As with other cognitive domains, behavioural patterns also demonstrate a positive education gradient, in which the proportion of adults taking action increases with increased educational attainment. But unlike other cognitive domains, on average across countries, the incremental difference is more marked between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education (Table A6.4).

Box A6.2. **United Nations SDGs and individual actions**

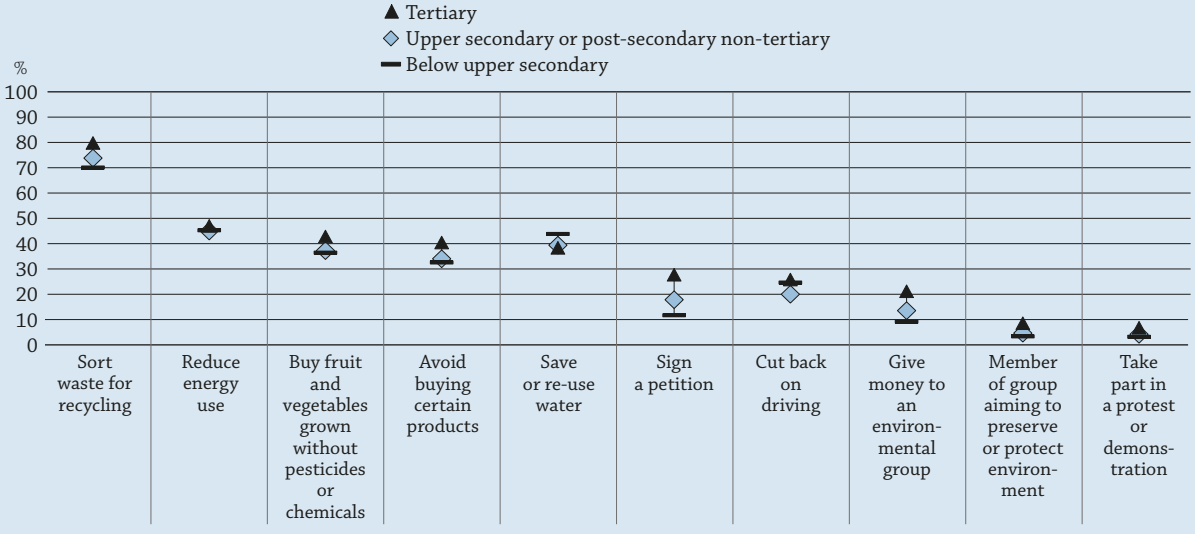
Of the 17 SDGs, 7 are directly linked to the environment and environmental protection (Goals 6, 7, 11, 12, 13, 14 and 15) (UN, 2015[15]). These goals are designed to be world-changing, and the UN team prepared the "Lazy Person's Guide to Saving the World", which offers examples of things that individuals can do to make an impact (UN, 2018[16]).

Questions about such grassroots actions are often asked in social surveys on the environment. For example, in the ISSP, adults were asked how often they take six specific actions in their consumption and lifestyle choices, including sorting waste and recycling, buying fruit and vegetables grown without pesticides or chemicals, reducing energy or fuel use at home, or restricting use of a car for environmental reasons.

Figure A6.b presents pooled data for the OECD and partner countries participating in the survey. Detailed analysis of data from the action "reducing energy use" is presented in Figure A6.3. With the exception of the action "save or reuse water for environmental reasons", all other actions exhibit a marked positive education gradient in which the proportion of adults who always or often follow through on the environmental action increases with higher levels of education (Figure A6.b).

Figure A6.b. Percentage of adults who report taking personal action for environmental reasons, by educational attainment (2010)

International Social Survey Programme, average, 25-64 year-olds



Note: The average includes data for Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Finland, France, Germany, Israel, Japan, Korea, Latvia, Mexico, the Netherlands, New Zealand, Norway, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Items are ranked in descending order of the percentage of tertiary-educated adults who report taking personal action for each item.

Source: International Social Survey Programme (2010). See *Source* section for more information and Annex 3 for note (http://dx.doi.org/10.1787/eag-2018-36-en).

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As mentioned earlier, a different set of actions, chosen by some individuals, involves a more active form of public and civic participation. The ISSP also asked adults if they are a member of a group whose main aim is to preserve or protect the environment and whether, in the last five years, they have signed a petition about an environmental issue, given money to an environmental group or taken part in a protest or demonstration about an environmental issue. Interestingly, while the percentage of positive responses to the civic and participatory actions is generally much lower compared to actions on consumption and lifestyle choices, the positive education gradient is much more marked, particularly between those with tertiary education and those with less than tertiary education. This last finding suggests that the influence of education seems stronger on civic actions than on lifestyle and consumption (Figure A6.b).

Germany has the steepest education gradients, with a difference of about 20 percentage points between adults with tertiary education and adults with below upper secondary education who reported often or always reducing energy consumption. Austria, Finland, France, Ireland, Israel, Poland and the United Kingdom all have statistically significant differences between some or all levels of educational attainment (Figure A6.3).

Further analysis of the data shows that, out of every four adults who believe looking after the environment is important, only three always or often reduce energy use for environmental reasons. Moreover, an educational gradient is equally observable among those who take action and those who do not. In other words, increased educational attainment is associated with greater efficacy of channelling positive attitude to positive actions (ESS, 2017[14]).

Definitions

Acknowledgement of environmental issues is defined differently by different surveys. For the Eurobarometer survey, it refers to adults who totally agree or tend to agree that environmental issues have a direct effect on daily life. For the ISSP, it refers to adults who agree or agree strongly that environmental problems have a direct effect on their everyday lives.

Action in response to environmental issues is also defined differently by different surveys. For the ESS, it refers to adults who often, very often or always do things to reduce energy use, such as switching off appliances that are not being used, walking for short journeys or only using heating or air conditioning when really needed. For the ISSP, it refers to adults who often or always reduce energy or fuel use at home for environmental reasons.

Adults refer to 25-64 year-olds.

Attitude towards environmental issues refers to adults who answer that a person with the following characteristics is "like me" or "very much like me": In the ESS, the characteristics are: "He/she strongly believes that people should care for nature. Looking after the environment is important to him/her." In the WVS, the characteristics are: "Looking after the environment is important to this person; to care for nature and save life resources."

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

Education gradient refers to a change in the value of a variable when considering different levels of educational attainment. A steep education gradient implies a large change in the value of a selected variable at different levels of educational attainment.

Environmental awareness on a specific environmental issue refers to 15-year-old students who answered that they know something about the issue and could explain the general issue or that they are familiar with the issue and would be able to explain it well.

Science proficiency levels: To help users interpret what student scores mean in substantive terms, PISA scales are divided into proficiency levels. For PISA 2015, the range of difficulty of science tasks is represented by seven levels of science proficiency (ranging from the highest, Level 6, to Level 1b). Below Level 2 represents a score below 410 points; Level 2 to below Level 5 represents a score between 410 and 632 inclusively; and Level 5 or above represents a score above 632. For more information on science proficiency levels see *PISA 2015 Results (Volume I): Excellence and Equity in Education* (OECD, 2016[17]).

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Methodology

For each survey, the 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:

- ESS: Austria and the Russian Federation
- Eurobarometer: Austria, Belgium, Finland and Spain
- ISSP: Chile, Israel, Spain, Switzerland and the United States
- WVS: Chile and Turkey

In the ESS, some discrepancies still exist in the survey sample distribution for Austria, Poland, the Russian Federation and Sweden, even after the recoding of educational attainment for Austria and the Russian Federation. Similar discrepancies also exist for Greece in the Eurobarometer (see Annex 3, http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data from PISA 2015 provided evidence on environmental awareness among 15-year-old students.

Data from the 2016 ICCS provided evidence on eighth-grade students who had the opportunity to take part in activities related to environmental sustainability.

Data from the 2016 ESS (Round 8) provided evidence on adults' attitudes and actions in response to environmental issues.

Data from the 2014 Eurobarometer (special modules 416 and 417) provided evidence on adults' acknowledgement of environmental issues.

Data from the 2010 ISSP (Environment III) provided evidence on adults' acknowledgement and action in response to environmental issues.

Data from the 2010-2014 WVS (Wave 6) provided evidences on adults' attitudes towards environmental issues.

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

StatLink https://doi.org/10.1787/888933802608

Table A6.1	**Percentage of 15-year-old students who report being aware or well aware of environmental issues, by science proficiency level (2015)**
Table A6.2	**Percentage of adults who agree that environmental issues have an impact on their daily life, by educational attainment (2014 or 2010)**
Table A6.3	**Percentage of adults who believe in personal responsibility for looking after the environment, by educational attainment (2016 or 2010-2014)**
Table A6.4	**Percentage of adults who report taking personal action to reduce energy use, by educational attainment (2016 or 2010)**

Cut-off date for the data: 18 July 2018. 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 A6.1. Percentage of 15-year-old students who report being aware or well aware of environmental issues, by science proficiency level (2015)

Programme for International Student Assessment (PISA)

		Increase of greenhouse gases in the atmosphere						Use of genetically modified organisms		Nuclear waste		Consequences of deforestation for other land use		Air pollution		Extinction of plants and animals		Water shortage	
		Science proficiency: Below Level 2		Science proficiency: Level 5 or above		All science proficiency levels		All science proficiency levels		All science proficiency levels		All science proficiency levels		All science proficiency levels		All science proficiency levels		All science proficiency levels	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(5)	(6)	(7)	(8)	(15)	(16)	(23)	(24)	(31)	(32)	(39)	(40)	(47)	(48)	(55)	(56)
OECD	Australia	40	(1.2)	95	(1.0)	69	(0.6)	45	(0.7)	50	(0.5)	79	(0.5)	81	(0.5)	82	(0.4)	64	(0.5)
OECD	Austria	26	(1.9)	94	(1.5)	57	(1.0)	32	(0.8)	58	(0.8)	76	(0.7)	82	(0.6)	76	(0.6)	65	(0.8)
OECD	Belgium	26	(1.3)	95	(1.1)	62	(0.7)	24	(0.7)	53	(0.7)	73	(0.7)	81	(0.5)	72	(0.6)	59	(0.7)
OECD	Canada	47	(1.7)	97	(0.6)	78	(0.7)	59	(0.7)	57	(0.6)	82	(0.7)	88	(0.5)	85	(0.5)	68	(0.6)
OECD	Chile	30	(1.4)	93	(3.3)	51	(1.1)	30	(0.8)	53	(0.8)	72	(0.8)	80	(0.7)	81	(0.7)	79	(0.8)
OECD	Czech Republic	20	(1.6)	90	(1.7)	50	(0.9)	19	(0.7)	64	(0.9)	77	(0.7)	85	(0.5)	75	(0.6)	73	(0.7)
OECD	Denmark	41	(2.3)	98	(0.9)	73	(0.9)	36	(1.0)	59	(1.0)	79	(0.7)	82	(0.7)	74	(0.8)	66	(0.8)
OECD	Estonia	30	(3.1)	91	(1.4)	62	(1.0)	57	(1.1)	61	(0.8)	84	(0.6)	87	(0.6)	86	(0.6)	82	(0.6)
OECD	Finland	35	(2.8)	97	(0.7)	74	(1.0)	28	(1.0)	66	(0.8)	72	(0.8)	90	(0.5)	85	(0.6)	71	(0.8)
OECD	France	31	(1.9)	96	(1.1)	66	(0.8)	61	(0.8)	50	(0.7)	68	(0.7)	79	(0.6)	70	(0.7)	58	(0.8)
OECD	Germany	32	(2.8)	93	(1.3)	65	(1.1)	35	(0.8)	65	(1.0)	79	(0.9)	85	(0.6)	79	(0.7)	68	(0.8)
OECD	Greece	42	(1.9)	97	(1.8)	67	(1.2)	43	(1.2)	53	(0.8)	59	(0.8)	90	(0.8)	85	(0.8)	83	(0.8)
OECD	Hungary	38	(2.1)	93	(2.1)	63	(0.8)	23	(0.8)	43	(0.8)	71	(0.8)	87	(0.7)	82	(0.7)	78	(0.8)
OECD	Iceland	28	(1.9)	95	(2.9)	56	(0.9)	43	(0.7)	50	(0.9)	70	(0.8)	79	(0.7)	73	(0.9)	75	(0.7)
OECD	Ireland	44	(2.4)	98	(0.7)	79	(1.0)	35	(0.8)	59	(0.7)	84	(0.7)	88	(0.6)	81	(0.6)	76	(0.7)
OECD	Israel	29	(1.7)	82	(2.4)	46	(1.0)	46	(0.9)	35	(0.6)	64	(0.9)	82	(0.7)	73	(0.6)	78	(0.5)
OECD	Italy	50	(1.9)	97	(1.3)	73	(1.0)	57	(0.8)	52	(0.8)	73	(0.8)	87	(0.6)	74	(0.7)	74	(0.7)
OECD	Japan	19	(2.4)	90	(1.2)	59	(1.2)	42	(0.9)	36	(0.9)	59	(1.0)	71	(0.8)	62	(0.9)	45	(1.0)
OECD	Korea	40	(2.1)	96	(1.0)	72	(0.9)	47	(1.2)	43	(1.0)	52	(1.0)	87	(0.6)	83	(0.7)	86	(0.6)
OECD	Latvia	29	(2.3)	83	(3.5)	48	(0.9)	49	(1.0)	64	(0.8)	86	(0.6)	89	(0.5)	84	(0.7)	73	(0.7)
OECD	Luxembourg	28	(1.7)	95	(1.7)	55	(0.6)	39	(0.7)	56	(0.7)	70	(0.6)	81	(0.6)	76	(0.6)	65	(0.6)
OECD	Mexico	40	(1.3)	c	c	52	(1.1)	35	(0.8)	49	(0.7)	75	(0.8)	85	(0.6)	82	(0.6)	81	(0.8)
OECD	Netherlands	27	(2.0)	98	(0.8)	69	(1.0)	20	(0.9)	59	(0.8)	77	(0.9)	61	(1.0)	76	(0.7)	62	(0.8)
OECD	New Zealand	29	(2.3)	90	(1.8)	60	(1.0)	41	(0.8)	39	(0.7)	69	(0.8)	73	(0.8)	74	(0.8)	54	(0.9)
OECD	Norway	42	(1.9)	98	(0.8)	73	(0.9)	36	(1.1)	53	(0.9)	82	(0.7)	81	(0.7)	82	(0.6)	74	(0.7)
OECD	Poland	30	(2.6)	94	(1.9)	57	(1.1)	48	(1.1)	60	(0.9)	86	(0.6)	89	(0.6)	83	(0.6)	73	(0.8)
OECD	Portugal	59	(2.2)	100	(0.2)	86	(0.7)	56	(0.9)	67	(0.7)	85	(0.6)	91	(0.5)	90	(0.5)	88	(0.5)
OECD	Slovak Republic	27	(1.5)	94	(1.8)	55	(0.9)	24	(0.7)	57	(0.8)	66	(0.7)	82	(0.7)	75	(0.8)	75	(0.7)
OECD	Slovenia	31	(2.2)	95	(1.5)	67	(0.6)	74	(0.6)	55	(0.8)	80	(0.6)	91	(0.4)	83	(0.6)	85	(0.4)
OECD	Spain	43	(1.8)	97	(1.2)	72	(0.9)	42	(1.0)	56	(0.8)	70	(0.9)	83	(0.7)	81	(0.7)	70	(0.8)
OECD	Sweden	53	(2.0)	99	(0.5)	81	(0.9)	43	(1.4)	60	(1.1)	51	(1.0)	76	(0.8)	81	(0.7)	72	(0.8)
OECD	Switzerland	27	(2.4)	92	(1.7)	60	(1.2)	34	(0.9)	58	(0.9)	70	(0.8)	81	(0.7)	74	(0.8)	62	(1.1)
OECD	Turkey	40	(1.3)	c	c	55	(1.3)	70	(1.2)	69	(0.8)	75	(0.9)	87	(0.8)	85	(0.7)	82	(0.7)
OECD	United Kingdom	51	(1.8)	98	(0.7)	80	(0.7)	55	(1.1)	62	(1.0)	78	(0.6)	83	(0.6)	82	(0.5)	59	(0.8)
OECD	United States	33	(1.8)	88	(2.0)	55	(1.2)	49	(1.0)	53	(1.0)	74	(0.8)	83	(0.7)	81	(0.5)	69	(0.8)
	OECD average	35	(0.3)	94	(0.3)	64	(0.2)	42	(0.2)	55	(0.1)	73	(0.1)	83	(0.1)	79	(0.1)	71	(0.1)
	EU22 average	36	(0.5)	95	(0.3)	66	(0.2)	41	(0.2)	58	(0.2)	75	(0.2)	84	(0.1)	79	(0.1)	72	(0.2)
Partners	CABA (Argentina)[1]	23	(2.9)	88	(8.6)	44	(2.8)	25	(1.7)	35	(1.8)	76	(1.9)	83	(1.4)	75	(1.5)	72	(1.6)
Partners	Brazil	38	(0.9)	96	(3.2)	55	(0.9)	36	(0.7)	49	(0.7)	68	(0.8)	79	(0.7)	75	(0.7)	72	(0.8)
Partners	B-S-J-G (China)[2]	36	(2.0)	98	(0.7)	73	(1.2)	37	(0.9)	37	(0.8)	88	(0.6)	91	(0.5)	82	(0.6)	89	(0.6)
Partners	Colombia	32	(1.2)	95	(6.2)	45	(1.0)	40	(0.8)	37	(0.7)	61	(1.0)	m	m	71	(0.9)	77	(0.8)
Partners	Costa Rica	36	(1.2)	c	c	49	(1.0)	25	(0.7)	39	(0.8)	71	(0.8)	78	(0.8)	74	(0.9)	74	(0.9)
Partners	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia	17	(1.2)	c	c	27	(1.2)	19	(1.0)	15	(0.7)	58	(1.2)	67	(1.2)	64	(1.1)	62	(1.1)
Partners	Lithuania	37	(1.6)	96	(2.1)	64	(1.0)	64	(0.9)	57	(0.7)	80	(0.6)	88	(0.6)	84	(0.7)	80	(0.6)
Partners	Russian Federation	34	(2.2)	83	(3.6)	57	(1.1)	57	(1.2)	71	(1.1)	89	(0.7)	89	(0.7)	86	(0.8)	54	(0.9)
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	36	(0.5)	93	(0.8)	61	(0.3)	46	(0.2)	50	(0.2)	73	(0.2)	83	(0.2)	78	(0.2)	69	(0.2)

Note: More columns showing data by proficiency level are available for consultation on line (see *StatLink* below). See *Definitions* sections for more information.

1. Refers to the adjudicated region of Ciudad Autónoma de Buenos Aires (CABA).

2. Refers to the four PISA-participating China provinces: Beijing, Shanghai, Jiangsu and Guangdong (B-S-J-G).

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933802627

Table A6.2. Percentage of adults who agree that environmental issues have an impact on their daily life, by educational attainment (2014 or 2010)

Eurobarometer and International Social Survey Programme, 25-64 year-olds

		Eurobarometer (2014)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Austria[1]	70	(4.7)	66	(2.7)	73	(2.8)	69	(1.8)
OECD	Belgium[1]	66	(5.6)	67	(2.7)	78	(2.5)	72	(1.8)
OECD	Czech Republic	77	(6.2)	78	(1.7)	75	(4.3)	78	(1.5)
OECD	Estonia	78	(6.4)	78	(2.2)	81	(2.4)	79	(1.6)
OECD	Finland[1]	79	(4.8)	77	(2.7)	76	(2.3)	77	(1.7)
OECD	Greece[2]	93	(2.1)	95	(1.2)	96	(1.5)	q	q
OECD	Hungary	73	(4.1)	80	(1.9)	86	(2.9)	80	(1.5)
OECD	Ireland	80	(3.9)	80	(2.2)	85	(2.1)	82	(1.4)
OECD	Latvia	58	(6.7)	79	(2.1)	79	(2.7)	77	(1.6)
OECD	Luxembourg	75	(5.0)	78	(3.6)	89	(2.7)	82	(2.1)
OECD	Poland	81	(3.8)	80	(2.0)	76	(3.5)	79	(1.6)
OECD	Slovak Republic	76	(6.1)	85	(1.6)	83	(2.8)	84	(1.3)
OECD	Slovenia	86	(4.0)	88	(1.5)	88	(2.3)	88	(1.2)
OECD	Spain[1]	85	(2.2)	89	(2.1)	91	(1.9)	88	(1.2)
OECD	United Kingdom	81	(4.4)	78	(2.2)	90	(1.5)	84	(1.3)
OECD	Average	77	(1.3)	80	(0.6)	83	(0.7)	80	(0.4)
Partners	Lithuania	75	(8.3)	87	(1.8)	90	(1.8)	88	(1.3)

		International Social Survey Programme (2010)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Chile[1]	55	(3.1)	62	(2.4)	63	(2.9)	60	(1.6)
OECD	Israel[1]	47	(4.7)	52	(3.0)	61	(2.5)	56	(1.8)
OECD	Norway	19	(2.9)	16	(1.9)	24	(2.2)	20	(1.3)
OECD	Portugal	55	(2.6)	52	(4.1)	61	(4.0)	55	(1.9)
OECD	Switzerland[1]	37	(4.7)	36	(2.3)	42	(3.0)	38	(1.7)
OECD	Turkey	44	(1.8)	40	(3.0)	57	(4.4)	45	(1.5)
OECD	United States[1]	54	(4.5)	46	(2.3)	51	(2.5)	49	(1.6)
OECD	Average	44	(1.4)	44	(1.1)	51	(1.2)	46	(0.6)

1. Data on survey respondents' highest educational attainment have been re-coded to improve compatibility with ISCED 2011.
2. Values for "Total" are suppressed because of discrepancies in the survey sample distribution by highest educational attainment compared to data published in Indicator A1.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933802646

A6

Table A6.3. Percentage of adults who believe in personal responsibility for looking after the environment, by educational attainment (2016 or 2010-2014)

European Social Survey and World Values Survey, 25-64 year-olds

		European Social Survey (2016)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Austria[1, 2]	65	(4.0)	66	(1.6)	72	(2.4)	q	q
	Belgium	76	(2.9)	74	(2.2)	74	(2.0)	74	(1.3)
	Czech Republic	43	(3.9)	55	(1.5)	65	(3.0)	55	(1.3)
	Estonia	70	(3.9)	72	(1.7)	76	(2.0)	73	(1.2)
	Finland	65	(4.8)	72	(2.1)	75	(1.7)	73	(1.3)
	France	63	(3.6)	63	(1.9)	64	(2.2)	63	(1.3)
	Germany[2]	70	(4.5)	72	(1.5)	76	(1.5)	q	q
	Iceland	59	(4.9)	59	(3.6)	70	(2.7)	64	(2.0)
	Ireland	61	(2.5)	61	(2.0)	68	(1.5)	64	(1.1)
	Israel	68	(4.6)	62	(2.0)	59	(1.8)	61	(1.3)
	Netherlands	66	(3.1)	66	(2.4)	72	(2.2)	68	(1.4)
	Norway[2]	57	(5.8)	46	(2.7)	57	(2.1)	q	q
	Poland[2]	74	(2.1)	80	(2.1)	77	(2.4)	q	q
	Slovenia	87	(3.1)	85	(1.7)	89	(1.9)	86	(1.2)
	Sweden[2]	64	(5.9)	62	(2.3)	65	(2.3)	q	q
	Switzerland	84	(3.1)	78	(2.0)	75	(2.2)	78	(1.3)
	United Kingdom	56	(2.9)	59	(2.7)	71	(1.9)	64	(1.4)
	Average	66	(1.0)	67	(0.5)	71	(0.5)	69	(0.4)
Partners	Russian Federation[1, 2]	65	(5.6)	68	(2.5)	65	(1.3)	q	q

		World Values Survey (2010-2014)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Chile[1, 3]	55	(3.1)	62	(2.4)	63	(2.9)	60	(1.6)
	Turkey[1, 3]	19	(2.9)	16	(1.9)	24	(2.2)	20	(1.3)
	United States[4]	55	(2.6)	52	(4.1)	61	(4.0)	55	(1.9)
	Average	43	(1.6)	43	(1.7)	49	(1.8)	45	(0.9)

1. Data on survey respondents' highest educational attainment have been re-coded to improve compatibility with ISCED 2011.
2. Values for "Total" are suppressed because of discrepancies in the survey sample distribution by highest educational attainment compared to data published in Indicator A1.
3. Year of reference 2012.
4. Year of reference 2011.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933802665

Table A6.4. Percentage of adults who report taking personal action to reduce energy use, by educational attainment (2016 or 2010)

European Social Survey and International Social Survey Programme, 25-64 year-olds

		European Social Survey (2016)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Austria[1, 2]	61	(4.1)	62	(1.6)	73	(2.4)	q	q
	Belgium	73	(3.1)	72	(2.2)	78	(1.9)	75	(1.3)
	Czech Republic	57	(3.9)	61	(1.4)	65	(3.0)	62	(1.2)
	Estonia	68	(4.0)	70	(1.7)	72	(2.1)	70	(1.3)
	Finland	68	(4.7)	74	(2.0)	80	(1.6)	77	(1.2)
	France	71	(3.4)	81	(1.5)	83	(1.8)	80	(1.1)
	Germany[2]	68	(4.6)	82	(1.3)	87	(1.2)	q	q
	Iceland	57	(4.7)	57	(3.6)	63	(2.8)	60	(2.0)
	Ireland	63	(2.5)	68	(2.0)	72	(1.5)	69	(1.1)
	Israel	49	(4.6)	59	(1.9)	62	(1.8)	60	(1.3)
	Netherlands	71	(2.9)	74	(2.2)	81	(2.0)	76	(1.3)
	Norway[2]	75	(5.0)	68	(2.5)	69	(1.9)	q	q
	Poland[2]	62	(2.4)	77	(2.2)	72	(2.5)	q	q
	Slovenia	77	(3.9)	78	(1.9)	79	(2.5)	79	(1.4)
	Sweden[2]	62	(5.9)	66	(2.3)	73	(2.2)	q	q
	Switzerland	75	(3.7)	77	(2.0)	77	(2.1)	77	(1.4)
	United Kingdom	66	(2.8)	73	(2.5)	78	(1.7)	74	(1.3)
	Average	66	(1.0)	71	(0.5)	74	(0.5)	71	(0.4)
Partners	Russian Federation[1, 2]	39	(5.9)	51	(2.7)	46	(1.4)	q	q

		International Social Survey Programme (2010)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Chile[1]	38	(2.8)	42	(2.4)	46	(3.0)	42	(1.6)
	Latvia	21	(4.2)	16	(1.8)	26	(3.4)	19	(1.5)
	Portugal	49	(2.5)	55	(4.1)	51	(4.1)	51	(1.9)
	Slovak Republic	37	(2.5)	41	(2.9)	42	(4.9)	39	(1.7)
	Spain[1]	43	(1.9)	46	(2.5)	50	(2.0)	46	(1.2)
	Turkey	39	(1.7)	44	(3.0)	44	(4.4)	41	(1.4)
	United States[1]	44	(4.4)	38	(2.2)	46	(2.5)	42	(1.6)
	Average	39	(1.1)	40	(1.1)	44	(1.4)	40	(0.6)

1. Data on survey respondents' highest educational attainment have been re-coded to improve compatibility with ISCED 2011.
2. Values for "Total" are suppressed because of discrepancies in the survey sample distribution by highest educational attainment compared to data published in Indicator A1.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

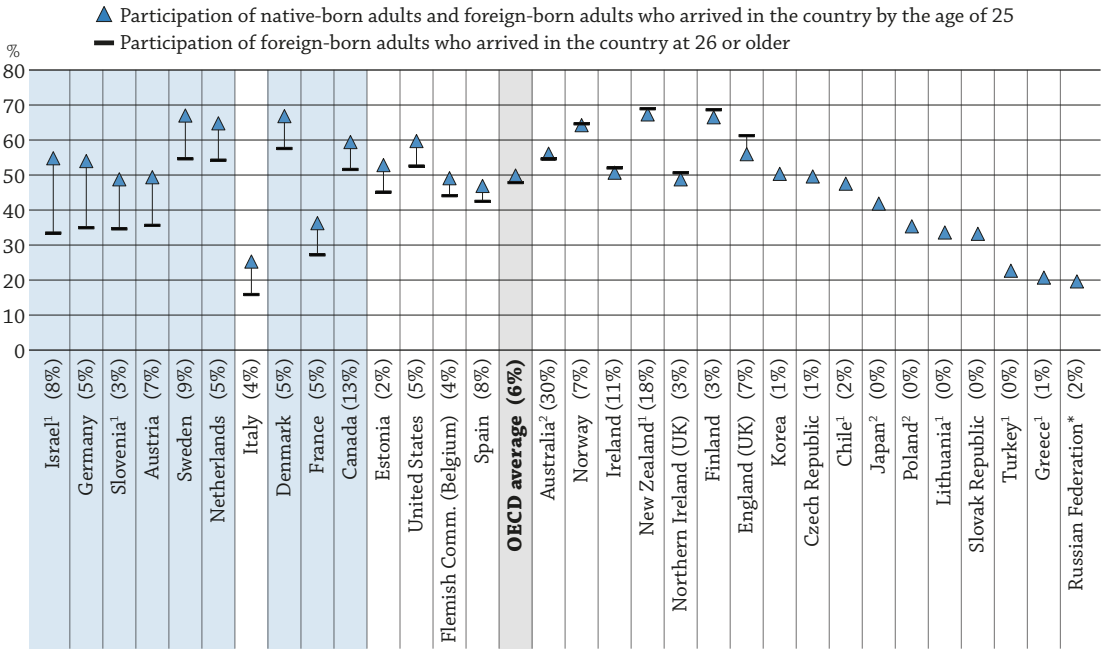
StatLink https://doi.org/10.1787/888933802684

TO WHAT EXTENT DO ADULTS PARTICIPATE EQUALLY IN EDUCATION AND LEARNING?

- Participation in formal and/or non-formal education increases with educational attainment across countries and economies that participated in the Survey of Adult Skills (PIAAC). But it increases more steeply for native-born adults and foreign-born adults who arrived in the country by age 25 than for foreign-born adults who arrived in the country at age 26 or older.
- On average, the participation in formal and/or non-formal education of foreign-born adults who arrived at age 26 or older is slightly lower than that of native-born adults and foreign-born adults who arrived by age 25.
- Having a job increases participation in formal and/or non-formal education overall, but slightly more for native-born adults and foreign-born adults who arrived by age 25 than for foreign-born adults who arrived at age 26 or older.

Figure A7.1. Participation of native- and foreign-born adults in formal and/or non-formal education (2012 or 2015)

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



Note: The percentage in parentheses is the share of foreign-born adults who had arrived in the country at the age of 26 or older out of the total adult population. Blue zone denotes statistically significant percentage-point differences. Some data points are not displayed because there are too few observations to provide a reliable estimate. See *Definitions* and *Methodology* sections for more information.

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

2. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

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

Countries are ranked in descending order of the percentage-point difference between the two groups.

Source: OECD (2018), Table A7.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933802874

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]).

Lifelong learning can also contribute to non-economic goals, such as personal fulfilment, improved health, civic participation and social inclusion. However, the large 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]).

This indicator looks for the first time at participation in formal and/or non-formal education by country of birth (i.e. native-born or foreign-born adults), complementing the analyses on adult education and learning published in earlier editions of *Education at a Glance*. Formal and/or non-formal education is particularly important for foreign-born adults, whatever their level of education, as it can help with their integration process in the host country (OECD, 2017[3]). For foreign-born adults lacking expertise in the language(s) spoken in the host country, it is crucial to have access to language training. Other types of adult training are also important for all foreign-born adults, to help them adapt their skills or acquire new skills for labour-market needs in the host country.

The 2015 OECD/EU report, *Indicators of Immigrant Integration 2015: Settling In*, identifies notable differences in literacy skills between native-born and foreign-born adults, with a decreasing gap as the period of stay in the host country increases. The report also concludes that a weaker mastery of the host country's language may affect immigrants' participation in formal and/or non-formal education. Foreign-born adults report needing training more often than native-born adults, but foreign-born adults are less likely than native-born adults to attend education and training courses. The cost of training and the lack of required standards are the two main reasons reported by foreign-born adults for not participating (OECD/EU, 2015[4]).

Other findings

- The difference in participation in formal and/or non-formal education between native-born adults and foreign-born adults who arrived in the country by age 25 and foreign-born adults who arrived in the country at age 26 or older is observed regardless of the overall share of foreign-born adults who arrived in the country at age 26 or older and the overall level of participation in formal and/or non-formal education in a country.
- In countries where the difference between participation in formal and/or non-formal education by native-born adults and foreign-born adults who arrived by age 25 and that of foreign-born adults who arrived at age 26 or older is statistically significant for all adults, in most cases, the differences are also statistically significant when disaggregated by employed adults and tertiary-educated adults.

Note

While formal education provides a basis for adult education, it is important that those who have gone through a formal education system outside of their host country also have access to and benefit from formal and/or non-formal education.

Foreign-born adults may face different barriers to participation in education. For instance, foreign-born adults who received all or most of their education in a different country may lack familiarity with the educational opportunities provided in their host country. As a result, they may participate less than native-born adults or adults who arrived in the host country at an early age.

When analysing the impact of the country of birth on participation in formal and/or non-formal education, it is important to factor in the information on when the person arrived in the host country. Indeed, the age at arrival in the country (along with other variables, such as knowledge of the language of the host country, birth country, reason for migration, human development index for the birth countries and educational background) is crucial to assess the difference in access to formal and/or non-formal education by foreign-born adults and native-born adults.

In this indicator, we divide the population into two groups: 1) native-born adults and foreign-born adults who arrived in the country by age 25; and 2) foreign-born adults who arrived at age 26 or older. The term "native-born adults" includes adults who were born in the country; it does not take into account whether their parent(s) were born in the country or not.

A7

Analysis

Participation in formal and/or non-formal education for native-born adults and foreign-born adults

On average across countries and economies that participated in the Survey of Adult Skills (PIAAC) (see *Source* section at the end of this indicator), about half of the adults (age 25-64) had participated in formal and/or non-formal education during the 12 months preceding the survey. Participation rates ranged widely, from 25% or less in Greece, Italy, Turkey and the Russian Federation to above 65% in Denmark, Finland, New Zealand and Sweden (Table A7.1).

For native-born adults and foreign-born adults who arrived by age 25, participation in formal and/or non-formal education in all countries is similar to the average for the whole population, with a difference of 1 or 2 percentage points. For foreign-born adults who arrived at age 26 or older, participation is on average about 2 percentage points lower than for native-born adults and foreign-born adults who arrived by age 25 (Figure A7.1 and Table A7.1).

In Finland, New Zealand and Norway, participation in formal and/or non-formal education is above 60% for both native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older. This demonstrates a high level of participation in formal and/or non-formal education overall, regardless of country of birth. In nine countries with data on both native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older, the difference in participation between the two groups is statistically significant. In all these cases, foreign-born adults who arrived in the country at age 26 or older participate less in formal and/or non-formal education than native-born adults and foreign-born adults who arrived by age 25. The participation rate among foreign-born adults who arrived in the country at age 26 or older remains relatively high in some countries. In Canada, Denmark, the Netherlands and Sweden, over 50% of foreign-born adults who arrived at age 26 or older participate in formal and/or non-formal education, compared to 48% on average across OECD countries and economies. In contrast, in Germany and Israel, the difference between the two groups is 15 percentage points, and participation among foreign-born adults who arrived at 26 or older is below average (Figure A7.1).

The gap in participation in formal and/or non-formal education is not influenced by the proportion of foreign-born adults who arrived at age 26 or older. In both Austria and Norway, for example, 7% of foreign-born adults arrived at age 26 or older. In Norway, there is almost no difference in participation between those who arrived by age 25 and those who arrived at age 26 or older, and both groups have a higher-than-average participation rate. In Austria, about 50% of native-born adults and foreign-born adults who arrived by age 25 participate in formal and/or non-formal education, but the share is about 15 percentage points lower among foreign-born adults who arrived at age 26 or older. This suggests that some countries are successful at offering equal opportunities to both groups and thereby ensuring high participation while, in some other countries, foreign-born adults who arrived at 26 and older seem to be left behind (Figure A7.1).

Participation in formal and/or non-formal education for native-born adults and foreign-born adults, by labour-force status

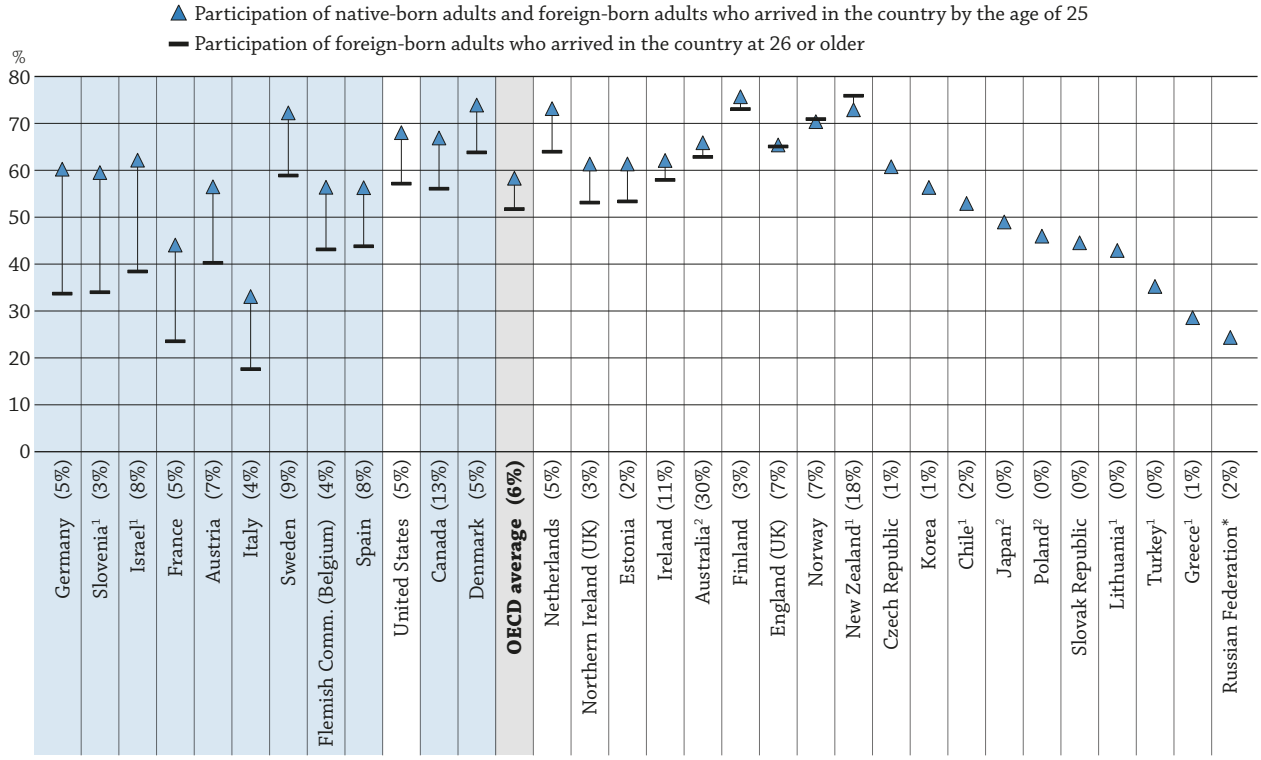
On average across OECD countries and economies that participated in the Survey of Adult Skills (PIAAC), 50% of 25-64 year-olds responded that they had participated in formal and/or non-formal education during the 12 months preceding the survey. Participation rates are, on average, higher among employed adults (58%) than among unemployed adults (43%) and inactive adults (i.e. not those seeking employment) (22%) (Tables A7.1 and A7.2).

Participation rates also vary between foreign-born and native-born adults, even among those with equivalent labour-force status. On average across OECD countries and economies, 52% of employed foreign-born adults who arrived at age 26 or older participated in formal and/or non-formal education. This share is 7 percentage points lower than the average participation rate across OECD countries and economies for employed native-born adults and foreign-born adults who arrived by age 25. This average difference, 7 percentage points, is statistically significant and is about triple the average difference among all adults (Figures A7.1 and A7.2).

In 11 of the 21 countries and economies with available data, the differences in participation rates between native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older are statistically significant. In the Flemish Community of Belgium, Italy and Spain, the differences between the two groups become statistically significant when accounting for employed adults. In all of the 11 countries and economies, employed foreign-born adults who arrived at age 26 or older participate less in formal and/or non-formal education than employed native-born adults and foreign-born adults who arrived by age 25. The gap in participation rates ranges from 10 percentage points in Denmark to over 20 percentage points in France, Germany, Israel and Slovenia. Also, in all of the 11 countries and economies, the gaps are larger when accounting for employed adults than for all adults regardless of labour-force status (Figures A7.1 and A7.2).

Figure A7.2. Participation of native- and foreign-born adults in formal and/or non-formal education among employed adults (2012 or 2015)

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



Note: The percentage in parentheses is the share of foreign-born adults who had arrived in the country at the age of 26 or older out of the total adult population. Blue zone denotes statistically significant percentage-point differences. Some data points are not displayed because there are too few observations to provide a reliable estimate. See *Definitions* and *Methodology* sections for more information.

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

2. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

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

Countries are ranked in descending order of the percentage-point difference between the two groups.

Source: OECD (2018), Table A7.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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One of the reasons that the gap is especially marked among employed adults might be that having a job does not significantly increase participation rates for foreign-born adults who arrived at age 26 or older, while it does increase participation rates for native-born adults and foreign-born adults who arrived by age 25. On average across OECD countries and economies, the participation rate is only 4 percentage points higher for employed foreign-born adults who arrived at age 26 or older (52%) than for all foreign-born adults who arrived in the country at age 26 or older (48%). However, the participation rate is 8 percentage points higher for employed native-born adults and foreign-born adults who arrived by age 25 (58%) than for all native-born adults and foreign-born adults who arrived by age 25 (50%), and the difference is statistically significant (Figures A7.1 and A7.2).

This suggests that, although having a job has a positive effect on participation in formal and/or non-formal education in general, foreign-born adults who arrived at age 26 or older may enjoy fewer advantages from employment in terms of access to formal and/or non-formal education. In France and Spain, the participation gap in formal and/or non-formal education between native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older is particularly larger among employed adults than among all adults (Figures A7.1 and A7.3). This may be related to the fact that those working in low-qualified jobs often have a lower participation rate in adult education and learning. In France and Spain, a high share of foreign-born adults who arrived at age 26 or older have low educational attainment and may end up in such jobs.

A7

Participation in formal and/or non-formal education for native-born adults and foreign-born adults, by educational attainment

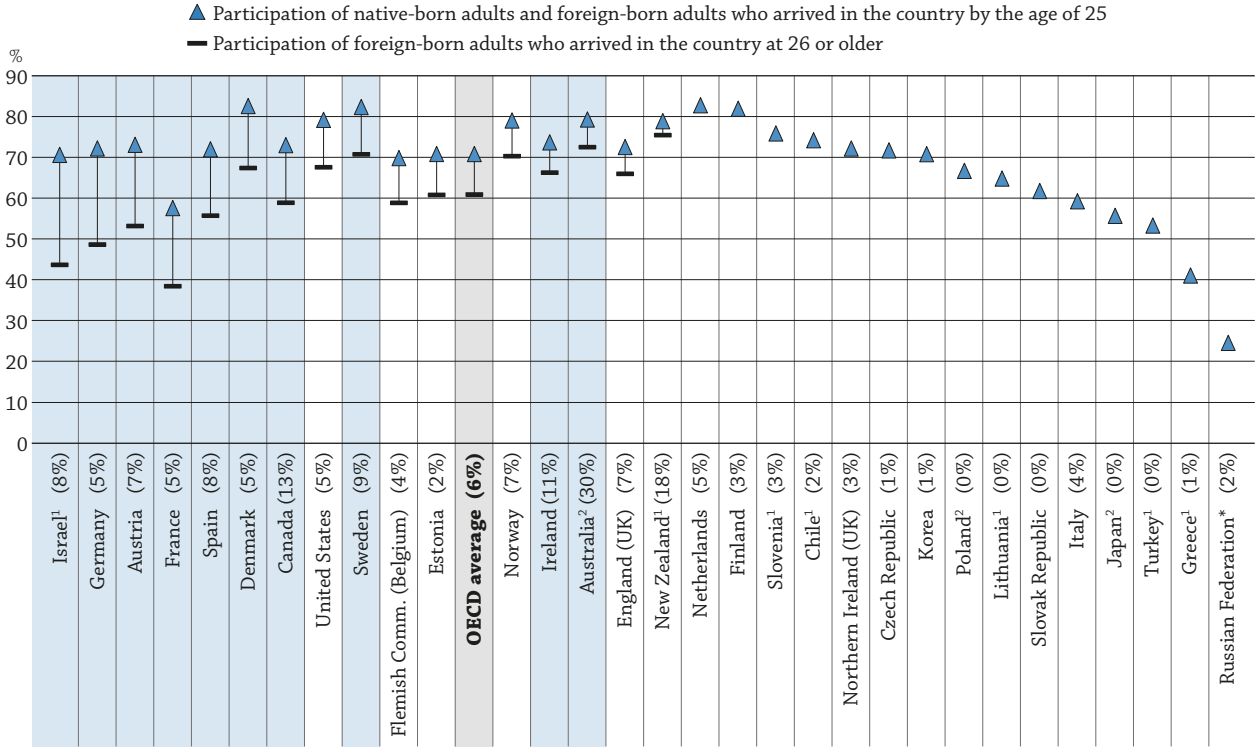
On average across OECD countries and economies that participated in the Survey of Adult Skills (PIAAC), 70% of tertiary-educated adults participated in formal and/or non-formal education during the 12 months preceding the survey. This share is well above the participation rates for those with below upper secondary education (26%) and those with upper secondary or post-secondary non-tertiary education (46%) (Table A7.3).

Foreign-born adults who arrived in the country at age 26 or older participate less than native-born adults and foreign-born adults who arrived in the country by age 25, even among those with equivalent educational attainment levels. On average across OECD countries and economies, 61% of tertiary-educated foreign-born adults who arrived at age 26 or older participated in formal and/or non-formal education, 10 percentage points lower than the participation rate of native-born adults and foreign-born adults with equivalent educational attainment who arrived by age 25 (Figure A7.3).

The differences in participation rates between native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older are statistically significant in 10 out of the 16 countries with data. Among those countries, the difference ranges from 7 percentage points in Australia and Ireland to 27 percentage points in Israel. The gap is also above 15 percentage points in Austria, France, Germany and Spain (Figure A7.3).

Figure A7.3. Participation of native- and foreign-born adults in formal and/or non-formal education among tertiary-educated adults (2012 or 2015)

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



Note: The percentage in parentheses is the share of foreign-born adults who had arrived in the country at the age of 26 or older out of the total adult population. Blue zone denotes statistically significant percentage-point differences. Some data points are not displayed because there are too few observations to provide a reliable estimate. See *Definitions* and *Methodology* sections for more information.

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

2. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

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

Countries are ranked in descending order of the percentage-point difference between the two groups.

Source: OECD (2018), Table A7.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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On average across OECD countries and economies, the participation rate for tertiary-educated foreign-born adults who arrived at age 26 or older is 13 percentage points higher than for the entire population of foreign-born adults who arrived at age 26 or older. However, for native-born adults and foreign-born adults who arrived in the country by age 25, the difference is larger (21 percentage points), showing a stronger impact of tertiary education on participation for native-born adults and foreign-born adults who arrived by age 25 than for foreign-born adults who arrived at age 26 or older. The participation gap between the two groups is at least 10 percentage points larger than the differences among all adults in France and Spain (Figures A7.1 and A7.3).

Box A7.1. Active labour market programmes in OECD countries

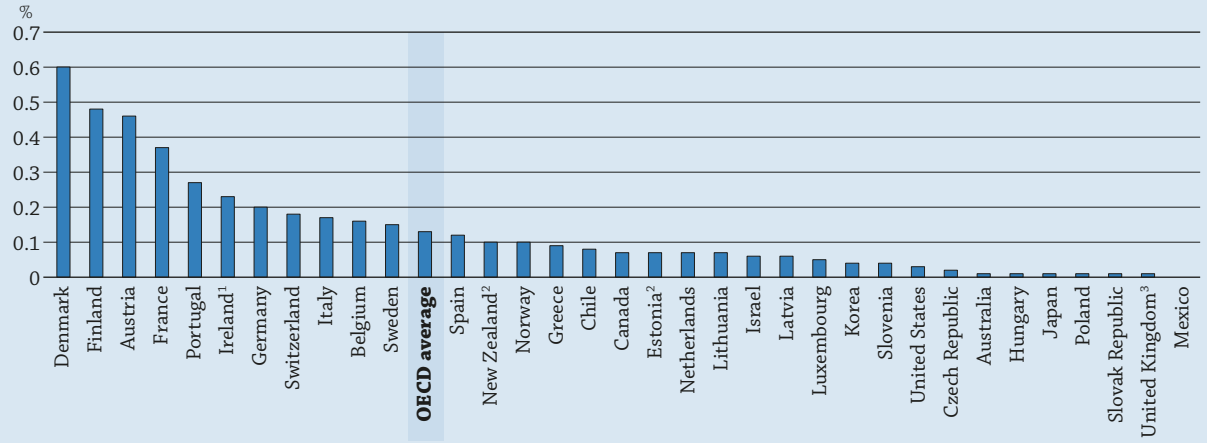
Active labour market programmes (ALMPs) aim to support the efficient functioning of the labour market by increasing the employability and motivation of jobseekers and expanding their earnings opportunities (OECD, 2015[5]; OECD, 2017[6]). ALMPs include labour market services (such as placement and related services and benefit administration) and labour market programmes (such as training, employment incentives, direct job creation or startup incentives) (OECD, 2017[6]).

Evidence shows that training programmes have long-term impact on employment and earnings for their participants. However, it is important that training programmes correspond with labour market needs, and they should, therefore, also reflect employers' needs, to maximise their impact (OECD, 2015[5]).

Countries' investment in training as part of ALMPs

The *OECD Database on Labour Market Programmes* provides data on participation and expenditure patterns of different labour market programmes, one of which is training programmes. Figure A7.a shows that the highest expenditure on training programmes as a percentage of GDP is found in Austria, Denmark and Finland, where the share is above 0.40% of GDP. In contrast, in Australia, Hungary, Japan, Mexico, Poland, the Slovak Republic and the United Kingdom, public expenditure on training programmes as part of ALMPs is the lowest, at less than 0.02% of GDP.

Figure A7.a. Public expenditure on training programmes within active labour market programmes as a percentage of GDP (2015)



1. The changes from 2014 to 2015 are largely driven by the substantial increase in GDP in 2015. For more information on this increase see www.cso.ie/en/media/csoie/newsevents/documents/pr_GDPexplanatorynote.pdf. In 2016 Ireland produced a modified GNI (GNI*) that was recommended by the Economic Statistics Review Group and is designed to exclude globalisation effects that are disproportionately impacting the measurement size of the Irish economy.

2. Reference year is 2014.

3. Reference year is 2011.

Countries are ranked in descending order of public expenditure on training programmes as part of active labour market programmes as a percentage of GDP.

Source: OECD (2018), Labour Market Programmes; Public expenditure and participant stocks on LMP, https://stats.oecd.org/Index.aspx?DataSetCode=LMPEXP#.

StatLink https://doi.org/10.1787/888933802931

...

Some countries have high expenditure on other ALMP categories. For example, Sweden spends 0.60% of GDP on employment incentives, and Hungary spends 0.74% of GDP on direct job creation. However, on average, training represents 25% of public expenditure on all ALMPs across OECD countries, and there is a high correlation between public expenditure on training programmes and total public expenditure on ALMPs.

Activating training programmes when unemployment is high

While there is no consensus on the fact that ALMPs have a large positive impact during economic downturns, some studies have shown positive correlations with re-employment. Nordlund showed that in Sweden training programmes had a positive impact, regardless of the state of the economy (Nordlund, 2011[7]). However, during slower economic periods, training programmes were beneficial because of their bridging effect in delaying the return to the labour market at times when finding a job was more difficult. For Germany, Lechner, Miquel and Wunsch (2011[8]) showed a long-term positive impact for participants who registered in training programmes in the 1990s when the unemployment rate was high. However, these findings cannot be generalised. Wunsch and Lechner (2008[9]) found that a similar set of programmes in the 2000s failed to improve the participants' chances of finding regular employment. They conclude that aspects such as the quality of the programmes, the participants or the assignment process, and certain characteristics of the labour market play an important role. A meta-study analysing the findings from 137 evaluations of several types of ALMPs found that a higher unemployment rate in the labour market at the time of participation in a programme was associated with a significantly higher probability of a positive estimated impact (Kluve, 2010[10]).

Figure A7.b presents the average evolution of public expenditure on ALMPs and, more specifically, on training programmes between 2004 and 2015. Public expenditure on all ALMPs went from 0.46% of GDP in 2008 to 0.60% in 2010. In parallel, public expenditure on training programmes went from 0.12% of GDP in 2008 to 0.17% in 2010. This shows that public expenditure on ALMPs and on training programmes followed similar trends, as they each increased by 30% between 2008 and 2010 as an effect of rising unemployment rates.

On average across OECD countries, spending on training programmes always represented about 25% of all spending on ALMPs, regardless of the economic situation. On average, the public expenditure on training programmes shows alignment with total spending on ALMPs, but evolution within countries presents variations in terms of resource allocation, with some important shifts between 2008 and 2009. For example, in Canada, Estonia, Latvia, Portugal and Slovenia, the share of training programmes in the budgets of ALMPs rose by at least 10 percentage points, mainly due to a rise in expenditure on institutional training. In Poland, the share decreased by 15 percentage points over the same period, due to a cut in special support for apprenticeships (OECD, 2017[6]).

Figure A7.b. Trends in public expenditure on training programmes within active labour market programmes and on all active labour market programmes as a percentage of GDP (2004-2015)

OECD average



Note: The percentage in parentheses represents the weighted average of the unemployment rate for 25-64 year-olds.
Source: OECD (2018), Labour Market Programmes; Public expenditure and participant stocks on LMP, https://stats.oecd.org/Index.aspx?DataSetCode=LMPEXP#.
StatLink https://doi.org/10.1787/888933802950

The participation in formal and/or non-formal education decreases with lower educational attainment. This holds true for both groups among countries and economies with data on participation of native-born and foreign-born adults in formal and/or non-formal education by educational attainment. In all of the seven countries where the differences are statistically significant, foreign-born adults who arrived at age 26 or older with upper secondary or post-secondary non-tertiary education participated less in formal and/or non-formal education than native-born adults and foreign-born adults who arrived by age 25. The gaps are above 20 percentage points and the largest in Germany, Israel and Italy (Table A7.3).

At below upper secondary level, only a few countries have estimates on the participation of foreign-born adults who arrived at age 26 or older. But among countries with data, both native-born adults and foreign-born adults who arrived by age 25 and foreign-born adults who arrived at age 26 or older tend to have lower participation rates than those with higher educational attainment. While foreign-born adults who arrived at age 26 or older participated more in formal and/or non-formal education than native-born adults and foreign-born adults who arrived by age 25 in some countries, the differences are not statistically significant in all countries with data (Table A7.3).

As noted above, the difference in participation rates is the largest among tertiary-educated adults in most of the countries surveyed. This gap can be related to the difficulties that highly educated foreign-born adults who arrived at age 26 or older may face to benefit from their skills if they do not master the language of the host country and have a poor understanding of local labour-market dynamics. This situation may result in lower employment rates and employment in lower-paid jobs, both of which hamper opportunities for foreign-born adults to access employer-sponsored training. According to the OECD/EU report, *Indicators of Immigrants Integration 2015: Settling In* (OECD/EU, 2015[4]), immigrants, especially those who migrated recently, have markedly lower levels of literacy in the host-country language than people born in the host country, regardless of their level of education. A tertiary education degree is no guarantee of proficiency, particularly in host countries where the language is not widely used beyond national borders, (OECD, 2015[5]). As foreign-born adults have different language and educational backgrounds it is important to provide tailor-made measures to ensure successful integration. Providing formal and/or non-formal education programmes solely to address the language barrier might be insufficient, if the skills of foreign-born adults are not fully exploited on the labour market. Combining language classes with professional integration programmes could better respond to the needs of the labour market and result in quicker and more successful transitions to employment (OECD, 2017[3]).

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. The Survey of Adult Skills (PIAAC) uses a list of possible non-formal education activities (including open or distance-learning courses, private lessons, organised sessions for on-the-job training, and workshops or seminars) to prompt respondents to list all of their learning activities during the previous 12 months. Some of these learning activities might be of short duration.

Levels of education: **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

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. For Chile, the Czech Republic, Greece, Japan, Korea, Lithuania, Poland, the Russian Federation, the Slovak Republic and Turkey, too few observations are available to provide reliable estimates on the variable "Foreign-born adults who arrived in the country at age 26 or older". The participation in formal and/or non-formal education for native-born adults and foreign-born adults who arrived by age 25 is maintained in the figures for cross-country comparison purposes.

For Australia, Japan and Poland, data on age at arrival in the country is not taken into account for the disaggregation between native-born adults and foreign-born adults. Thus, the two groups should be understood as native-born adults and foreign-born adults, regardless of the age at arrival in the country.

The selection of languages available in the Survey of Adult Skills (PIAAC) varied, even in countries where a significant proportion of foreign-born adults come from similar backgrounds. For example, Turkish foreign-born adults make up a considerable share among foreign-born adults in both Austria and Germany, but the background questionnaire was provided in Turkish only in Austria, not in Germany.

Respondents in some countries were offered interpretation support beyond the official translations of the background questionnaire. In Sweden, for example, if the respondent was not sufficiently proficient in Swedish, the interviewer offered to have an interpreter present during the interview for the background questionnaire.

Depending on the country, foreign-born adults who did not master the language of the host country were excluded from the survey.

With the exception of the data in Box A7.1, all data in this indicator are taken from the Survey of Adult Skills (PIAAC). As the Survey of Adult Skills (PIAAC) was not specifically designed to analyse migrant populations, the sample size can be small for foreign-born adults who arrived in the country at age 26 or older. Due to the small number of observations, the data need to be interpreted with care, and the interpretation should take into account the standard errors and statistically significant differences.

Please see Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

All data are based on the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]), except for Box A7.1.

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.

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[11]).

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Indicator A7 Tables

StatLink https://doi.org/10.1787/888933802798

Table A7.1	**Participation of native- and foreign-born adults in formal and/or non-formal education, by gender and their population distribution (2012 or 2015)**
Table A7.2	**Participation of native- and foreign-born adults in formal and/or non-formal education, by labour-force status (2012 or 2015)**
Table A7.3	**Participation of native- and foreign-born adults in formal and/or non-formal education, by educational attainment (2012 or 2015)**

Cut-off date for the data: 18 July 2018. 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.

A7

Table A7.1. Participation of native- and foreign-born adults in formal and/or non-formal education by gender and their population distribution (2012 or 2015)

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

		Participation in forma and/or non-formal education														Total population distribution			
		Native-born adults and foreign-born adults who arrived in the country by the age of 25						Foreign-born adults who arrived in the country at 26 or older						Total		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Foreign-born adults who arrived in the country at 26 or older	
		Men		Women		Total		Men		Women		Total							
		%	S.E.	%	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)	(17)	(18)
OECD	**Countries**																		
	Australia[1]	57	(1.2)	55	(1.1)	56	(0.9)	57	(2.1)	52	(1.9)	55	(1.4)	56	(0.7)	70	(0.7)	30	(0.7)
	Austria	51	(1.2)	48	(1.1)	49	(0.7)	41	(4.9)	29	(4.9)	36	(3.8)	48	(0.7)	93	(0.4)	7	(0.4)
	Canada	60	(0.8)	59	(0.8)	59	(0.6)	52	(2.5)	51	(1.8)	52	(1.7)	58	(0.6)	87	(0.4)	13	(0.4)
	Chile[2]	53	(2.2)	42	(2.1)	48	(1.9)	c	c	c	c	c	c	47	(1.9)	98	(0.9)	2	(0.9)
	Czech Republic	53	(1.7)	46	(1.3)	50	(1.2)	c	c	c	c	c	c	50	(1.2)	99	(0.3)	1	(0.3)
	Denmark	64	(1.0)	69	(0.9)	67	(0.7)	54	(3.2)	61	(2.8)	58	(2.2)	66	(0.6)	95	(0.1)	5	(0.1)
	Estonia	48	(1.0)	57	(0.9)	53	(0.7)	c	c	42	(4.7)	45	(3.9)	53	(0.7)	98	(0.2)	2	(0.2)
	Finland	63	(1.0)	70	(1.1)	66	(0.7)	c	c	c	c	69	(5.0)	66	(0.7)	97	(0.2)	3	(0.2)
	France	37	(0.8)	36	(0.9)	36	(0.6)	23	(3.3)	31	(3.5)	27	(2.5)	36	(0.6)	95	(0.2)	5	(0.2)
	Germany	57	(1.3)	51	(1.4)	54	(1.1)	39	(6.4)	32	(5.2)	35	(4.0)	53	(1.0)	95	(0.4)	5	(0.4)
	Greece[2]	22	(1.1)	19	(1.0)	21	(0.8)	c	c	c	c	c	c	20	(0.8)	99	(0.3)	1	(0.3)
	Ireland	52	(1.2)	49	(1.0)	51	(0.8)	56	(3.7)	48	(3.3)	52	(2.4)	51	(0.7)	89	(0.5)	11	(0.5)
	Israel[2]	54	(1.1)	55	(1.2)	55	(0.8)	39	(5.3)	29	(3.6)	33	(3.5)	53	(0.8)	92	(0.4)	8	(0.4)
	Italy	27	(1.5)	23	(1.0)	25	(1.0)	c	c	18	(6.2)	16	(4.4)	25	(1.0)	96	(0.4)	4	(0.4)
	Japan[1]	48	(1.1)	35	(0.9)	42	(0.8)	c	c	c	c	c	c	42	(0.8)	100	(0.1)	0	(0.1)
	Korea	54	(1.1)	46	(1.0)	50	(0.8)	c	c	c	c	c	c	50	(0.8)	99	(0.1)	1	(0.1)
	Netherlands	67	(1.1)	62	(1.0)	65	(0.6)	55	(6.0)	53	(5.8)	54	(4.1)	64	(0.6)	95	(0.4)	5	(0.4)
	New Zealand[2]	68	(1.2)	67	(1.3)	67	(0.9)	71	(3.0)	67	(2.8)	69	(2.3)	68	(0.8)	82	(0.7)	18	(0.7)
	Norway	63	(1.1)	66	(1.1)	64	(0.8)	66	(3.8)	63	(4.5)	65	(2.8)	64	(0.7)	93	(0.4)	7	(0.4)
	Poland[1]	35	(1.1)	36	(1.1)	35	(0.8)	c	c	c	c	c	c	35	(0.8)	100	(0.0)	0	(0.0)
	Slovak Republic	34	(1.2)	32	(1.1)	33	(0.8)	c	c	c	c	c	c	33	(0.8)	100	(0.1)	0	(0.1)
	Slovenia[2]	47	(1.1)	50	(1.0)	49	(0.8)	32	(5.7)	c	c	35	(4.3)	48	(0.8)	97	(0.3)	3	(0.3)
	Spain	47	(0.9)	46	(1.1)	47	(0.7)	48	(4.2)	38	(3.9)	42	(2.9)	47	(0.7)	92	(0.3)	8	(0.3)
	Sweden	65	(1.2)	69	(1.1)	67	(0.8)	48	(4.3)	61	(4.4)	55	(2.9)	66	(0.8)	91	(0.4)	9	(0.4)
	Turkey[2]	29	(1.2)	16	(0.9)	23	(0.8)	c	c	c	c	c	c	23	(0.8)	100	(0.1)	0	(0.1)
	United States	59	(1.6)	60	(1.4)	60	(1.1)	62	(6.4)	45	(5.0)	53	(3.4)	59	(1.1)	95	(0.4)	5	(0.4)
	Economies																		
	Flemish Comm. (Belgium)	49	(1.3)	49	(1.1)	49	(0.8)	c	c	52	(5.2)	44	(4.4)	49	(0.8)	96	(0.3)	4	(0.3)
	England (UK)	58	(1.4)	54	(1.1)	56	(0.9)	61	(5.5)	61	(4.6)	61	(3.5)	56	(0.9)	93	(0.4)	7	(0.4)
	Northern Ireland (UK)	48	(1.5)	49	(1.2)	49	(1.0)	c	c	56	(7.5)	51	(5.4)	49	(0.9)	97	(0.4)	3	(0.4)
	OECD average	51	(0.2)	49	(0.2)	50	(0.2)	50	(1.1)	47	(1.0)	48	(0.8)	50	(0.2)	94	(0.1)	6	(0.1)
Partners	Lithuania[2]	30	(1.4)	36	(1.3)	34	(0.8)	c	c	c	c	c	c	34	(0.8)	100	(0.1)	0	(0.1)
	Russian Federation*	16	(1.6)	23	(2.0)	20	(1.6)	c	c	c	c	c	c	20	(1.6)	98	(0.4)	2	(0.4)

1. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

2. 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933802817

Table A7.2. Participation of native- and foreign-born adults in formal and/or non-formal education, by labour-force status (2012 or 2015)

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

		Participation of employed adults						Participation of unemployed adults		Participation of inactive adults	
		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Foreign-born adults who arrived in the country at 26 or older		Total		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Native-born adults and foreign-born adults who arrived in the country by the age of 25	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(13)	(14)
OECD	**Countries**										
	Australia[1]	66	(1.0)	63	(1.6)	65	(0.8)	51	(6.1)	19	(1.7)
	Austria	56	(0.9)	40	(3.9)	55	(0.9)	53	(6.3)	21	(1.6)
	Canada	67	(0.6)	56	(1.9)	65	(0.6)	49	(3.4)	26	(1.2)
	Chile[2]	53	(2.1)	c	c	53	(2.0)	48	(6.9)	23	(2.7)
	Czech Republic	61	(1.4)	c	c	61	(1.4)	32	(4.9)	13	(1.7)
	Denmark	74	(0.8)	64	(2.5)	73	(0.7)	63	(3.9)	34	(1.8)
	Estonia	61	(0.9)	53	(4.5)	61	(0.9)	36	(2.8)	16	(1.1)
	Finland	76	(0.7)	73	(5.7)	76	(0.7)	58	(3.7)	29	(1.7)
	France	44	(0.8)	24	(2.8)	43	(0.8)	28	(3.0)	13	(1.0)
	Germany	60	(1.2)	34	(4.8)	59	(1.1)	41	(4.7)	24	(2.1)
	Greece[2]	29	(1.2)	c	c	28	(1.2)	17	(1.9)	9	(1.1)
	Ireland	62	(1.0)	58	(2.8)	62	(1.0)	40	(2.7)	24	(1.4)
	Israel[2]	62	(1.0)	38	(4.2)	60	(0.9)	44	(4.3)	28	(1.5)
	Italy	33	(1.3)	18	(5.2)	32	(1.2)	19	(2.5)	10	(1.1)
	Japan[1]	49	(0.9)	c	c	49	(0.9)	c	c	17	(1.3)
	Korea	56	(1.0)	c	c	56	(1.0)	51	(4.9)	30	(1.5)
	Netherlands	73	(0.8)	64	(5.4)	73	(0.8)	56	(5.0)	26	(1.8)
	New Zealand[2]	73	(1.0)	76	(2.2)	73	(0.9)	56	(3.8)	39	(2.3)
	Norway	70	(0.8)	71	(3.2)	70	(0.8)	54	(5.8)	28	(2.1)
	Poland[1]	46	(1.0)	c	c	46	(1.0)	27	(2.8)	10	(0.9)
	Slovak Republic	45	(1.1)	c	c	44	(1.1)	12	(2.0)	7	(0.8)
	Slovenia[2]	60	(0.9)	34	(5.1)	59	(0.9)	47	(3.2)	23	(1.3)
	Spain	56	(0.9)	44	(4.6)	55	(0.9)	42	(2.6)	24	(1.4)
	Sweden	72	(0.9)	59	(3.2)	71	(0.8)	52	(4.9)	36	(2.4)
	Turkey[2]	35	(1.4)	c	c	35	(1.4)	27	(3.6)	11	(0.7)
	United States	68	(1.2)	57	(4.7)	68	(1.2)	47	(3.2)	25	(1.8)
	Economies										
	Flemish Comm. (Belgium)	56	(0.9)	43	(5.2)	56	(0.9)	52	(7.3)	20	(1.5)
	England (UK)	65	(1.1)	65	(4.2)	65	(1.1)	49	(4.5)	20	(1.6)
	Northern Ireland (UK)	61	(1.2)	53	(6.0)	61	(1.2)	46	(6.6)	14	(1.2)
	OECD average	58	(0.2)	52	(0.9)	58	(0.2)	43	(0.8)	21	(0.3)
Partners	Lithuania[2]	43	(1.0)	c	c	43	(1.0)	14	(2.3)	8	(1.2)
	Russian Federation*	24	(1.8)	c	c	24	(1.8)	23	(3.6)	9	(1.3)

Note: Additional columns showing data for participation of unemployed and inactive adults are available for consultation on line (see *StatLink* below).

1. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

2. 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933802836

A7

Table A7.3. Participation of native- and foreign-born adults in formal and/or non-formal education, by educational attainment (2012 or 2015)

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

		Participation of adults with below upper secondary education		Participation of adults with upper secondary or post-secondary non-tertiary education		Participation of adults with tertiary education					
		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Native-born adults and foreign-born adults who arrived in the country by the age of 25		Foreign-born adults who arrived in the country at 26 or older		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(7)	(8)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	**Countries**										
	Australia[1]	35	(1.8)	53	(1.3)	79	(1.2)	72	(1.7)	76	(1.1)
	Austria	26	(2.0)	49	(0.9)	73	(1.4)	53	(5.8)	71	(1.5)
	Canada	26	(1.3)	52	(0.9)	73	(0.9)	59	(1.9)	70	(0.8)
	Chile[2]	25	(1.8)	46	(2.1)	74	(1.4)	c	c	74	(1.5)
	Czech Republic	19	(2.5)	48	(1.4)	72	(2.5)	c	c	71	(2.6)
	Denmark	44	(2.0)	62	(1.1)	83	(0.8)	67	(2.9)	82	(0.7)
	Estonia	28	(1.4)	43	(1.0)	71	(1.0)	61	(5.4)	70	(1.0)
	Finland	32	(2.2)	62	(1.0)	82	(0.9)	c	c	81	(0.9)
	France	18	(1.0)	33	(1.0)	58	(1.1)	38	(4.8)	56	(1.1)
	Germany	22	(2.6)	48	(1.5)	72	(1.4)	49	(5.8)	71	(1.3)
	Greece[2]	7	(1.2)	18	(1.1)	41	(1.7)	c	c	41	(1.7)
	Ireland	29	(1.5)	47	(1.2)	74	(1.2)	66	(2.6)	72	(1.1)
	Israel[2]	23	(2.0)	45	(1.4)	71	(1.1)	44	(4.4)	68	(1.1)
	Italy	12	(1.2)	32	(1.4)	59	(2.2)	c	c	59	(2.1)
	Japan[1]	22	(2.2)	32	(1.2)	56	(1.1)	c	c	56	(1.1)
	Korea	21	(1.3)	43	(1.3)	71	(1.1)	c	c	71	(1.1)
	Netherlands	42	(1.3)	65	(1.3)	83	(0.9)	c	c	82	(0.9)
	New Zealand[2]	49	(1.7)	65	(1.3)	79	(1.2)	75	(2.6)	78	(1.1)
	Norway	40	(1.9)	62	(1.5)	79	(0.9)	70	(3.9)	78	(0.9)
	Poland[1]	14	(1.9)	24	(1.0)	67	(1.5)	c	c	67	(1.5)
	Slovak Republic	6	(0.9)	30	(1.1)	62	(1.5)	c	c	62	(1.5)
	Slovenia[2]	19	(1.5)	46	(1.1)	76	(1.3)	c	c	76	(1.3)
	Spain	28	(1.0)	49	(2.1)	72	(1.2)	56	(5.3)	71	(1.2)
	Sweden	44	(2.3)	65	(1.1)	82	(1.2)	71	(3.8)	81	(1.1)
	Turkey[2]	14	(0.7)	31	(2.0)	53	(1.8)	c	c	53	(1.8)
	United States	28	(2.4)	50	(1.6)	79	(1.1)	68	(5.6)	79	(1.2)
	Economies										
	Flemish Comm. (Belgium)	20	(1.8)	41	(1.3)	70	(1.2)	59	(6.4)	69	(1.2)
	England (UK)	33	(1.6)	54	(1.5)	73	(1.2)	66	(4.8)	72	(1.3)
	Northern Ireland (UK)	23	(1.5)	52	(1.9)	72	(1.6)	c	c	72	(1.5)
	OECD average	26	(0.3)	46	(0.3)	71	(0.3)	61	(1.1)	70	(0.2)
Partners	Lithuania[2]	10	(2.3)	22	(1.1)	65	(1.5)	c	c	65	(1.5)
	Russian Federation*	6	(3.0)	11	(2.0)	25	(1.9)	c	c	24	(1.8)

Note: Additional columns showing data for participation of adults with below upper secondary education and for adults with upper secondary or post-secondary non-tertiary education are available for consultation on line (see *StatLink* below). Data from the Survay of Adult Skills (PIAAC) are based on ISCED-97. See *Definitions* section for more information.

1. Age at arrival in the country is not taken into account for the disaggregation between native- and foreign-born adults. Thus, the two categories presented are native-born adults and foreign-born adults.

2. 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

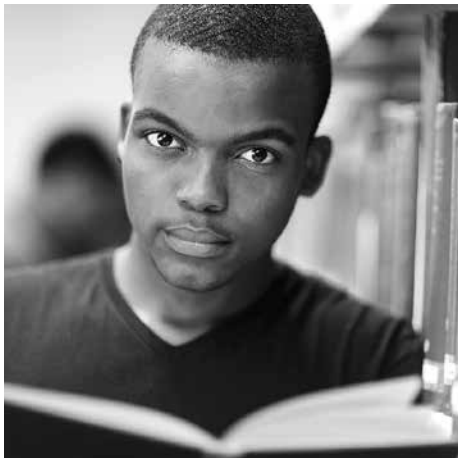
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933802855

Chapter

B

Access to Education, Participation and Progression



Indicator B1 Who participates in education?
StatLink https://doi.org/10.1787/888933802969

Indicator B2 How do early childhood education systems differ around the world?
StatLink https://doi.org/10.1787/888933803121

Indicator B3 Who is expected to graduate from upper secondary education?
StatLink https://doi.org/10.1787/888933803330

Indicator B4 Who is expected to enter tertiary education?
StatLink https://doi.org/10.1787/888933803482

Indicator B5 Who is expected to graduate from tertiary education?
StatLink https://doi.org/10.1787/888933803615

Indicator B6 What is the profile of internationally mobile students?
StatLink https://doi.org/10.1787/888933803748

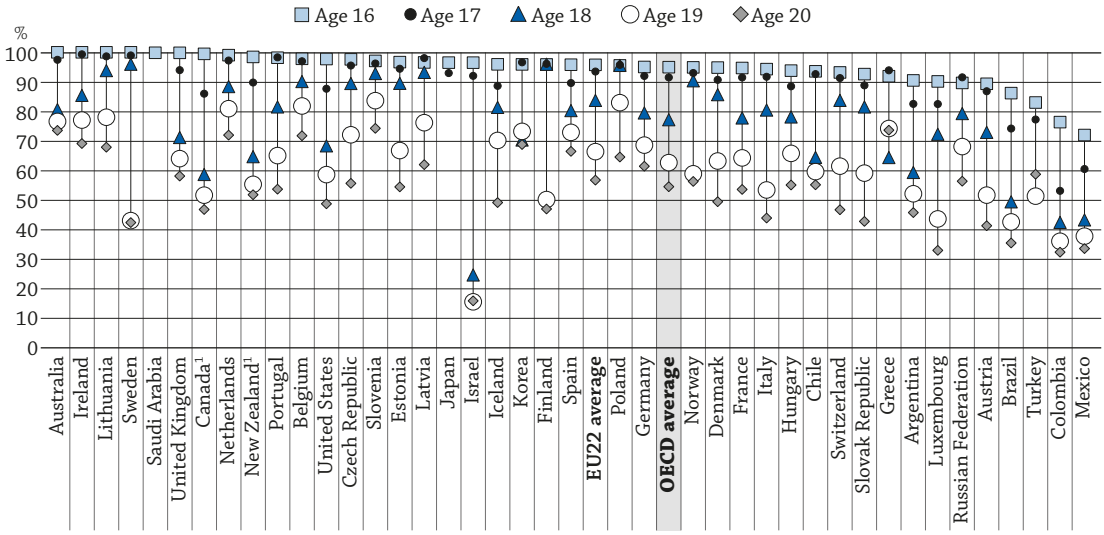
Indicator B7 Is participation and progression through tertiary education equitable?
StatLink https://doi.org/10.1787/888933803900

WHO PARTICIPATES IN EDUCATION?

- On average across OECD countries, at least 90% of the population was enrolled in education from age 4 to 17 in 2016, a wider age range than compulsory education (on average age 6-16). The transition to the labour market or to tertiary education typically occurs between 17 and 20.
- In 2016, 85% of 15-19 year-olds were enrolled in education on average across OECD countries. Enrolment rates for 15-year-olds and 16-year-olds were above 95% for almost all OECD countries, but they drop to 63% for 19-year-olds and 54% for 20-year-olds.
- Repeaters represent 2% of students enrolled in general programmes in lower secondary education and 4% in upper secondary education. On average across OECD countries with available data, boys are more likely to repeat a grade than girls.

Figure B1.1. Enrolment rate transition from age 16 to age 20 (2016)

Students in full-time and part-time programmes in both public and private institutions



1. Excludes post-secondary non-tertiary education.

Countries are ranked in descending order of enrolment rates at age 16.

Source: OECD (2018), Table B1.2. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933803045

Context

Paths through the education system can be diverse, both across countries and for different individuals within the same country. Experiences in primary and lower secondary are probably the most similar across countries. At these levels, education is usually compulsory and not very differentiated 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 (upper secondary and beyond) and for adults.

Ensuring that people have suitable opportunities to attain adequate levels of education is a critical challenge and depends on their capacity to progress through the different levels of an educational system. Successful completion of upper secondary programmes is vital to address equity issues (see Indicator A9 in *Education at a Glance 2017* [OECD, 2017[1]]), but graduation rates still vary widely among OECD countries (see Indicator B3). Developing and strengthening both general and vocational education (see *Definitions* section at the end of this indicator) at upper secondary level can make education more inclusive and appealing to individuals with different preferences and inclinations.

In many education systems, vocational education and training (VET) enables some adults to reintegrate into a learning environment and develop skills that will increase their employability. In addition, VET programmes are often chosen by students who found it difficult to progress through earlier levels of education and are thus more at risk of not completing upper secondary education (OECD, 2017[1]). A strong upper secondary system, therefore, ensures flexible pathways for students to either pursue higher education or enter directly into the labour market.

Other findings

- Across the OECD, at least 90% of students can expect to be in education for an average duration of 14 years, ranging from 10 years in the Slovak Republic and Turkey to 17 years in Norway.
- Young adults spend more years studying: between 2005 and 2016, the enrolment of 20-24 year-olds in education increased by 6 percentage points on average across OECD countries with available data for both years.
- The share of part-time enrolment increases with higher levels of education and with the average age of students enrolled. On average across OECD countries, part-time students represented 20% of enrolment in tertiary education in 2016. The share of part-time students increases to 35% among students age 25 or older and to 44% among students age 30 or older.

Analysis

Compulsory education

In OECD countries, compulsory education typically begins with primary education starting at age 6, earlier in about one-third of OECD and partner countries and later (at age 7) in Estonia, Finland, Indonesia, the Russian Federation, South Africa and Sweden. In addition, compulsory education ends with completion or partial completion of upper secondary education at an age ranging from 14 in Korea and Slovenia to 18 in Belgium, Chile, Germany, the Netherlands and Portugal. Although compulsory education goes from age 6 to 16 on average across the OECD, the enrolment rate is high in a wider age range, and at least 90% of the population is enrolled for 14 years, from age 4 to age 17, on average. The age interval is generally shorter for OECD partner countries, and full enrolment (defined in this indicator as enrolment rates exceeding 90%) can be as long as three years, as in South Africa, or four years, as in Colombia.

In more than two-thirds of OECD countries, the enrolment rate of 3-year-olds and 4-year-olds in education exceeded 90% in 2016 (full enrolment). Enrolment at even earlier ages is relatively common in some countries, with Denmark, Iceland and Norway achieving full enrolment for 2-year-olds (see also Indicator B2). In other countries, full enrolment is achieved for children between age 5 and age 6, except in the Slovak Republic where full enrolment is achieved at age 7. Across most OECD countries, full enrolment ends when students are around 17 or 18 years old, but it ends substantially earlier in Mexico (age 14), Austria and Turkey (both at age 15). There is no country in which more than 90% of 19-year-olds are enrolled in education.

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 ranges 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 5-14 year-olds attained or exceeded 95% in all OECD countries except the Slovak Republic (93%). Enrolment of 5-14 year-olds is nearly universal among OECD partner countries, except in Colombia (87%), Costa Rica (93%) and South Africa (84%).

Profile of students in secondary education

Lower secondary education programmes are typically designed to build on the learning outcomes from primary education and usually aim to lay the foundation for lifelong learning and human development upon which further education would be based. Programmes at this level are usually organised to let students transition to a more subject-oriented curriculum, introducing theoretical concepts across a broad range of subjects. Programmes classified at this level may be referred to as secondary (stage one or lower grades), junior secondary school, middle school or junior high school. The duration of lower secondary educational programmes ranges from a minimum of two years in Belgium to five years in the Slovak Republic and up to six years in Germany.

Upper secondary education is typically designed to complete secondary education in preparation for tertiary education or to provide 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 age 14 and age 16, and these programmes usually end 12 or 13 years after the beginning of primary school. Programmes classified at this level may be referred to as secondary school (stage two or upper grades), senior secondary school or (senior) high school. Lower and upper secondary education includes second-chance programmes, literacy programmes, adult education and continuing education. The length of upper secondary education varies from two years in Australia, Ireland, Lithuania and the Russian Federation to five years in Italy.

In recent years, countries have increased the diversity of their upper secondary programmes. This diversification is both a response to the growing demand for upper secondary education and a result of changes in curricula and labour-market needs. Curricula have gradually evolved from separating general and vocational programmes to offering more comprehensive programmes that include both types of learning, leading to more flexible pathways into further education or the labour market.

The structure of secondary education depends on several factors, including the entry age, the length of the programmes and the existence of vocational and combined school- and work-based programmes, as well as the extent to which the programmes allow adult enrolment for those enrolled after entry into the labour market (e.g. second-chance programmes, literacy programmes, adult education and continuing education).

Across OECD countries, the average age of enrolment in lower secondary education is 14, although it varies from 12 in Austria and Italy to 17 in Mexico and 19 in Belgium. The average age of enrolment at upper secondary level reaches 19, but at this level, the average age varies more than at lower levels, due to the greater variety of programmes, including those more oriented towards the needs of the labour market, and whether they cater to adult learners.

In fact, the average age of enrolment varies from 16 in Israel, Italy, Japan, Korea, Mexico, the Russian Federation and the United States to 25 in Finland. Denmark, Finland, Iceland and New Zealand have the largest increase in the average age of enrolment from lower to upper secondary programmes (above seven years).

Public institutions tend to dominate the overall share of enrolments across education levels, although their share tends to decrease with increasing levels of education. On average across OECD countries in 2016, around 85% of students in lower secondary education were enrolled in public institutions. Among all OECD and partner countries, only Belgium, Chile and the United Kingdom have more than 50% of students enrolled at this level in private institutions, which include a large percentage of students enrolled in government-dependent private institutions. At upper secondary level, the share of enrolment in public institutions drops to 80% on average across OECD countries, with a decrease by over 20 percentage points in Iceland, Japan and Korea, where private institutions play a more prominent role at this level. By contrast, a larger share of students are enrolled in public institutions at upper secondary level than at lower secondary level in Denmark, Israel and Spain.

Vocational education and training programmes

Vocational education and training programmes are seen to be effective for developing skills to ensure a smooth and successful transition into the labour market. Countries with well-established VET and apprenticeship programmes have been more effective in holding the line on youth unemployment (see Indicator A3). At the same time, 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[2]).

Vocational programmes in OECD countries offer different combinations of vocational studies along with apprenticeship programmes. Upper secondary students in many education systems can enrol in vocational programmes, but some OECD countries delay vocational training until students graduate from upper secondary education. For instance, while vocational programmes are offered as upper secondary education in Austria, Germany, Hungary and Spain, similar programmes are typically offered as post-secondary education in Canada.

On average across OECD countries, 56% of students in upper secondary education were enrolled in general programmes in 2016, while 44% were enrolled in vocational upper secondary programmes (Table B1.3). The distribution of secondary students enrolled in vocational versus general programmes largely depends on the education programmes available, as well as the labour-market outcomes of these programmes. In about one-third of the countries with available data, a larger share of upper secondary students are enrolled in vocational programmes than in general programmes, with at least 70% in the Czech Republic, Finland and Slovenia. In contrast, in Argentina and Ireland, where vocational programmes are not offered at all at this level, as well as in Brazil, Canada and India, more than 90% of upper secondary students are enrolled in general programmes (Table B1.3).

In combined school- and work-based programmes, 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, as well as programmes that involve alternating periods of attendance at educational institutions and participation in work-based training (see *Definitions* section at the end of this indicator). On average across the OECD, 11% of students in upper secondary education are enrolled in this type of programme, although they are offered in and data are available for only 21 OECD countries. In Hungary and Latvia, all vocational programmes are combined school- and work-based programmes.

Repeaters

Completing educational programmes at different ISCED levels over their lifetime allows individuals to progress to higher levels of education and empowers them throughout life to access and have better opportunities in the labour market. At the same time, dropping out or repeating a grade can lead to premature withdrawal from school and lower employability of school leavers, causing a loss for educational systems in terms of social and financial resources, such as students' learning, school buildings' usage and teachers' work time (UNESCO International Bureau of Education, 1970[3]).

Equity in education can be related to the policies that schools employ to sort and select students. Grade repetition, the practice of retaining students in the same grade, is used to give struggling students more time to master grade-appropriate content before moving on to the next grade (and prevent them from dropping out). Even if research finds that grade repetition can be ineffective in enhancing the achievement of low performers in the short run (OECD, 2016[4]), early retention may lead to better outcomes than late retention and retained students may catch up after several years (Fruehwirth, Navarro and Takahashi, 2016[5]).

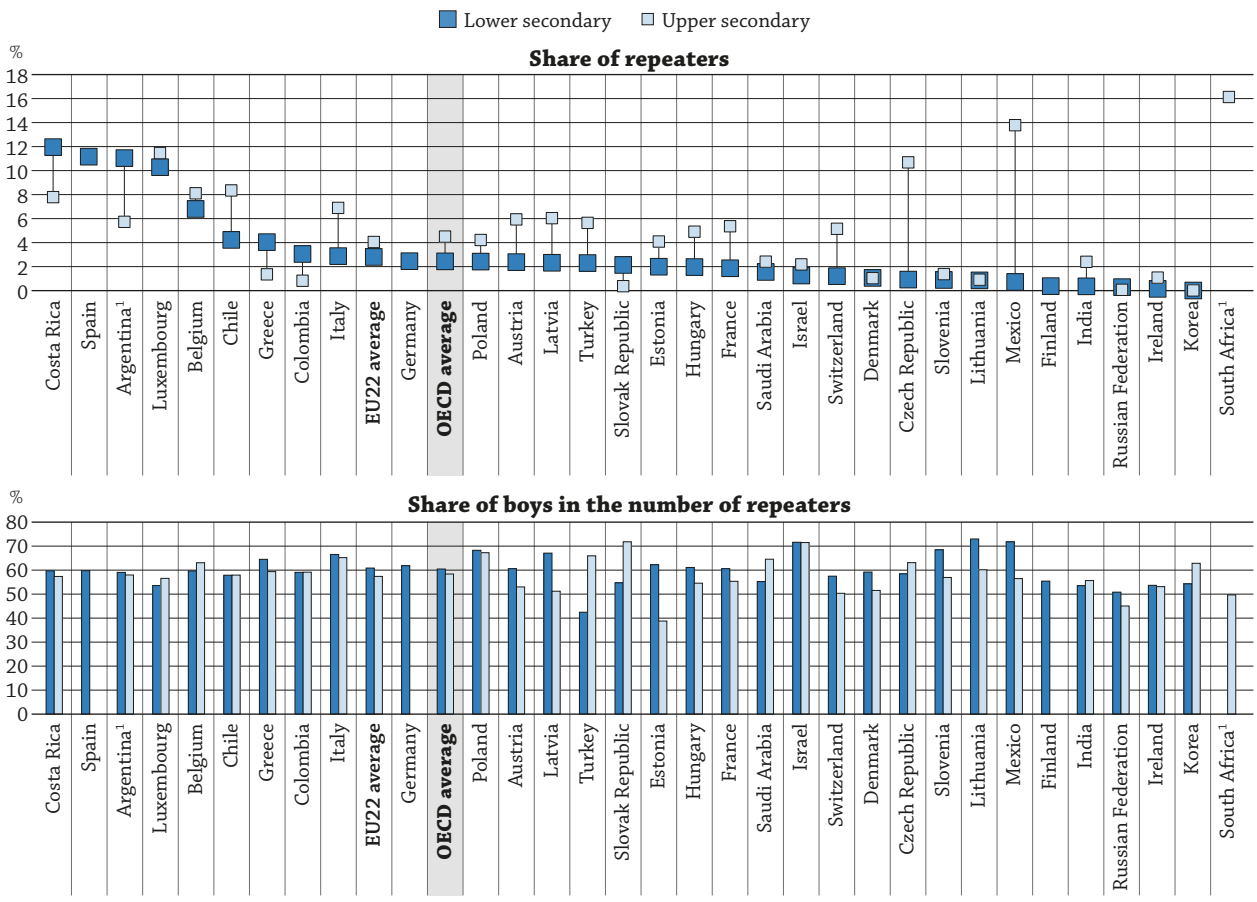
Socio-economically disadvantaged students with an immigrant background and boys are more likely to repeat grades than advantaged students (OECD, 2016[4]) and this could also lead to persisting socio-economic inequalities. Completion rates are usually lower for students with a disadvantaged background (e.g. lower educational status of parents, first-generation immigrants) (OECD, 2017[1]) (OECD, 2016[6]).

The way educational systems cope with students who repeat grades may differ to a large extent between countries and within the same countries, depending on educational levels, programmes, rural or urban areas, socio-economic conditions or other factors. In most countries, repeaters tend to be concentrated in the last two years before graduation, while in some others the distribution over different grades is more even. In a smaller number of countries, repeating grades is restricted by law and school regulations, and the concept of repeating does not even exist, especially at lower educational levels. This is the case for lower secondary education programmes in Norway, for upper secondary programmes in Finland, and for both types of programmes in the United Kingdom. In Canada, lower and upper secondary school students generally repeat only courses that they have failed and not whole grades, while primary students are typically not made to repeat grades.

The share of repeaters varies to a large extent by country and by educational level. It reaches 2% in lower secondary general programmes (this excludes adult learners) and increases with higher levels of education. Grade repetition is relatively uncommon in lower secondary general programmes and is below 5% in most countries. However, the share of repeaters exceeds 10% in Argentina, Costa Rica, Luxembourg and Spain (Figure B1.2).

Figure B1.2. Share of repeaters and share of boys in the number of repeaters in secondary education (2016)

General programmes only



1. Year of reference 2015.

Countries are ranked in descending order of the share of repeaters in lower secondary education.

Source: OECD (2018), Table B1.3. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Grade repetition is more common in upper secondary education, especially in the Czech Republic, Luxembourg, Mexico and South Africa, where repeaters represent at least 10% of the enrolled students, but also in Belgium, Chile, Costa Rica (all three countries at 8%) and Italy (7%).

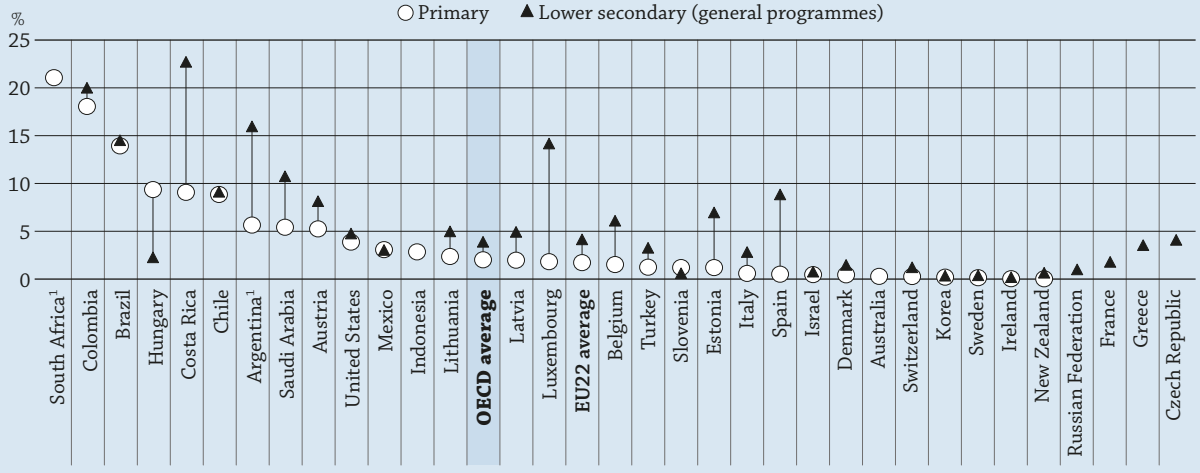
The share of repeaters in upper secondary education is 4% on average across OECD countries, 2 percentage points higher than for lower secondary education. The largest increase in the share of repeaters at upper secondary level is observed in the Czech Republic (10 percentage points higher than for lower secondary programmes) and Mexico (13 percentage points higher). Conversely, the share of repeaters is lower at upper than at lower secondary level in Argentina, Colombia, Costa Rica, Greece and the Slovak Republic.

Box B1.1. Over-age students

Over-age students are those who are at least two years older than the intended age for each grade. The number and share of over-age students are a complementary metric to those of repeaters: over-age students in the last grade are those who are likely to start the next educational level with at least a two-year delay compared to the intended age. The number of repeaters and over-age students are strictly linked, as in most countries the main reason for a high share of over-age students is the accumulation over different grades of students who have repeated at least one year (i.e. the marginal increase in the number of over-age students at each grade is correlated with the number of repeaters at that grade). Over-age attendance as a result of grade repetition and/or late entry risks reducing participation in education (UNESCO, 2016[7]).

It is relatively common in partner countries such as Argentina, Brazil, Colombia, Costa Rica, Saudi Arabia and South Africa, but also in Chile and Hungary, to have a high share of over-age enrolment in the last grade of primary school, especially in Brazil, Colombia and South Africa, where over-age students represent more than 10% of pupils enrolled. For all other countries with available data, this share ranges between 0% and 5% (Figure B1.a). In the last grade of lower secondary education, this share increases for most countries and doubles on average across the OECD (from 2% to 4%). The share of over-age students increases most from the last grade of primary education to the last grade of lower secondary education for Argentina (by 10 percentage points), Costa Rica (by 14 percentage points), Luxembourg (by 12 percentage points) and Spain (by 8 percentage points), while it decreases substantially for Hungary (by 7 percentage points), highlighting a high rate of dropout and a drop in enrolment rates for 15-19 year-olds.

Figure B1.a. Share of over-age students in the last grade of primary and lower secondary education (2016)



1. Year of reference 2015.

Countries are ranked in descending order of their share of over-age students in primary education.

Source: OECD (2018), Table B1.3 and data available on line. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933803102

On average across OECD countries with available data, boys are more likely to repeat a grade than girls and represent 60% of the number of repeaters in lower secondary education and 58% in upper secondary education (Figure B1.2). This is true in lower secondary education for all the countries, with the exception of Turkey, where girls are over-represented in the number of repeaters (only 42% are boys). In Indonesia, Israel, Italy, Latvia, Lithuania, Mexico, Poland and Slovenia, two out of three repeaters at lower secondary level are boys. This is also the case in upper secondary education for Israel, Poland, the Slovak Republic and Turkey, while grade repetition is more common for girls in Estonia.

Participation of 15-19 year-olds in education

On average across OECD countries, 85% of the population aged 15-19 are enrolled in education. This age range corresponds to the end of compulsory education and upper secondary programmes in many countries. By age 19 or 20, students in most OECD countries transition to tertiary education or leave school to enter the labour market. While enrolment is nearly universal at age 15 and 16 (above 90% for most countries), enrolment rates start dropping at later ages. The countries that experience the largest decrease between age 16 and age 20 are Israel, Luxembourg and Sweden.

In 2016, enrolment rates among 15-16 year-olds (i.e. those typically in upper secondary programmes) reached at least 95% on average across the OECD. At age 17, 92% of individuals are enrolled in education on average across the OECD, reaching 99% or more in Ireland, and Sweden, but also in partner countries Lithuania and Saudi Arabia. By contrast, fewer than 80% of 17-year-olds are enrolled in education in Brazil, Costa Rica, Indonesia, Mexico and Turkey, with the lowest rate in Colombia (52%).

Enrolment patterns start dropping significantly at age 18: 76% of 18-year-olds are enrolled in secondary, post-secondary non-tertiary, or tertiary education, on average across OECD countries. Declines in enrolment for this age group coincide with the end of upper secondary education. The drop in enrolment between age 17 and age 18 is at least 25 percentage points in Brazil, Chile, Greece, Korea, New Zealand and Turkey. By the time students reach age 19, enrolment rates decrease to 63% on average across OECD countries (Table B1.2). In some countries, the enrolment rate follows a different pattern and increases after the age of 18: for example, in Greece the enrolment rate increases from 64% at the age of 18 to 74% at the age of 20.

The share of students enrolled in each education level and at each age is illustrative of the different educational systems and pathways in countries. As students get older, they move on to higher educational levels or types of programmes, and the enrolment rate in upper secondary education (combined general and vocational) decreases. Depending on the structure of the educational system, students across the OECD may start enrolling in post-secondary non-tertiary or tertiary education from the age of 17. However this is still the exception for this age group, with 90% of 17-year-olds still enrolled in secondary education, on average across OECD countries. Students start diversifying their pathways significantly from age 18, although the age of transition between upper secondary and tertiary education varies substantially among countries. While at least 90% of 18-year-olds are still enrolled in upper secondary in Finland, Norway, Poland, Slovenia and Sweden, more than 60% of students in Korea and the Russian Federation are already starting their tertiary education at that age. On average across OECD countries, 26% of 19-year-olds are still enrolled in secondary education. However, in the Czech Republic, Denmark, Iceland, Luxembourg, the Netherlands, Poland and Switzerland, more than 40% of 19-year-olds are still enrolled in secondary education. These high shares may partly be explained by the structure of the education system and the strength of the labour opportunities offered by vocational upper secondary programmes in these countries, making them more attractive than tertiary education. Enrolment of 19-year-olds in tertiary education averages 34% across OECD countries, ranging from 2% in Luxembourg (the low share is due in large part to the high number of students studying abroad) and 3% in Iceland to 73% in Korea.

Enrolment of 18-, 19- and 20-year-olds has been increasing since 2010, although the extent of the increase for each age varies across countries. Among OECD and partner countries with available data, Australia has had the most striking increase in enrolment of 18-year-olds since 2010, with a rise of 11 percentage points. Other countries have seen a more moderate increase. Enrolment of 18-year-olds has increased by 6 to 9 percentage points in Belgium, Chile, Mexico, and Spain in the past decade, but the current enrolment rate in Chile and Mexico is still below the OECD average of 76%. While most countries with available data have seen enrolment levels of 18-year-olds rise since 2010, some countries have witnessed a decline: of 8 percentage points in Germany (partly because of the recent inflow of refugees which increased the population of this age), 10 percentage points in Hungary and 6 percentage points in Lithuania. The enrolment rate has increased by at least 11 percentage points in Australia (for 19- and 20-year-olds), Estonia (for 20-year-olds) and Spain (for 19- and 20-year-olds). In Poland, enrolment has increased by at least 35 percentage points for both ages (Table B1.2).

Post-secondary non-tertiary education programmes (see *Reader's Guide*) play a smaller role in most OECD and partner countries. These types of programmes are not offered at all in Argentina, Chile, Costa Rica, Denmark, Indonesia, Korea, Mexico, the Netherlands, Saudi Arabia, Slovenia, Turkey and the United Kingdom. On average across OECD countries, 1% to 4% of young adults between age 17 and age 19 are enrolled in either general or vocational programmes at this level. In some countries, however, enrolment at this level is more substantial. The proportion of 19-year-olds enrolled in post-secondary non-tertiary programmes is 11% in Germany and Greece and 17% in Hungary and Ireland (Table B1.2).

Participation of 20-29 year-olds in education

For 20-year-olds, the enrolment rate drops to 55% on average across OECD countries, as students start to enter the labour market. Rates vary from 40% or less in Luxembourg, Mexico and most OECD partner countries to 70% or higher in Australia, Belgium, Greece, the Netherlands and Slovenia. Levels of enrolment at this age depend on the structure of the education system and the labour-market outcomes expected from the programmes. More than half of the enrolled 20-year-olds are in secondary or post-secondary non-tertiary programmes in Denmark, Germany, Iceland, Luxembourg, Switzerland and South Africa, while tertiary education constitutes the typical level of enrolment of most 20-year-olds in other OECD countries, and it represents over 90% of enrolment in Chile, Korea, the Russian Federation and the United States.

The sharpest decline in enrolment across age groups occurs between the age groups 20-24 and 25-29, on average across OECD and partner countries. In OECD countries in 2016, an average of 42% of 20-24 year-olds, but only 16% of 25-29 year-olds, were enrolled in upper secondary, post-secondary non-tertiary education or tertiary education programmes. However, the enrolment rate of 20-24 year-olds in education increased over time, as did that of other age groups. Among the countries with available data, the largest increases between 2005 and 2016 were in Australia, Poland and Spain (14 percentage points or more). Other countries, however, witnessed a decrease in enrolment rates over this 11-year span: Finland, Hungary, Lithuania and New Zealand experienced a drop of at least 3 percentage points (Table B1.1).

Enrolment for 25-29 year-olds follows the same pattern of increase as other groups: on average across OECD countries, the enrolment rate in 2016 was 3 percentage points higher than its value in 2010. Australia and Poland experienced the sharpest increase (8 percentage points or more), while enrolment decreased in other countries, including New Zealand and the Russian Federation, where it dropped by at least 5 percentage points in the period 2005-16.

Participation of adults over 30 years of age

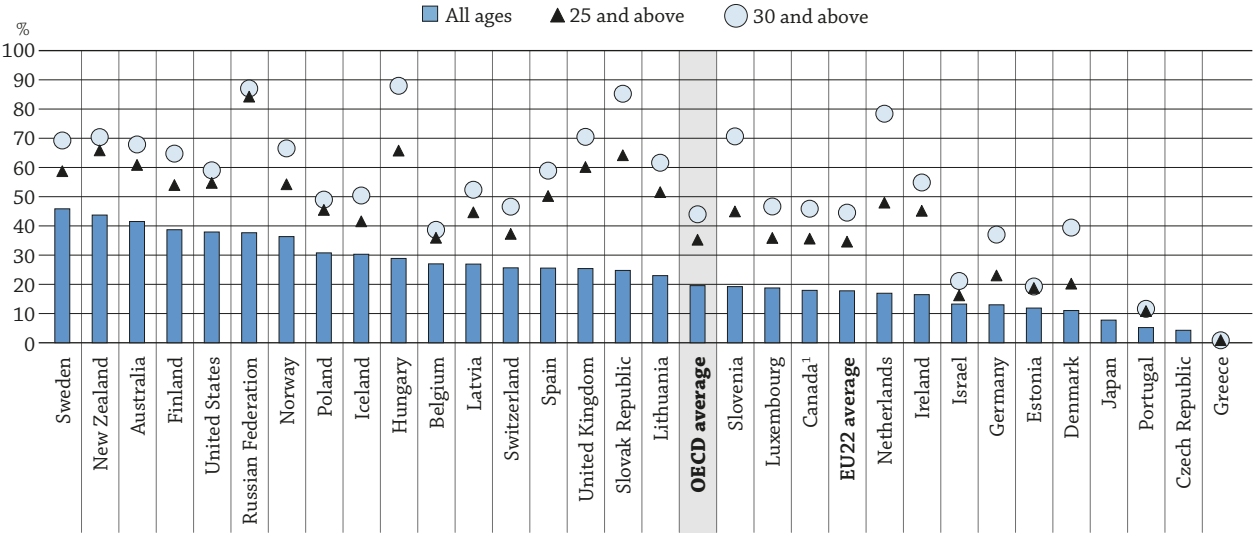
It is crucial to ensure that adults have access to organised learning opportunities beyond initial formal education. Such opportunities can help adults who need to adapt to changes throughout their working careers, those who want to enter the labour force but feel that they lack the necessary qualifications, or those who feel they need to improve their skills and knowledge to participate more actively in social life. Adult education aims to improve people's technical or professional qualifications, develop their abilities and enrich their knowledge. Participants in adult education may or may not complete a level of formal education, but they stand to gain from acquiring or updating knowledge, skills and competencies. Adult learning takes many forms, including formal and non-formal education, on-the-job training and informal education. This section deals with formal educational programmes (i.e. institutional, intentional and planned education provided by public organisations and recognised private bodies). A broader view of adult education, including non-formal education, is found in Indicator A7.

For adults over age 30, enrolment in formal educational programmes can be still considerable. On average across OECD countries, only 7% of adults between age 30 and age 39 are enrolled in education, but the rates can be as high as 19% in Australia and 16% in Finland. Since 2005, enrolment rates for this age group have been increasing on average across OECD countries, with a maximum increase of 6 percentage points in Australia. In other countries, however, enrolment in this age group has been decreasing, for example in New Zealand and Slovenia (by 4 percentage points).

The enrolment rate of adults over age 40 was 1% on average across the OECD countries with available data in 2016. However, the rates are still relatively high in Australia (6%) and in Belgium, Finland, Iceland, New Zealand, Sweden and the United Kingdom (all six countries at 3%). The higher enrolment rates for these age groups in certain countries may be explained by more part-time enrolments or the prevalence of lifelong learning programmes. For instance, credit-based systems in Sweden allow adults to study selected parts of a programme in formal education as a way to upgrade their skills in specific areas. Students may select their own combination of freestanding courses and if these combinations meet stipulated requirements, a qualification may be awarded.

Figure B1.3. Part-time enrolment in tertiary education, by age group (2016)

Percentage of students enrolled part time



1. Excludes enrolment in short-cycle tertiary programmes in private institutions.

Countries are ranked in descending order of their share of part-time enrolment in tertiary education for all ages.

Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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The share of part-time enrolment increases with higher levels of education and with the average age of students enrolled. On average across OECD countries, part-time students represented 20% of enrolment in tertiary education in 2016 (Figure B1.3), compared to 9% in upper secondary education. This share is higher in many countries and can exceed 40% in Australia, New Zealand and Sweden.

The share of part-time students increases to 35%, even when students younger than 25 are excluded, reaching two-thirds of total enrolment or more in Hungary, New Zealand and the Russian Federation. Part-time enrolment is even more common among students age 30 or older and reaches 44% across all OECD countries with available data. The countries for which the share of part-time enrolment increases the most with age (from all ages to 30-year-olds and above) are Hungary, the Netherlands, the Slovak Republic and Slovenia, with increases of over 50 percentage points. In no country does part-time enrolment decrease with age.

Subnational variations in enrolment

Subnational variation in enrolment patterns reveals the equality of access to education across a country, as well as labour-market opportunities and perceptions on lifelong learning for levels beyond compulsory education. Between the ages of 5-14 (corresponding to compulsory education in many countries) and 15-19 (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 starting at age 5, 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 lower in Belgium, Germany, Sweden and the United States, the coefficient of variation shows considerable variations and exceeds 35% in Austria, Colombia, Korea, Slovenia and Turkey. Colombia and Turkey have also the highest ratios between the highest and lowest enrolment levels in their regions for this age group.

Subnational disparities in enrolment increase for 30-39 year-olds. The variation is especially high in Spain and Turkey, where the coefficient of regional variation exceeds 60%. In this age group, however, regional differences compared to 20-29 year-olds decrease to a large extent for Slovenia. The enrolment rate for older ages (40-year-olds and above) are relatively low, reaching 1% on average across OECD countries. Regional differences at this age are still observed across countries with available data, particularly in Belgium, Germany and Italy, where the coefficient of variation across regions increases the most for this age group.

Definitions

The data in this indicator cover formal education programmes that represent at least the equivalent of one semester (or one-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. Vocational programmes are further divided into two categories (school-based programmes and combined school- and work-based programmes), determined by the amount of training provided in school as opposed to the workplace. The degree to which a programme has a vocational or general orientation does not necessarily determine whether participants have access to tertiary education. In several OECD countries, vocationally-oriented programmes are designed to prepare students for further study at the tertiary level, and in some countries general programmes do not always provide direct access to further education.

In **combined school- and work-based programmes**, between 10% and 75% of the curriculum is presented in the school environment or through distance education. Therefore, the work-based component of a school- and work-based programme would be a minimum of 25% and a maximum of 90%. These programmes can be organised in conjunction with education authorities or institutions. They include apprenticeship programmes that involve concurrent school-based and work-based training, as well as programmes that involve alternating periods of attendance at educational institutions and participation in work-based training (sometimes referred to as "sandwich" programmes).

Private institutions are institutions that receive more than 50% of their core funding from government agencies, if they are controlled and managed by a non-governmental organisation (e.g. a church, trade union or business enterprise), or if their governing board consists mostly of members not selected by a public agency.

Repeaters are those students who enrol in the same grade for a second or further time. Students who participate in a second or further education programme at the same level of education after having successfully completed a first programme are not regarded as repeaters. Repeaters include re-entrants to the same programme.

Over-age students are defined as those at least two years older than each grade's intended age. Over-age students are defined according to each country's education system keeping into account the different starting age for each grade. Students above the typical age are defined as those enrolled in upper secondary education that are 20 years old or older, regardless of the starting and ending ages at this level.

A **full-time student** as 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%.

The share of repeaters is the number of repeaters in a grade and year compared to the number of total students enrolled in the same grade and year. This indicator must therefore be interpreted with caution, as repeaters are not compared to their grade and year of origin but to the grade and year where they are re-enrolled.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[8]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Data on subnational regions for selected indicators have been released by the OECD, with support from the US National Centre for Education Statistics (NCES) and are currently available for 15 countries. Subnational estimates were provided by countries using national data sources or by Eurostat based on data for Level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2).

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

StatLink https://doi.org/10.1787/888933802969

Table B1.1	**Enrolment rates by age group (2005, 2010 and 2016)**
Table B1.2	**Students enrolled as a percentage of the population between the ages of 15 and 20 (2010, 2016)**
Table B1.3	**Profile of enrolled students (2016)**

Cut-off date for the data: 18 July 2018. 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.

Table B1.1. Enrolment rates by age group (2005, 2010 and 2016)

Students in full-time and part-time programmes in both public and private institutions

		2016		Students as a percentage of the population of a specific age group											
				2016						2010			2005		
		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	Ages 5 to 14	Ages 15 to 19	Ages 20 to 24	Ages 25 to 29	Ages 30 to 39	Age 40 and older	Ages 20 to 24	Ages 25 to 29	Ages 30 to 39	Ages 20 to 24	Ages 25 to 29	Ages 30 to 39
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	14	4-17	100	91	58	30	19	6	45	19	12	44	21	13
	Austria	12	4-15	98	78	34	18	6	1	33	17	5	m	m	m
	Belgium	16	3-18	98	93	47	14	7	3	52	17	9	42	15	8
	Canada[1]	12	5-16	100	78	33	10	4	0	36	11	5	m	m	m
	Chile	13	5-17	98	81	43	16	6	1	36	13	4	m	m	m
	Czech Republic	14	4-17	98	91	41	10	3	0	39	11	4	34	10	4
	Denmark	16	2-17	99	86	55	32	9	1	49	27	8	m	m	m
	Estonia	14	4-17	97	89	40	16	7	1	44	14	6	40	14	10
	Finland	13	6-18	97	87	51	31	16	3	53	31	15	55	30	13
	France	15	3-17	99	85	36	7	2	0	34	6	1	32	7	1
	Germany	15	3-17	98	86	48	21	5	0	45	17	3	41	18	2
	Greece	13	5-17	97	84	52	21	8	1	m	m	m	m	m	m
	Hungary	13	4-16	96	84	36	10	3	1	41	11	4	38	13	6
	Iceland	15	2-16	99	87	46	26	12	3	m	m	m	m	m	m
	Ireland	14	4-17	100	93	44	12	6	2	32	9	5	32	10	4
	Israel[1]	15	3-17	97	66	20	20	6	1	24	21	5	m	m	m
	Italy	15	3-17	98	83	34	11	2	0	35	11	3	33	10	3
	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	0	54	10	2	46	9	2
	Latvia	15	4-18	98	92	44	15	6	1	44	11	5	m	m	m
	Luxembourg	13	4-16	97	76	21	6	2	0	m	m	m	m	m	m
	Mexico	11	4-14	100	59	25	8	4	2	19	5	2	17	5	2
	Netherlands	14	4-17	100	93	53	18	5	1	47	12	3	m	m	m
	New Zealand	14	4-17	99	81	36	16	10	3	42	20	12	41	21	14
	Norway	17	2-18	99	87	45	18	8	2	48	19	7	46	19	7
	Poland	14	5-18	95	93	50	11	3	1	11	2	1	12	3	1
	Portugal	14	4-17	98	89	37	10	4	1	37	14	9	34	12	4
	Slovak Republic	10	7-16	93	84	33	7	2	0	m	m	m	m	m	m
	Slovenia	15	4-18	97	93	61	13	2	0	54	16	5	50	17	6
	Spain	15	3-17	97	87	49	16	5	1	37	12	4	34	11	3
	Sweden	16	3-18	99	87	42	27	15	3	m	m	m	m	m	m
	Switzerland	13	5-17	100	85	39	17	4	1	34	14	4	31	13	4
	Turkey[3]	10	6-15	95[d]	71	52	29	13	2	m	m	m	m	m	m
	United Kingdom	15	3-17	98	85	34	14	10	3	27	10	6	m	m	m
	United States	12	5-16	99	83	34	15	7	2	38	15	7	32	13	6
	OECD average	14	4-17	98	85	42	16	7	1	39	14	6	37	14	6
	Average for countries with available data for all reference years	~	~	~	~	43	16	6	~	40	14	6	37	14	6
	EU22 average	14	4-17	98	87	43	15	6	1	40	14	5	37	13	5
Partners	Argentina[4]	12	5-16	100	76	40	21	m	m	m	m	m	m	m	m
	Brazil	11	4-14	98	69	29	14	8	2	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	4	9-12	87	59	25	12	6	2	m	m	m	m	m	m
	Costa Rica	m	m	93	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	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	14	5-18	100	94	47	13	6	1	56	16	6	49	17	6
	Russian Federation	13	5-17	96	84	33	7	3	0	m	m	m	34	13	1
	Saudi Arabia	11	6-16	100	m	m	m	m	m	m	m	m	m	m	m
	South Africa[4]	3	7-9	84	m	25	8	2	1	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 age group of 5-14 year-olds includes 15-17 year-olds in primary education.
4. Year of reference 2015.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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B1

Table B1.2. Students enrolled as a percentage of the population between the ages of 15 and 20 (2010, 2016)

Students enrolled in full-time and part-time programmes in both public and private institutions

		2016													2010			
		Age 15	Age 16	Age 17			Age 18			Age 19			Age 20			All levels of education	All levels of education	All levels of education	All levels of education
		Secondary	Secondary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	100	100	90	1	6	39	3	38	22	4	51	18	4	51	87	69	66	62
	Austria	94	89	73	1	13	43	1	29	19	1	31	9	2	31	87	72	50	39
	Belgium	98	98	96	0	1	51	2	38	27	3	51	14	4	54	98	81	83	75
	Canada[1]	100	99	83	m	3	23	m	35	8	m	43	4	m	42	m	m	m	m
	Chile	97	93	92	a	0	34	a	30	11	a	48	5	a	51	89	58	51	46
	Czech Republic	100	98	95	m	0	88	m	2	48	m	24	14	m	41	m	m	m	m
	Denmark	99	95	91	a	0	85	a	1	56	a	8	28	a	21	86	82	63	49
	Estonia	98	97	94	0	0	88	0	1	36	3	27	15	5	35	m	m	m	41
	Finland	98	96	96	0	0	95	0	1	35	0	15	20	0	27	95	94	52	49
	France	96	94	88	0	3	35	1	42	12	1	51	6	0	47	88	77	64	52
	Germany	97	94	88	4	0	65	7	7	39	11	19	22	12	28	93	87	71	58
	Greece	96	92	93	0	1	16	1	48	9	11	54	5	13	56	m	m	m	m
	Hungary	96	94	88	0	0	68	5	5	28	17	21	11	16	29	98	88	74	63
	Iceland	99	96	89	0	0	81	0	0	67	0	3	31	0	18	m	m	m	m
	Ireland	100	100	90	6	3	42	16	28	5	17	55	2	12	56	m	m	m	m
	Israel	97	96	91	m	1	16	m	9	2	m	14	1	m	15	88	26	16	18
	Italy	97	94	92	0	0	78	0	3	20	0	33	7	0	37	m	m	m	m
	Japan	97	97	93	0	0	3	1	m	1	0	m	m	m	m	m	m	m	m
	Korea	100	96	96	a	1	9	a	61	0	a	73	0	a	69	91	68	74	71
	Latvia	98	96	97	0	0	89	0	4	36	2	37	13	3	47	100	93	82	59
	Luxembourg	92	90	82	0	0	72	0	1	41	0	2	25	0	8	m	m	m	m
	Mexico	82	72	57	a	3	23	a	20	11	a	27	6	a	28	53	37	32	26
	Netherlands	100	99	90	a	8	63	a	25	43	a	38	28	a	44	95	85	75	67
	New Zealand	98	98	86	2	2	27	7	31	9	6	41	5	5	42	86	65	58	55
	Norway	100	95	93	0	0	90	0	0	39	1	20	20	1	36	92	88	60	57
	Poland	95	95	94	0	1	93	0	2	44	4	35	10	8	47	96	92	44	19
	Portugal	96	97	97	0	0	53	0	28	26	1	38	13	1	40	89	76	64	55
	Slovak Republic	97	92	88	0	0	76	3	3	33	5	22	6	3	34	m	m	m	m
	Slovenia	97	97	96	a	0	91	a	2	30	a	54	17	a	57	100	92	82	64
	Spain	96	96	89	0	0	43	0	37	26	0	47	17	0	49	84	73	62	53
	Sweden	100	100	99	0	0	95	0	1	26	1	15	16	1	23	m	m	m	m
	Switzerland	98	93	91	0	0	79	1	4	49	1	11	25	1	21	90	84	61	44
	Turkey	90	83	77	a	1	34	a	18	11	a	40	10	a	49	m	m	m	m
	United Kingdom	100	99	92	a	2	39	a	33	22	a	42	15	a	43	m	m	m	m
	United States	100	97	87	0	1	30	1	37	5	2	52	0	2	47	82	68	61	53
	OECD average	97	95	90	1	2	56	2	18	26	4	34	13	4	39	89	75	61	51
	Average for countries with available data for all reference years	~	~	89	1	2	55	2	21	26	4	35	13	4	40	89	75	61	51
	EU22 average	97	95	91	1	2	66	2	16	30	5	33	14	5	39	93	84	67	53
Partners	Argentina[2]	94	88	79	a	1	39	a	19	19	a	32	9	a	36	m	m	m	m
	Brazil	86	85	68	1	5	33	2	14	20	2	20	11	2	22	m	m	m	m
	China	m	m	m	m	4	m	m	22	m	m	35	m	m	36	m	m	m	m
	Colombia	83	72	38	0	14	19	0	23	9	0	27	5	0	27	m	m	m	m
	Costa Rica	85	78	53	a	m	31	a	m	19	a	m	14	a	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	a	5	m	a	19	m	a	23	m	a	23	m	m	m	m
	Lithuania	100	100	98	0	0	83	1	9	22	7	49	6	8	54	100	100	88	77
	Russian Federation[3]	85	55	39	13	40	3	11	65	0	5	63	0	2	54	m	m	m	m
	Saudi Arabia	100	99	100	a	m	59	a	m	27	a	m	11	a	m	m	m	m	m
	South Africa[2]	76	m	m	0	1	m	1	7	35	2	10	24	3	11	m	m	m	m
	G20 average	m	m	m	m	4	m	m	28	m	m	39	m	m	40	m	m	m	m

1. Excludes post-secondary non-tertiary education.
2. Year of reference 2015.
3. Data on upper secondary vocational programmes are included in post-secondary non-tertiary and short-cycle tertiary programmes.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 lower and upper secondary education (2016)

		Lower secondary						Upper secondary									
		Average age of enrolment	Percentage of students in public institutions	Percentage of repeaters in general programmes	Percentage of girls among the repeaters in general programmes	Percentage of over-age students in the last grade (general programmes only)	Percentage of girls among the over-age students in general programmes	Average age of enrolment	Percentage of students in public institutions	Percentage of part-time students	Percentage of students		Percentage of girls in vocational programmes (as % of all programmes)	Percentage of students above typical age (20 years old)		Percentage of repeaters in general programmes	Percentage of girls among the repeaters in general programmes
											In vocational programmes	In combined school- and work-based programmes		In general programmes	In vocational programmes		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Australia	m	59	m	m	m	m	m	60	50	56	x(10)	49	7	82	m	m
OECD	Austria	12	90	2	39	8	40	17	89	0	69	32	64	3	12	6	47
OECD	Belgium	19	42	7	40	6	40	22	41	30	59	3	57	21	25	8	37
OECD	Canada	13	92	m	m	m	m	17	93	0	9	x(10)	8	m	m	m	m
OECD	Chile	13	42	4	42	9	37	17	37	0	28	2	26	7	3	8	42
OECD	Czech Republic	13	97	1	42	4	37	18	85	1	73	6	67	1	17	11	37
OECD	Denmark	15	71	1	41	1	39	21	97	8	41	33	36	19	72	1	48
OECD	Estonia	15	96	2	38	7	37	20	97	11	39	1	30	11	36	4	61
OECD	Finland	14	95	0	45	m	m	25	80	a	71	9	69	6	65	a	a
OECD	France	13	78	2	39	2	41	17	71	0	41	10	36	0	13	5	45
OECD	Germany	13	90	2	38	m	m	18	92	2	38	31	38	4	44	m	m
OECD	Greece	14	96	4	35	4	35	17	96	7	29	a	20	1	16	1	41
OECD	Hungary	13	83	2	39	2	38	18	73	12	21	21	16	10	16	5	45
OECD	Iceland	14	99	m	m	a	a	21	77	22	32	15	26	23	65	m	m
OECD	Ireland	14	100	0	46	0	49	17	99	1	a	a	a	4	a	1	47
OECD	Israel	13	83	1	28	1	39	16	94	a	40	3	41	1	0	2	28
OECD	Italy	12	96	3	33	3	35	16	91	0	56	a	43	1	6	7	35
OECD	Japan	13	93	m	m	a	a	16	67	5	23	a	20	m	m	m	m
OECD	Korea	13	82	0	46	0	40	16	57	0	18	a	15	0	0	0	37
OECD	Latvia	14	98	2	33	5	32	19	96	15	38	38	32	17	18	6	49
OECD	Luxembourg	14	81	10	46	14	49	18	82	1	61	13	59	5	25	11	43
OECD	Mexico	17	90	1	28	3	37	16	81	a	38	a	36	4	6	14	44
OECD	Netherlands	14	99	m	m	m	m	21	90	8	68	m	67	2	46	m	m
OECD	New Zealand	13	95	m	m	1	46	21	87	27	30	x(10)	32	2	67	m	m
OECD	Norway	14	96	a	a	a	a	19	90	3	50	17	42	10	26	m	m
OECD	Poland	14	93	2	32	m	m	18	86	12	51	8	41	18	2	4	33
OECD	Portugal	15	86	m	m	m	m	18	79	8	41	a	36	9	20	m	m
OECD	Slovak Republic	13	92	2	45	m	m	17	84	2	69	7	63	2	7	0	28
OECD	Slovenia	13	100	1	32	1	37	18	94	22	70	a	64	4	28	1	43
OECD	Spain	15	68	11	40	9	39	20	73	14	35	1	32	7	57	m	m
OECD	Sweden	16	83	a	a	0	44	21	83	28	37	2	36	32	40	a	a
OECD	Switzerland	14	91	1	43	1	44	18	85	1	65	58	57	11	24	5	50
OECD	Turkey	13	95	2	58	3	52	18	92	a	48	a	47	26	6	6	34
OECD	United Kingdom	m	28	a	a	a	a	21	19	34	53	20	54	0	53	a	a
OECD	United States	13	91	m	m	5	36	16	91	a	m	m	m	m	m	m	m
	OECD average	14	85	2	40	3	40	19	80	9	44	11	40	8	28	4	42
	EU22 average	14	85	3	39	4	40	19	82	10	48	11	44	8	28	4	43
Partners	Argentina[1]	15	76	11	41	16	49	17	70	m	a	m	a	9	a	6	42
Partners	Brazil	14	86	m	m	15	38	18	86	m	9	a	10	15	28	m	m
Partners	China	m	88	m	m	m	m	m	89	m	41	m	38	m	m	m	m
Partners	Colombia	14	81	3	41	20	40	17	74	a	26	a	27	14	1	1	41
Partners	Costa Rica	16	91	12	40	23	43	19	90	a	33	a	34	23	22	8	43
Partners	India	m	58	0	46	m	m	m	41	m	3	m	1	m	m	2	44
Partners	Indonesia	m	61	m	25	m	m	18	53	m	43	m	37	8	6	m	m
Partners	Lithuania	14	97	1	27	5	32	19	98	5	27	a	20	9	19	1	40
Partners	Russian Federation	13	99	0	49	1	m	16	97	1	54	m	46	0	m	0	55
Partners	Saudi Arabia	14	92	2	45	11	48	18	83	m	m	m	m	12	m	2	35
Partners	South Africa[1]	15	96	m	m	m	m	m	m	m	12	m	11	15	78	16	50
	G20 average	m	81	3	41	m	m	m	74	m	32	m	29	m	m	5	42

1. Year of reference 2015.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

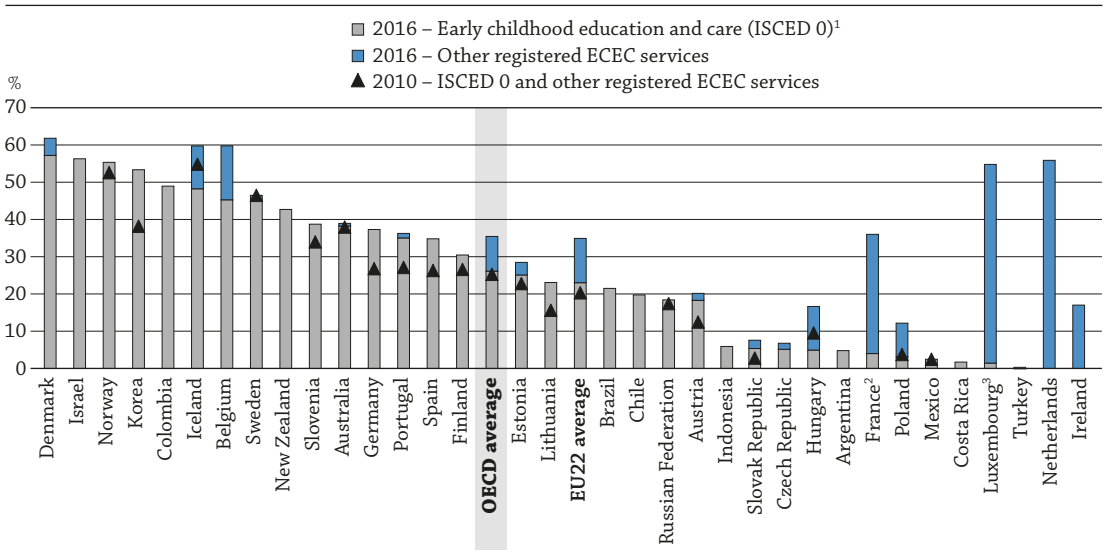
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HOW DO EARLY CHILDHOOD EDUCATION SYSTEMS DIFFER AROUND THE WORLD?

- Early childhood education and care (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 2016, around one-third of children under age 3 are enrolled in ECEC, an increase of 5 percentage points compared to 2010.
- 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). Between 2005 and 2016, average enrolment of 3-5 year-olds in pre-primary or primary education rose from 75% to 85%.
- Despite progress, significant inequities persist in the access of very young children to ECEC services. For example, children under age 3 are more likely to participate to ECEC when they come from relatively advantaged socio-economic backgrounds or when their mother has completed tertiary education.

Figure B2.1. Enrolment rates of children under the age of 3 in early childhood education and care, by type of service (2010 and 2016)

All ECEC services (Early childhood education [ISCED 0] and other registered ECEC services outside the scope of ISCED 0)



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 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. curriculum); and 5) have trained or accredited staff (e.g. requirement of pedagogical qualifications for educators).

1. According to ISCED criteria.

2. Data for "Other registered ECEC services" come from the survey "Enquête 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.

3. Year of reference 2014 instead of 2016 for children under the age of 3 enrolled in "Other registered ECEC services". Data come from the OECD family database (www.oecd.org/els/family/database.htm).

Countries are ranked in descending order of the enrolment rates in ISCED 0 of children under the age of 3 in 2016.

Source: OECD (2018), Table B2.1a. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Economic prosperity depends on maintaining 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. The availability of quality ECEC services and other provisions aiming at improving work-life balance give fathers and mothers greater opportunities to enter employment and to ensure that it is feasible for families to combine work and family responsibilities ([OECD, 2018[1]]; [OECD, 2011[2]]) and (OECD, 2016[3]).

However, 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 for children's development, learning and well-being. Children who start strong will be more likely to obtain better outcomes when they grow older. This is particularly true for children from disadvantaged socio-economic backgrounds, because they have often fewer opportunities to develop these abilities in their home-learning environments (OECD, 2017[4]).

Such evidence has prompted policy makers to design early interventions, to take initiatives that aim at enhancing the quality of ECEC services and improve the equity of access to ECEC settings, and to rethink their education spending patterns to gain "value for money" (Duncan and Magnuson, 2013[5]). Despite these general trends, significant differences exist across OECD countries in the quality of ECEC services provided to young children, in the types of ECEC services available and in the usual number of hours per week that each child is enrolled.

Currently, over half of OECD countries have all ECEC services administered under the responsibility of one leading authority at the national and/or regional level. Those countries also have integrated ECEC curricula adapted to the age of children from below age 1 until the beginning of primary school. An increasing number of countries have recently move towards these types of integrated systems (OECD, 2017[4]).

Other findings

- In 2015, expenditure on ECEC (ISCED 0) accounted for an average of 0.8% of GDP, of which around three-quarters went to pre-primary education (ISCED 02). In pre-primary education, expenditure increased faster than GDP in the 18 countries with available data for 2005 and 2015.
- Affordability is a key driver of equity in participation in ECEC. The share of public funding in total expenditure tends to be lower in early childhood development institutions (ISCED 01) than for pre-primary education. The share of public spending in pre-primary education has increased over the period 2005-15 by 4 percentage points, on average across OECD countries.
- Children under the age of 3 are much more likely to be enrolled in private ECEC settings than older children. The proportion of children enrolled in private early childhood development institutions (ISCED 01) is considerably larger than for pre-primary education (ISCED 02) and exceeds 50% in about two-thirds of OECD countries.
- On average across OECD countries, each teacher (excluding teachers' aides) working in pre-primary education takes care of 14 children. Interestingly, the number of children per teacher has fallen between 2005 and 2016 in about two-thirds of the 21 OECD countries with available data. On average, the number of children enrolled in pre-primary education increased by 18% between 2005 and 2016, a period within which the number of teachers increased by 29%.

B2

Analysis

Types of early childhood education and care services

There is a consensus among OECD countries about the growing need for early childhood education and care. However, the types of ECEC services available to children and parents in OECD countries differ greatly. Variations exist in the targeted age groups, the governance of centres, the funding of services, the type of delivery (full-day versus part-day attendance), as well as the location of provision, either in centres/schools or at home (OECD, 2017[4]).

Generally, formal ECEC services can be classified in two categories:

- The ECEC services reported in the ISCED 2011 classification (OECD/Eurostat/UNESCO Institute for Statistics, 2015[6]). To be classified in ISCED 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. curriculum)
  5) have trained or accredited staff (e.g. requirement of pedagogical qualifications for educators).
- 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 educational programmes (e.g. *crèches* in France or *Amas* in Portugal). The distinction between these two categories is explicitly shown in Figure B2.1 and in Table B2.4.

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 in this indicator (see *Definitions* section at the end of this indicator 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 positive effects on children's well-being, learning and development in the first years of life (OECD, 2018[1]).

On average across OECD countries in 2016, around one-third of children under age 3 are enrolled in ECEC, either full time or part time. This average hides great differences across countries. The length of parental leave also influences the age at which children enrol in ECEC services. ECEC services for children under age 3 are almost non-existent in Mexico (only 2% of children enrolled) and Turkey, while over half of children under age 3 are already enrolled in Belgium, Denmark, Iceland, Israel, Korea, Luxembourg, the Netherlands and Norway (Figure B2.1)

Despite significant differences across countries, a common pattern emerges. The share of children under the age of 3 enrolled in ECEC is on the rise in most countries and has increased on average from 25% to 31% between 2010 and 2016 (Table B2.1b). This is particularly marked in many European countries, as a result of further stimulus by the 2010 objectives set by the European Union (EU) at its Barcelona meeting (to supply subsidised full-day places for one-third of children under the age of 3 by 2010) (OECD, 2017[4]). More globally, the rise in ECEC provision over the last decades has greatly contributed to the increase in women's participation in the labour force, particularly for mothers with children under age 3. Countries with higher enrolment rates of children under age 3 in 2016 tend to be those in which the employment rates of mothers are highest ([OECD, 2018[1]] [OECD, 2018[7]]; Figure B2.1).

However, the wider enrolment in ECEC services does not account for the quality of education provided to children. In countries such as Norway, for instance, not only do more than half of the children below age 3 attend ECEC services, but they also attend programmes integrated within the education system from below age 1 until the beginning of primary school. In these programmes, children are often exposed to an ECEC setting with trained or accredited staff, explicit pedagogical goals and a regulatory framework recognised by the relevant national authorities, even before the age of 3. In other countries with similar enrolment rates, such as Luxembourg and the Netherlands, different standards are often set for different ECEC settings or for different age groups of children (see more details in Table B2.4).

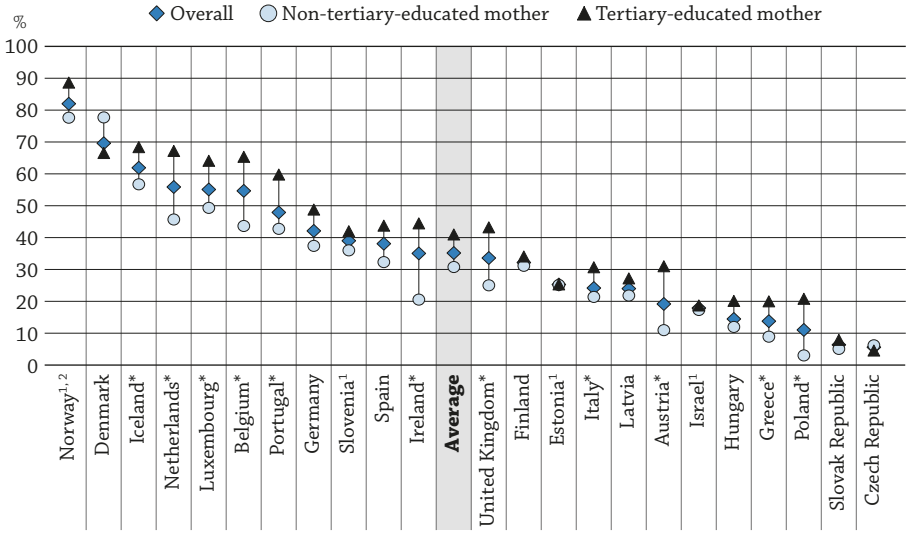
Enrolment of children under the age of 3, by socio-economic profiles

Research shows that children coming from a disadvantaged family or children with an immigrant background can benefit the most from attending high-quality ECEC (see Box B2.1). While promoting equity in education from the earliest age possible is paramount, the existence of inequalities in the economic, social and cultural backgrounds of children in ECEC centres is becoming more of a challenge in OECD countries. This is particularly true as children from poorer families traditionally face greater barriers in accessing ECEC services. It is also often reported that although the children of deprived families need high-quality ECEC the most, these families often have lack of knowledge about existing ECEC services ([OECD, 2017[4]] and Box B2.1).

Children below the age of 3 with tertiary-educated mothers are more likely to participate in ECEC. In particular, on average across countries with available data, children with tertiary-educated mothers are more likely to participate in an ECEC programme than those whose mothers are without tertiary education, by about 10 percentage points. The difference is statistically significant and exceeds 20 percentage points in Austria, Belgium, Ireland and the Netherlands (Figure B2.2 and [OECD, 2018[7]]). Women with tertiary education are more likely to be employed and have higher income than those without tertiary education, and they are therefore more likely to be able to afford private costs to enrol their children in such programmes ([OECD, 2018[1]] [OECD, 2018[7]]).

Figure B2.2. Participation rates of children under the age of 3, by mother's educational attainment (2014)

All ECEC services (Early childhood education [ISCED 0] and other registered ECEC services outside the scope of ISCED 0)



Note: For most European countries, data refer to the 2014 wave of EU-SILC survey led by Eurostat. EU-SILC data are based on surveys and may as a result be affected by sample size and sample selection issues. The EU-SILC survey includes unregulated paid childminders' services. Differences in enrolment rates across groups are not statistically significant at $p<0.05$ for a few countries. In countries with an *, differences in enrolment rates across groups are statistically significant at $p<0.05$.

1. 2016 data, provided by the country. No sampling, therefore, no p-value reported. In Norway, data are based on children aged 1 and 2 years old.

2. Data provided by the country only for ISCED 0.

Countries are ranked in descending order of the overall enrolment rates of children under the age of 3.

Source: OECD (2018), Table B2.1c, available on line, and OECD Family Database. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Indeed, children under the age of 3 are more likely to be enrolled in ECEC programmes when they come from relatively advantaged socio-economic backgrounds. On average across OECD countries, only 28% of children in households where income is in the lowest tertile are enrolled in ECEC services, compared to over 44% of those from the wealthiest tertile (Table B2.1c, [OECD, 2018[7]] and [OECD, 2016[8]]). This difference across income groups is statistically significant in more than half of the countries with available data, notably in those where the overall enrolment rates are the lowest, i.e. countries in which only a small proportion of children globally are enrolled in ECEC services (such as the Czech Republic, Hungary and Poland).

B2

Enrolment of children from age 3 until entry to primary education

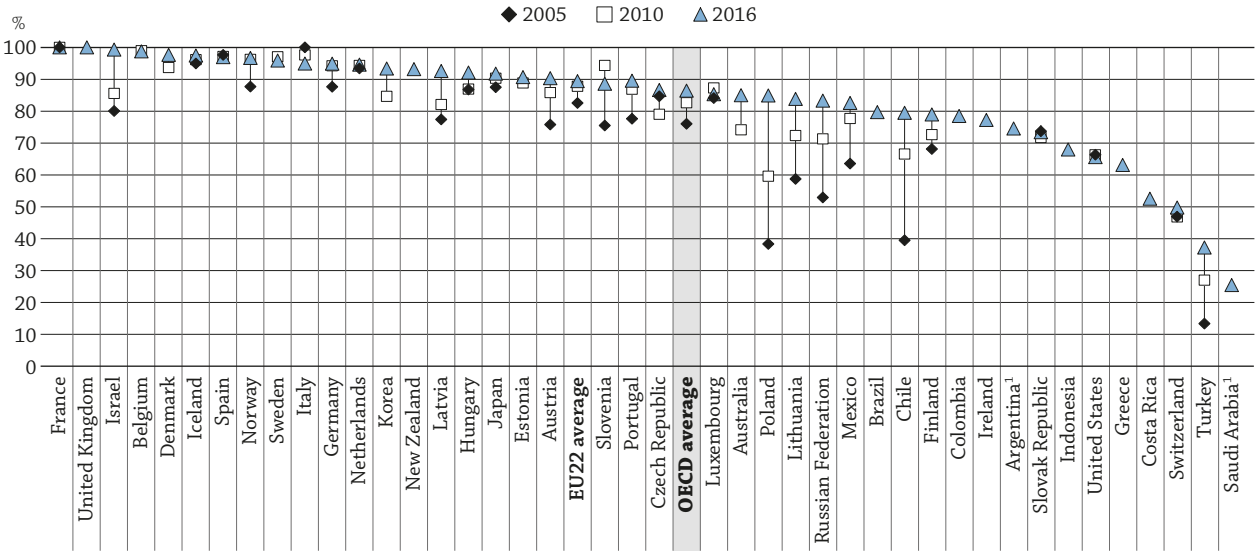
In many OECD countries, ECEC begins for most children well before they are 5 years old. Almost nine out of ten 4-year-olds (88%) are enrolled in pre-primary and primary education across OECD countries. In the OECD countries that are part of the European Union, 91% of 4-year-olds are enrolled. OECD enrolment rates in pre-primary education at this age vary from 98% or higher in Belgium, Denmark, France, Iceland, Israel and the United Kingdom, to less than 50% in Switzerland and Turkey. The highest enrolment rates of 3-year-olds in ECEC are found in Belgium, Denmark, France, Hungary, Iceland, Israel, Korea, Norway, Spain and the United Kingdom, exceeding 95% (Table B2.1a).

In many OECD countries, legal entitlements to a place in ECEC services are universal for at least one or two years before the start of compulsory schooling. On average, 86% of children between age 3 and age 5 are enrolled in ECEC services, at that age usually in pre-primary education (ISCED 02). In 18 of the 42 countries with available data, the enrolment of children between age 3 and age 5 is near universal, exceeding 90%.

This trend is the result of the expansion of ECEC services over the past decades in many countries. Over this period, the increased focus on ECEC policy has resulted in the extension of compulsory education to lower ages, an 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 age 1 until entry into primary education. In figures, between 2005 and 2016, average enrolment of 3-5 year-olds in pre-primary or primary education rose from 75% to 85%. A few countries have had spectacular increases in ECEC over this period, as in Chile, Lithuania, Poland, the Russian Federation and Turkey. By contrast, other countries have not shown much change. For instance, Switzerland was in the group of countries that reported the lowest enrolment rates in 2005 and still in 2016 (Figure B2.3).

Figure B2.3. Change in enrolment rates of children aged 3 to 5 years (2005, 2010 and 2016)

Early childhood education (ISCED 0) and primary education



1. Year of reference 2015 instead of 2016.

Countries are ranked in descending order of the enrolment rates of 3-5 year-olds in 2016.

Source: OECD (2018), Tables B2.1a and b. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Enrolment in ECEC, by subnational regions

If 3 is the starting age of universal entitlement to ECEC in many countries, some strong regional differences remain in access to pre-primary education at this age. For instance, a striking difference is observed in Austria, where up to 90% of 3-year-olds are enrolled in pre-primary in the Burgenland and Niederösterreich area, compared to only 54% in Styria (Steiermark) (OECD/NCES, 2018[9]). The difference between regions in enrolment rates of 3-year-olds equals or exceeds 20 percentage points in Poland, the Russian Federation, Spain and the United States. This emphasises the importance of granting equal access to ECEC across urban and rural areas.

At age 4, enrolment is universal or near universal in most of the countries. However, differences between subnational regions still exist in the 14 countries with available data by subnational regions (see *Source* section). In Austria, Finland, Italy, Korea, Poland, the Russian Federation, Spain, Turkey and the United States, there is a difference of more than 10 percentage points in enrolment of 4-year-olds in pre-primary or primary education between the region with the highest rate and the region with the lowest rate.

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, 2009[10]).

Box B2.1. Integrating young immigrant children by encouraging their enrolment in high-quality early childhood education and care

The populations of OECD countries are becoming increasingly heterogeneous because of migration. On average across the OECD, the share of the foreign-born population has increased from 6% to over 9% in the last two decades. Increased mobility leading to greater diversity requires particular efforts towards integration, especially in the early stages of education (OECD, 2016[11])

Integrating young immigrant children into their new communities is of key importance in the long run. Education systems can help by encouraging their enrolment in ECEC services. However, in most countries, the participation of immigrant children in these programmes is considerably lower than for those without an immigrant background (OECD, 2017[4]; Magnuson and Waldfogel, 2006[12]). On average in the OECD Programme for International Student Assessment (PISA) 2015, immigrant students who reported that they had attended an ECEC setting (ISCED 0) for at least one year scored 36 points higher in the science assessment than those who had attended for less than one year (the equivalent of around one year of formal schooling). After accounting for the socio-economic status of children, a significant difference of 25 score points remains (OECD, 2017[4]).

Expansion of ECEC programs has been implemented across countries to serve a variety of objectives, such as providing care to children living in remote areas, providing equity for economically disadvantaged children, easing the transition of new immigrants into new cultures, or supporting indigenous cultures. In several countries (Denmark, Finland, the Netherlands, Norway and Sweden), policies have been implemented to expand access to early childhood services for immigrant and ethnic minority groups. They are meant to expose children and families to the language and traditions of their new home and provide opportunities for parents to establish social contacts and networks.

Countries with indigenous populations (Australia, Canada, New Zealand and the United States) also implemented measures to preserve traditional languages and cultures, while seeking to empower families within society. Despite this progress, the need for early childhood staff and provision to value and respond to the needs of ethnically, culturally and linguistically diverse families still remains a challenge in many countries (OECD, 2017[4]).

The quality of ECEC services is crucial for ensuring that ECEC benefits those who need it most. On this key question, the literature review and meta-analysis findings summarised in the report *Engaging Young Children* (OECD, 2018[13]) show that children in ECEC classrooms or playrooms with a larger share of immigrant or bilingual children seemed to experience lower-quality staff-child interactions. Similarly, it was shown that classrooms or playrooms with a larger share of immigrant or bilingual children affect children's development: children from disadvantaged backgrounds attending preschools with a larger percentage of other children with similarly disadvantaged backgrounds presented lower language and literacy skills.

The lower quality of settings with a large percentage of immigrant or bilingual children might reflect the barriers to access and the added risk experienced overall by disadvantaged families (EACEA P9 Eurydice, 2009[14]) and ethnic minority or multilingual families in specific locations (Stewart and Waldfogel, 2017[15]). A further explanation that has been suggested is that working with disadvantaged children is more challenging, and additional resources might be needed to counteract these challenges to raise process quality (Pianta et al., 2005[16]; OECD, 2018[13]).

In most countries, the share of children enrolled in private ECEC institutions is considerably larger than in primary and secondary education. Private institutions can be classified under two different categories: independent private 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. Although government-dependent private institutions have similar governance structures, they rely on government agencies for more than 50% of their core funding.

On average across OECD countries, about half of children in early childhood educational development programmes (ISCED 01) are enrolled in private institutions. This average, however, hides huge discrepancies across countries. In Denmark, Finland, Hungary, Iceland, Slovenia, Sweden, Lithuania and the Russian Federation, 20% or less of children in early childhood educational development programmes attend private ECEC institutions, while in Belgium, Indonesia, Israel, Korea, New Zealand, Portugal, Turkey and the United Kingdom, all or almost all children are in private institutions (Table B2.2).

Private institutions usually are more common for children under the age of 3 than for older ones. Thus, about two-thirds of children enrolled in pre-primary education (ISCED 02) attend public institutions across OECD countries, and up to about three-quarters of children for EU22 countries, reflecting the development of public 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 India, Ireland and Japan, more than 70% of children attending pre-primary programmes are in independent private institutions (Table B2.2).

Box B2.2. How many hours per year, on average, does a child participate in pre-primary education?

From a child development perspective, there is little evidence on the optimal hours of participation to ECEC. Therefore, research on the benefits of full-time compared to part-time ECEC attendance is less conclusive than evidence regarding the benefits of a longer period of participation to ECEC. However, from a labour-market perspective, the availability of ECEC services with an adequate number of hours per week is a crucial factor to enable parents of young children to take up full-time employment (OECD, 2017[4]).

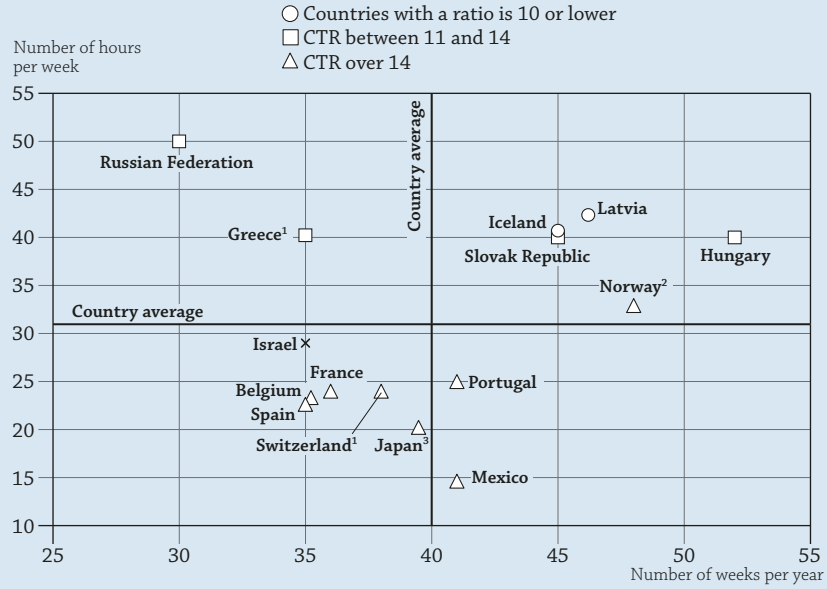
While participation rates by age provide a proxy of how long children are enrolled in ECEC over their childhood (e.g. in years), they do not provide any information about the intensity of participation in pre-primary education (i.e. whether children are enrolled only a few hours per day or all day long). On average, a child attends pre-primary education for an average of 31 hours per week and 40 weeks per year. This average, however, hides huge differences across countries and excludes out-of-school-hours activities. Children attend pre-primary education from 15 hours per week in Mexico to up to 50 hours per week in the Russian Federation. Similarly, pre-primary settings are typically open 30 weeks per year in the Russian Federation and up to 52 weeks per year in Hungary.

In addition to other factors such as teachers' salaries, ECEC provision or child-to-staff ratios, the number of hours per year a child attends pre-primary education largely influences the amount of public budgets to invest in pre-primary education. For instance, increasing the number of hours children spend on pre-primary education, or decreasing the staff-to-child ratio, results in a need for additional staff, thus increasing the public budget. Figure B2.a shows that, with the exception of Norway, countries with the highest number of opening hours per week and weeks per year are also countries in which child-to-teacher ratios are below the OECD average. Among these countries, Iceland, Latvia, and Hungary spend more on pre-primary education as a percentage of GDP than OECD countries on average, while expenditure as a percentage of GDP is at the level of the average in the Slovak Republic (Table B2.3a).

For a more complete understanding of ECEC provision however, enrolment rates and intensity of participation need to be analysed together. Countries such as Belgium, France and Spain offer relatively lower opening hours and weeks in pre-primary settings and child-to-staff ratios are above the OECD average of 14, but enrolment is universal for children age 3 to age 5 (Table B2.1b). In the Slovak Republic, on the other hand, pre-primary schools are open over 40 hours per week, but enrolment rates are below the OECD average, as 73% of children age 3 to age 5 are enrolled in pre-primary edcuation (Table B2.1a).

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Figure B2.a. Number of hours per week and weeks per year children attend pre-primary education (ISCED 02) (2016)



Note: The three different symbols correspond to the ratio of children to teaching staff (CTR) in pre-primary education. Data on the CTR for Israel are missing.

1. Year of reference of data on CTR: 2014 for Switzerland and 2015 for Greece.

2. Average attendance hours of children enrolled in ISCED 02 programmes.

3. The average hours and weeks per year in pre-primary education (ISCED 02) may be inconsistent with the actual situation because these data are based on a regulation defined by National Curriculum Standards for Kindergarten.

Source: OECD (2018) and INES ad-hoc survey. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933803311

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 influence greatly the participation to ECEC of children from disadvantaged socio-economic backgrounds (OECD, 2017[4]).

Expenditure per child

In pre-primary education, annual expenditure per child for both public and private settings averages USD 8 528 in OECD countries, ranging from USD 5 000 or less in Brazil, Colombia and the Czech Republic to more than USD 13 000 in Luxembourg, Norway and Sweden. Annual expenditure per child enrolled in early childhood educational development programmes (ISCED 01) is significantly higher than in pre-primary education (ISCED 02) in 12 out of the 14 OECD countries with available data for both programmes, averaging USD 12 433. The smaller child-to-staff ratio in early childhood development programmes is one of the main drivers of this difference (Tables B2.3a and B2.2). The average number of hours children spend in an ECEC setting per year also influences different countries' spending (Box B2.2).

Public and private funding of ECEC

The source of funding for ECEC settings varies across countries. In some countries, the public sector provides universal access from a certain age. In others, ECEC settings are mainly provided by the private sector, or there is a mix of the two (Table B2.3b). Many governments may also delegate responsibility for ECEC public funding to local authorities. In general, public funding is more decentralised in ECEC than at any other level of education (OECD, 2018[17]).

Generally, a substantial and increasing public investment in ECEC is observed on average across OECD countries, although differences exist between pre-primary (ISCED 02) and early childhood educational development (ISCED 01). On average across OECD countries, in early childhood educational development, public sources account for 72% of total expenditure, while in pre-primary education, the share of public expenditure is higher, at 83% of the total. Public spending in pre-primary education has also increased over the period from 2005 to 2015, by 4 percentage points on average for countries with available data for both reference years, and by more than 10 percentage points in Chile, Germany, Israel and Korea (Table B2.3b, available on line). In 2015, Japan, Turkey and the United Kingdom are the only countries where private funds account for more than 40% of total expenditure in pre-primary education. In Turkey, most of the private funding comes from households but families have access to well-developed public subsidies system. In Japan, the high cost is shared between households, foundations and the business sector while a large part of the private funding comes from households in the United Kingdom (Table B2.3b, available on line).

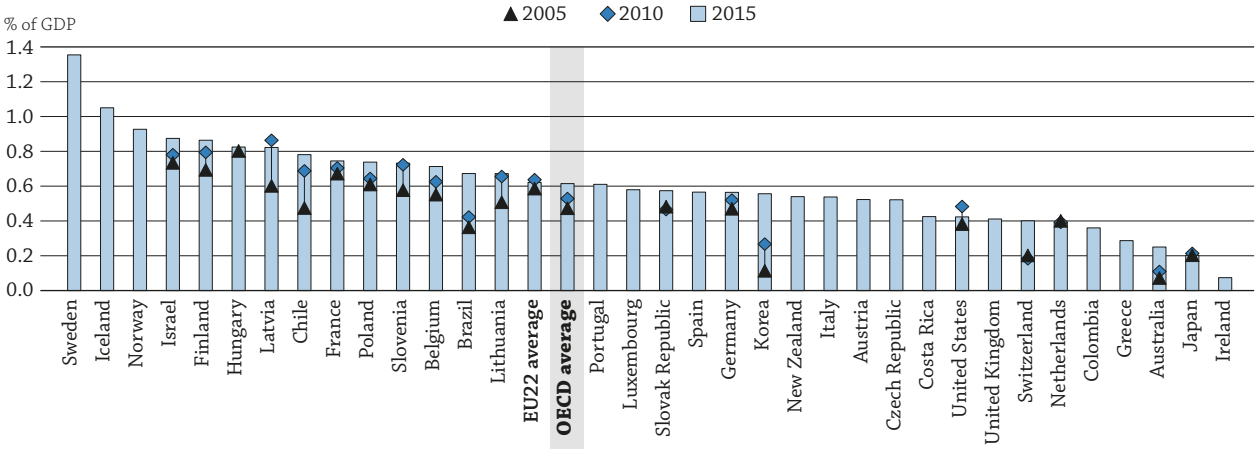
Expenditure as a percentage of GDP

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 (Figure B2.4). While 0.3% or less of GDP is spent on pre-primary education in Australia, Greece, Ireland and Japan, countries such as Iceland and Sweden spend over 1% of GDP (Table B2.3a). These differences are largely explained by enrolment rates, legal entitlements and intensity of participation, as well as the different starting ages for primary education. Comparison between countries' relative expenditure on ECEC is also a function of the duration of pre-primary education. For example, a shorter duration of pre-primary education as the result of an earlier transition between pre-primary to primary education, such as in Australia, Ireland, New Zealand and the United Kingdom, partly explains why these four countries have expenditure on ECEC as a percentage of GDP below the OECD average. Table B2.4 summarises the theoretical duration of countries' ECEC programmes and the OECD family database provides additional information (OECD, 2018[7]).

Investments in high-quality ECEC pay dividends in terms of children's short-term and long-term learning and development. That is why many OECD countries have increased spending on ECEC, particularly to expand access or to increase the number of hours per week covered by legal entitlements to a place in ECEC (Box B2.2). This direction has also been the result of further stimulus by the 2010 objectives set by the European Union (EU) at its Barcelona meeting. In the 18 countries with available data, the increase in the number of children enrolled in pre-primary education between 2005 and 2015 goes hand in hand with an increase in financial investment.

Figure B2.4. Expenditure on pre-primary (ISCED 02) education as a percentage of GDP (2005, 2010 and 2015)

Public and private institutions



Note: Comparison between countries' relative expenditure on ECEC is also a function of the duration of pre-primary education. For example, a shorter duration of pre-primary education as the result of an earlier transition to primary education may explain why some countries have expenditure on ECEC as a percentage of GDP below the OECD average (see duration of pre-primary education in Table B2.4, available on line).
Countries are ranked in descending order of expenditure as a percentage of GDP in 2015.

Source: OECD (2018), Table B2.3a. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

In all these countries, expenditure on pre-primary educational settings increased at a faster rate than GDP, resulting on average across OECD countries in an increase in expenditure on educational institutions as a percentage of GDP of 0.1 percentage points between 2005 and 2015. The increase is at least of 0.3 percentage points over this period in Brazil (from 0.4% to 0.7%), Chile (from 0.5% to 0.8%) and Korea (from 0.1% to 0.6%) (Figure B2.4).

Variation in child-staff ratios across OECD countries

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[13]).

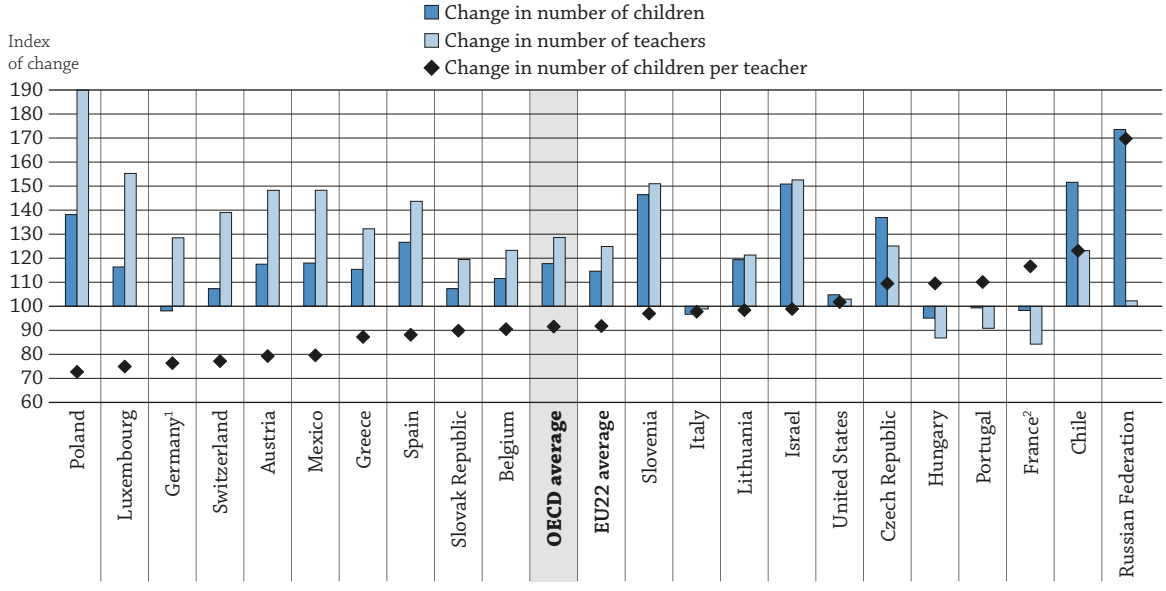
The ratio of children to teaching staff is an important indicator of the resources devoted to education. Child-staff ratios and group size are often the most commonly used regulations to improve ECEC quality. On average across OECD countries, there are 14 children for every teacher working in pre-primary education. But wide variations are observed across countries. Thus, the child-teacher ratio, excluding teachers' aides, ranges from more than 20 children per teacher in Brazil, Chile, Colombia, France, Mexico and South Africa to less than 10 in Iceland and Slovenia.

Some countries also make extensive use of teachers' aides at the pre-primary level to assist teachers in their daily tasks and deal with children with special needs: 11 of the 22 countries with available data reported smaller child-to-staff ratios than child-to-teacher ratios. Among these countries, the child-to-staff ratios are substantially lower than child-to-teacher ratios (at least three children or fewer) only in Austria, Brazil, Chile, France, Lithuania and Norway (Table B2.2).

Child-to-staff ratio matters more for interactions with children under the age of 3 than with children age 3 to age 5 (OECD, 2018[13]). In most countries, the ratios of children to teacher are smaller in early childhood development programmes than in pre-primary education. On average across the 11 OECD countries with available data for both programmes, there are 14 children for each teacher working in pre-primary education, while the ratio is only 8 children per teacher in early childhood development programmes (Table B2.2).

Figure B2.5. Changes in number of children, number of teachers and number of children per teacher in pre-primary education (2005, 2016)

Index of change between 2005 and 2016 (2005 = 100), based on head counts



1. Year of reference 2006 instead of 2005.

2. Excluding independent-private institutions.

Countries are ranked in ascending order of the change over the period 2005-2016 in number of children per teacher in pre-primary education (ISCED 02).

Source: OECD (2018), Table B2.2. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

Over the last decade, many countries have implemented policies to increase participation in ECEC and reduce child-to-staff ratios. As a result, the number of children per teacher has fallen between 2005 and 2016 in two-thirds of the 20 OECD countries with available data for pre-primary education. On average, the number of children enrolled in pre-primary education increased by 18% between 2005 and 2016, a period over which the number of teachers increased by 29%. However, some exceptions exist. In Chile, the Czech Republic, France, Hungary, Portugal, the Russian Federation and the United States, the number of children per teacher is higher in 2016 than a decade ago (Figure B2.5).

Definitions

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[4]] and Table B2.4):

- **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 day care 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 day care 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. Figure B2.1 and Table B2.4 make 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 level 0 refers to early childhood programmes that have an intentional education component. To be reported in ISCED level 0, a programme must:

- have adequate intentional educational or pedagogical properties
- take place in an institutionalised setting (usually school-based or otherwise institutionalised for a group of children)
- meet a minimum intensity/duration (an intensity of at least 2 hours per day and a duration of at least 100 days a year)
- have a regulatory framework recognised by the relevant national authorities (e.g. curriculum, guidelines, standards or instructions)
- be delivered by trained or accredited staff (e.g. requirement of pedagogical qualifications for educators)

There are two categories of ISCED level 0 programmes, which are classified depending on age and the level of complexity of the educational content:

- **ISCED 01** refers to early childhood educational development programmes, typically aimed at children under age 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 programmes, aimed at children in the years immediately prior to starting compulsory schooling, typically aged between age 3 and age 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.

Equivalised disposable income tertile refers to the disposable (i.e. post-tax and post-transfer) income of the household in which the child lives, equivalised using the square root scale to account for the effect of family size on the household's standard of living. The income tertiles are calculated based on the distribution by equivalised disposable income of children aged less than or equal to 12.

Mother's educational attainment measures whether or not the mother of the enrolled child has attained tertiary education (highest level of education attained at ISCED levels 5 to 8).

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

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 01 and 02 according to the age of the children. This may involve estimation of expenditure and personnel at levels 01 and 02.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[18]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the school year 2015/16 and financial year 2015 and are based on a special survey administered by the OECD in 2017 (for details see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en).

Data from Argentina, China, Colombia, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Data on subnational regions for selected indicators have been released by the OECD, with support from the US National Centre for Education Statistics (NCES) and are currently available for 14 countries: Austria, Colombia, Finland, Germany, Ireland, Italy, Korea, Poland, the Russian Federation, Slovenia, Spain, Sweden, Turkey and the United States. Subnational estimates were provided by countries using national data sources or were calculated by Eurostat based on data for Level 2 of the Nomenclature of Territorial Units for Statistics (NUTS 2) for all countries except the United Kingdom (NUTS 1).

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

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	Table B2.1a	Enrolment rates in early childhood education and care and primary education, by age (2016)
	Table B2.1b	Trends in enrolment rates in early childhood education and care (ECEC) and primary education, by age (2005, 2010, 2015 and 2016)
WEB	Table B2.1c	Participation of children under the age of 3 in early childhood education and care, by socio-economic profile (2016)
	Table B2.2	Enrolment of children in early childhood education and care by type of institution and ratio of children to teaching staff (2016)
	Table B2.3a	Expenditure on early childhood education and care (ISCED 0) (2005, 2010, 2014 and 2015)
WEB	Table B2.3b	Relative proportions of public and private expenditure on early childhood education and care (ISCED 0) (2005 to 2015)
WEB	Table B2.4	Coverage of early childhood education and care in OECD and partner countries

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table B2.1a. Enrolment rates in early childhood education and care (ECEC) and primary education, by age (2016)

		Under the age of 2			Age 2			Under the age of 3			Age 3			Age 4			Age 5			Age 6		
		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)	Primary education (ISCED 1)	Total	Pre-primary (ISCED 02)	Primary education (ISCED 1)	Total	Pre-primary (ISCED 02)	Primary education (ISCED 1)	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
OECD	Australia	29	1	30	57	1	58	38	1	39	63	1	64	89	2	91	20	80	100	2	99	100
	Austria	7	x(8)	x(9)	41	x(8)	41	18	2	20	76	m	76	92	0	92	97	0	97	41	57	98
	Belgium	x(7)	x(8)	x(9)	53	x(8)	53	45	14	60	99	0	99	99	0	99	98	1	99	4	95	98
	Canada	m	a	m	m	a	m	m	a	m	m	a	m	m	m	m	95	0	95	0	100	100
	Chile	13	a	13	33	a	33	20	a	20	56	a	56	86	0	86	95	0	95	16	81	97
	Czech Republic	0	x(8)	x(9)	16	x(8)	16	5	2	7	78	m	78	91	0	91	91	0	91	46	48	94
	Denmark	41	x(8)	41	90	x(8)	90	57	5	62	97	m	97	98	0	98	95	2	98	7	92	99
	Estonia	6	1	7	64	7	71	25	3	28	87	3	90	92	0	92	93	0	93	92	1	93
	Finland	16	m	16	58	m	58	30	m	30	73	m	73	79	0	79	84	0	84	98	0	98
	France[1]	0	x(8)	x(9)	12	x(8)	x(9)	4	32	36	99	m	99	100	0	100	100	1	100	1	99	100
	Germany	24	a	24	65	a	65	37	a	37	92	a	92	96	0	96	97	0	97	35	63	98
	Greece[1]	2	m	m	11	m	m	5	m	m	27	m	27	65	0	65	94	0	94	3	93	96
	Hungary	1	4	4	14	28	42	5	12	17	85	13	98	95	0	95	96	0	96	60	30	91
	Iceland	24	17	41	95	0	95	48	12	60	97	0	97	98	0	98	96	2	98	0	99	99
	Ireland	a	x(8)	x(9)	a	x(8)	x(9)	a	17	17	49	m	49	59	31	90	0	92	92	0	97	97
	Israel	48	a	48	73	a	73	56	a	56	100	a	100	98	0	98	96	0	97	14	83	97
	Italy	m	m	m	16	m	m	5	m	m	92	0	92	96	0	96	88	8	96	1	96	97
	Japan	0	m	m	1	m	m	0	m	m	84	0	84	95	0	95	96	0	96	0	100	100
	Korea	36	a	36	87	a	87	53	a	53	97	a	97	93	0	93	90	1	90	0	95	95
	Latvia	m	m	m	m	m	m	m	m	m	89	m	89	93	0	93	97	0	97	93	4	97
	Luxemboug[2]	0	m	m	4	m	m	1	53	55	67	m	67	93	0	93	91	5	95	5	93	99
	Mexico	1	a	1	5	a	5	2	a	2	45	a	45	91	0	91	76	24	100	1	99	100
	Netherlands	a	x(8)	x(9)	a	x(8)	x(9)	a	56	56	86	2	88	96	0	96	99	0	99	0	100	100
	New Zealand	31	m	31	66	m	66	43	m	43	89	m	89	93	0	93	3	95	98	0	99	99
	Norway	37	0	37	92	0	92	55	0	55	96	0	96	97	0	97	97	0	97	1	99	100
	Poland	0	x(8)	x(9)	9	x(8)	x(9)	3	9	12	71	m	71	86	0	86	98	0	98	21	74	95
	Portugal	28	1	29	49	1	50	35	1	36	83	0	83	90	0	90	95	0	95	8	89	97
	Slovak Republic	0	x(8)	x(9)	16	x(8)	x(9)	5	2	8	67	m	67	71	0	71	82	0	82	39	49	89
	Slovenia	23	m	23	70	m	70	39	m	39	84	m	84	90	0	90	92	0	92	7	90	97
	Spain	24	m	24	57	m	57	35	m	35	96	m	96	96	0	96	98	0	98	1	97	98
	Sweden	24	1	25	88	2	90	45	1	46	92	2	95	94	0	94	95	0	95	97	1	99
	Switzerland	m	m	m	m	m	m	m	m	m	2	m	2	48	0	48	98	1	99	55	45	100
	Turkey	m	m	m	1	a	1	0	a	0	9	a	9	34	0	34	55	15	70	0	94	94
	United Kingdom	x(7)	m	m	51	m	m	18	m	m	100	m	100	100	3	100	0	97	97	0	98	98
	United States	m	m	m	m	m	m	m	m	m	38	m	38	67	0	67	87	4	91	22	81	100
	OECD average	16	m	25	45	m	45	25	9	34	75	1	76	87	1	88	82	12	95	22	76	98
	EU22 average	11	m	21	41	m	41	22	11	33	81	1	82	90	2	91	85	9	95	30	67	97
Partners	Argentina[3]	2	m	m	10	m	m	5	m	m	40	m	40	85	0	85	99	1	99	1	100	100
	Brazil	13	m	13	39	m	39	22	m	22	62	m	62	90	0	90	90	7	97	10	92	100
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	50	m	50	47	m	47	49	m	49	49	m	49	44	0	44	56	18	74	7	76	82
	Costa Rica	1	m	m	3	m	m	2	m	m	5	m	5	64	0	64	90	0	91	1	88	89
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	3	m	m	12	m	m	6	m	m	35	m	35	71	0	71	96	3	99	x(21)	x(21)	100
	Lithuania	6	a	6	58	a	58	23	a	23	78	a	78	84	0	84	90	0	90	95	4	99
	Russian Federation	4	m	4	48	m	48	18	m	18	79	m	79	84	0	84	91	0	91	81	11	92
	Saudi Arabia	a	m	m	a	m	m	a	m	m	5	m	5	22	0	22	45	5	50	2	96	97
	South Africa[3]	m	m	m	m	m	m	m	m	m	5	m	5	8	0	8	17	22	39	22	53	75
	G20 average	m	m	m	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 th e 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 "Enquête 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 2014 instead of 2016 for children under the age of 3 enrolled in "Other registered ECEC services". Data come from the OECD family database (www.oecd.org/els/family/database.htm).

3. Year of reference 2015 instead of 2016.

Source: INES ad-hoc survey and OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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B2

Table B2.1b. Trends in enrolment rates in early childhood education and care (ECEC) and primary education, by age (2005, 2010, 2015 and 2016)

		Enrolment rates in ECEC and primary education																	Index of change between 2005 and 2016 (2005 = 100) in enrolment rates in ECEC and primary education of children aged 3 to 5		
		Under the age of 3				Age 3			Age 4			Age 5			Ages 3 to 5						
		ISCED 0 and other registered ECEC services				ISCED 0 and primary education			ISCED 0 and primary education			ISCED 0 and primary education			ISCED 0 and primary education				Change in number of children enrolled	Change in population	Change in enrolment rates
		2005	2010	2015	2016	2005	2010	2015	2005	2010	2015	2005	2010	2015	2005	2010	2015	2016			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20) = (18)/(19)
OECD	Australia	m	38	39	39	m	73	70	m	51	90	m	99	100	m	74	87	85	m	122	m
	Austria	m	12	19	20	51	66	75	83	90	93	93	96	97	76	86	90	90	123	103	119
	Belgium	m	m	m	60	100	99	98	100	99	99	100	99	99	100	99	99	99	112	113	99
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	95	m	m	m	m	m	113	m
	Chile	m	m	19	20	23	38	56	42	75	87	53	87	94	39	67	79	79	176	87	201
	Czech Republic	m	m	4	7	66	60	77	91	86	85	97	93	91	85	79	85	87	129	126	102
	Denmark[1]	m	m	58	62	m	87	97	m	97	98	m	98	99	m	94	98	98	m	93	m
	Estonia	m	23	24	28	m	85	86	m	90	91	m	91	92	m	89	90	91	m	118	m
	Finland[1]	25	27	28	30	62	67	68	69	73	74	73	77	79	68	73	74	79	125	108	116
	France[1]	9	5	4	4	100	99	99	100	100	100	100	100	100	100	100	100	100	103	103	99
	Germany[2]	17	27	37	37	80	90	93	89	96	97	93	97	98	88	94	96	95	101	93	108
	Greece[1]	m	m	m	m	m	m	26	m	m	66	79	95	94	m	m	64	63	m	97	m
	Hungary	7	10	16	17	85	84	94	91	93	95	97	96	95	87	87	91	92	100	94	106
	Iceland	53	55	60	60	94	95	97	95	97	97	97	96	94	95	96	96	97	110	107	103
	Ireland	m	m	m	17	m	m	38	m	m	89	97	100	96	m	m	74	77	m	134	m
	Israel	m	m	28	56	66	78	100	84	83	98	91	96	97	80	86	99	99	152	122	124
	Italy	m	m	m	m	99	95	92	100	99	96	100	99	97	100	98	95	95	96	102	94
	Japan	16	19	23	m	69	75	80	95	97	94	99	99	97	87	90	90	92	93	89	105
	Korea	m	38	52	53	m	80	92	m	84	91	m	90	93	m	85	92	93	m	82	m
	Latvia	m	m	m	m	66	73	87	73	82	92	94	93	96	77	82	92	93	119	100	120
	Luxembourg[3]	m	m	m	55	62	73	66	95	97	95	94	93	99	84	87	86	85	114	113	101
	Mexico	2	2	2	2	26	37	46	69	85	89	96	100	100	64	78	82	83	126	97	130
	Netherlands	m	m	56	56	82	84	83	98	100	96	100	99	99	93	94	93	95	89	88	101
	New Zealand[1]	m	m	42	43	m	m	89	m	m	94	m	m	97	m	m	94	93	m	110	m
	Norway	33	53	55	55	83	95	95	89	97	97	91	97	98	88	96	97	97	117	106	110
	Poland	3	4	9	12	29	46	66	38	59	79	49	76	95	38	60	80	85	235	106	222
	Portugal	21	27	35	36	64	78	82	79	87	91	89	96	97	78	87	90	90	97	84	115
	Slovak Republic[1]	7	3	5	5	61	60	60	74	73	76	85	82	81	74	72	72	73	109	110	100
	Slovenia[1]	25	34	38	39	67	84	83	76	100	89	84	99	92	75	94	88	89	145	124	117
	Spain[1]	15	26	34	35	94	96	95	99	97	97	100	99	98	98	97	97	97	111	112	99
	Sweden	m	46	46	46	m	95	94	m	98	95	m	99	97	m	97	95	96	m	129	m
	Switzerland	m	m	m	m	9	4	3	39	41	47	91	95	98	47	47	49	50	120	112	106
	Turkey	m	m	m	0	2	4	9	5	17	32	32	61	72	13	27	38	37	251	90	279
	United Kingdom	m	m	m	m	m	m	100	m	m	100	100	99	98	m	m	100	100	m	120	m
	United States	m	m	m	m	39	41	43	68	65	66	93	92	91	66	66	67	66	102	103	99
	OECD average	18	25	31	33	63	71	75	78	84	88	88	94	95	76	83	86	86	126	106	119
	Average for countries with available data for all reference years	20	25	30	31	61	70	76	76	84	87	86	93	94	75	80	84	85	126	104	122
	EU22 average	14	20	28	31	73	80	80	85	90	91	91	94	95	83	88	89	89	119	108	111
Partners	Argentina	m	m	5	m	m	m	40	m	m	85	m	m	99	m	m	m	75	m	m	m
	Brazil[1]	m	m	21	22	m	m	61	m	61	84	m	72	93	m	m	80	80	m	82	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[1]	m	m	29	49	m	m	60	m	m	81	m	m	95	m	m	78	78	m	98	m
	Costa Rica[1]	m	m	2	2	m	m	5	m	m	61	m	m	89	m	m	52	53	m	93	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	3	6	m	m	24	m	m	67	m	m	100	m	m	65	68	m	m	m
	Lithuania	13	16	22	23	53	68	77	58	73	86	65	77	89	59	72	84	84	131	91	144
	Russian Federation[1]	21	17	18	18	51	63	76	54	74	88	54	78	87	53	71	83	83	216	136	159
	Saudi Arabia	m	m	m	m	m	m	1	m	m	10	m	m	37	m	m	16	25	m	m	m
	South Africa	m	m	m	m	m	m	5	m	m	8	m	m	39	m	m	17	m	m	m	m
	G20 average	m	m	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. Includes only early childhood education and care (ISCED 0) for children under the age of 3. For Greece, ECEC data include only part of the children enrolled in early childhood development programmes (ISCED 01).

2. Year of reference 2006 instead of 2005.

3. Year of reference 2014 instead of 2016 for children under the age of 3 enrolled in "Other registered ECEC services". Data come from the OECD family database (www.oecd.org/els/family/database.htm).

Source: INES ad-hoc survey and OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

Table B2.2. Enrolment of children in early childhood education and care (ISCED 0) by type of institution and ratio of children to teaching staff (2016)

Early childhood educational development programmes = ISCED 01, pre-primary education = ISCED 02

		Distribution of children in ISCED 01, by type of institution				Distribution of children in ISCED 02, by type of institution				Ratio of children to staff in full-time equivalents, by type of ECEC service						Index of change between 2005 and 2016 (2005 = 100) in number of children per teacher in pre-primary education (ISCED 02) (based on head counts)		
			Private				Private			ISCED 01		ISCED 02		Total (ISCED 0)				
		Public	Government-dependent private	Independent private	Total	Public	Government-dependent private	Independent private	Total	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Change in number of children enrolled	Change in number of teachers	Change in number of children per teacher
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17) = (15) /(16)
OECD	Australia	m	m	m	m	16	84	a	84	m	m	m	m	m	m	m	m	m
	Austria	33	x(4)	x(4)	67	71	x(8)	x(8)	29	6	9	9	13	8	12	118	148	79
	Belgium	16	74	11	84	47	53	0	53	m	m	15	15	m	m	112	123	90
	Canada	m	m	m	m	93	x(8)	x(8)	7	m	m	m	m	m	m	m	m	m
	Chile	68	30	2	32	32	61	7	68	4	11	10	25	10	24	152	123	123
	Czech Republic	a	a	a	a	96	4	a	4	a	a	13	13	13	13	137	125	109
	Denmark	85	15	0	15	79	21	0	21	m	m	m	m	m	m	m	m	m
	Estonia	x(5)	a	x(7)	x(8)	96	a	4	4	m	x(14)	m	x(14)	m	8	m	m	m
	Finland	80	20	a	20	88	12	a	12	m	m	m	10	m	m	m	m	m
	France[1]	a	a	a	a	87	13	0	13	a	a	15	23	15	23	98	84	117
	Germany[2]	27	x(4)	x(4)	73	35	x(8)	x(8)	65	5	5	9	10	7	8	98	128	76
	Greece[1]	62	a	38	38	91	a	9	9	m	m	m	m	m	m	115	132	87
	Hungary	86	8	7	14	90	7	3	10	10	10	12	12	12	12	95	87	110
	Iceland	83	17	0	17	85	15	0	15	3	3	5	5	4	4	m	m	m
	Ireland	a	a	a	a	2	0	98	98	a	a	m	m	m	m	m	m	m
	Israel	a	33	67	100	63	30	7	37	m	m	m	m	m	m	151	153	99
	Italy	a	a	a	a	72	0	28	28	a	a	13	13	13	13	97	99	98
	Japan	a	a	a	a	26	a	74	74	a	a	14	15	14	15	93	m	m
	Korea	9	91	a	91	21	79	a	79	5	5	13	13	9	9	m	m	m
	Latvia	m	m	m	m	93	a	7	7	m	m	m	10	m	10	m	m	m
	Luxembourg	a	a	a	a	89	0	11	11	a	a	11	11	11	11	116	155	75
	Mexico	36	a	64	64	86	a	14	14	5	14	25	25	21	24	118	148	80
	Netherlands	a	a	a	a	70	a	30	30	a	a	14	16	14	16	m	m	m
	New Zealand	1	99	a	99	1	99	a	99	m	m	m	m	m	m	m	m	m
	Norway	48	52	a	52	52	48	a	48	3	9	6	15	5	12	m	m	m
	Poland	a	a	a	a	78	3	20	22	a	a	m	14	m	14	138	190	73
	Portugal	4	79	18	96	53	31	16	47	m	m	m	17	m	m	100	91	110
	Slovak Republic	a	a	a	a	94	6	a	6	a	a	12	12	12	12	107	119	90
	Slovenia	94	6	0	6	95	4	0	5	6	6	9	9	8	8	146	151	97
	Spain	51	15	33	49	68	29	4	32	m	10	m	15	m	13	127	144	88
	Sweden	81	19	0	19	83	17	0	17	m	m	m	m	5	13	m	m	m
	Switzerland	a	a	a	a	95	1	4	5	a	a	m	m	m	m	107	139	77
	Turkey	a	a	100	100	84	a	16	16	m	m	m	17	m	m	m	m	m
	United Kingdom	18	78	4	82	52	43	5	48	m	m	m	m	m	m	m	m	m
	United States	m	a	m	m	59	a	41	41	m	m	11	13	m	m	105	103	102
	OECD average	44	m	m	56	67	m	m	33	5	8	12	14	11	13	118	129	92
	EU22 average	53	m	m	47	74	m	m	26	7	8	12	13	11	13	115	127	90
Partners	Argentina[3]	44	x(4)	x(4)	56	68	x(8)	x(8)	32	m	m	m	m	m	m	m	m	m
	Brazil	64	a	36	36	76	a	24	24	8	14	18	21	12	18	m	m	m
	China	a	a	a	a	46	x(8)	x(8)	54	a	a	m	19	m	19	m	m	m
	Colombia	100	a	a	a	77	a	23	23	m	m	m	33	m	m	m	m	m
	Costa Rica	23	x(4)	x(4)	77	88	x(8)	x(8)	12	8	8	12	12	11	11	m	m	m
	India	a	a	a	a	23	5	72	77	a	a	m	m	m	m	m	m	m
	Indonesia	0	x(4)	x(4)	100	5	x(8)	x(8)	95	m	32	m	11	m	18	m	m	m
	Lithuania	90	a	10	10	96	a	4	4	7	10	7	10	7	10	119	121	98
	Russian Federation	99	a	1	1	99	a	1	1	x(13)	x(14)	x(13)	x(14)	7	11	174	102	170
	Saudi Arabia	a	a	a	a	56	x(8)	x(8)	44	a	a	m	11	m	11	m	m	m
	South Africa[3]	m	m	m	m	94	x(8)	x(8)	6	m	m	30	30	m	m	m	m	m
	G20 average	m	m	m	m	58	m	m	42	m	m	m	17	m	15	m	m	m

1. Data for Columns 11 to 17 represent public and government-dependent private institutions only.
2. Year of reference 2006 instead of 2005.
3. Year of reference 2015 instead of 2016.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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B2

Table B2.3a. Expenditure on early childhood education and care (ISCED 0) and change in expenditure as a percentage of GDP in pre-primary education (2005, 2010, 2014 and 2015)

Public and private institutions

		Annual expenditure per child in USD, converted using PPPs (2015)			Expenditure on ECEC services as a percentage of GDP (2015)			Expenditure on pre-primary education (ISCED 02) as a percentage of GDP		
		ISCED 0			ISCED 0					
		Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total	Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total	2005	2010	2014
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Australia	7 123	7 097	7 112	0.3	0.3	0.6	0.1	0.1	0.2
	Austria	11 815	9 439	9 824	0.1	0.5	0.7	m	m	0.5
	Belgium[1]	m	7 929	m	0.1	0.7	0.8	0.6	0.6	0.7
	Canada	m	m	m	m	m	m	m	m	m
	Chile	9 148	5 100	5 910	0.4	0.8	1.1	0.5	0.7	0.9
	Czech Republic	a	4 953	4 953	a	0.5	0.5	m	m	0.5
	Denmark	m	m	m	m	m	m	m	m	m
	Estonia	x(3)	x(3)	6 514	x(6)	x(6)	1.2	m	m	1.2
	Finland	19 423	10 654	12 332	0.4	0.9	1.2	0.7	0.8	0.9
	France	a	7 813	7 813	a	0.7	0.7	0.7	0.7	0.8
	Germany	14 769	9 827	11 122	0.3	0.6	0.9	0.5	0.5	0.6
	Greece	m	5 249	m	m	0.3	m	m	m	m
	Hungary	6 818	6 836	6 835	0.0	0.8	0.9	0.8	m	m
	Iceland	17 349	12 339	13 886	0.7	1.1	1.7	m	m	1.1
	Ireland	a	6 106	6 106	a	0.1	0.1	m	m	0.1
	Israel	2 713	5 021	4 185	0.3	0.9	1.1	0.7	0.8	0.8
	Italy	a	6 249	6 249	a	0.5	0.5	m	m	0.5
	Japan	a	7 499	7 499	a	0.2	0.2	0.2	0.2	0.2
	Korea	m	7 814	m	m	0.6	m	0.1	0.3	0.5
	Latvia	m	5 313	m	m	0.8	m	0.6	0.9	0.9
	Luxembourg	a	20 495	20 495	a	0.6	0.6	m	m	0.6
	Mexico	x(3)	x(3)	2 685	x(6)	x(6)	0.6	m	m	m
	Netherlands	a	8 352	8 352	a	0.4	0.4	0.4	0.4	0.4
	New Zealand	15 506	12 209	13 466	0.4	0.5	1.0	m	m	0.6
	Norway	24 228	13 457	17 225	0.9	0.9	1.8	m	m	0.9
	Poland	a	6 222	6 222	a	0.7	0.7	0.6	0.6	0.8
	Portugal	m	7 099	m	m	0.6	m	m	m	0.6
	Slovak Republic	a	5 811	5 811	a	0.6	0.6	0.5	0.5	0.6
	Slovenia	10 520	7 844	8 610	0.4	0.7	1.1	0.6	0.7	0.8
	Spain	8 166	6 596	6 977	0.2	0.6	0.8	m	m	0.6
	Sweden	16 917	14 212	14 917	0.6	1.4	1.9	m	m	1.4
	Switzerland[2]	a	m	m	a	0.4	0.4	0.2	0.2	0.2
	Turkey	x(3)	x(3)	3 591	x(6)	x(6)	0.2	m	m	m
	United Kingdom	9 560	8 957	9 048	0.1	0.4	0.5	m	m	0.4
	United States	m	10 830	m	m	0.4	m	0.4	0.5	0.4
	OECD average	12 433	8 528	8 759	0.2	0.6	0.8	0.5	0.5	0.6
	Average for countries with available data for all reference years	m	m	m	m	0.6	m	0.5	0.5	0.6
	EU22 average	12 249	8 298	8 952	0.2	0.6	0.8	0.6	0.6	0.7
Partners	Argentina[2]	m	m	m	x(6)	x(6)	0.4	m	m	m
	Brazil[2]	m	m	3 846	m	0.7	m	0.4	0.4	0.6
	China	m	m	m	m	m	m	m	m	m
	Colombia	m	1 250	m	0.1	0.4	0.5	m	m	0.3
	Costa Rica[2]	m	m	m	0.1	0.4	0.5	m	m	m
	India	m	m	m	m	m	m	m	m	m
	Indonesia	x(3)	x(3)	170	x(6)	x(6)	0.1	m	m	m
	Lithuania	5 589	5 457	5 479	0.1	0.7	0.8	0.5	0.7	0.6
	Russian Federation	x(3)	x(3)	5 062	x(6)	x(6)	1.0	m	m	1.0
	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

1. Public sources only for ISCED 01.

2. Public sources only for ISCED 01 and ISCED 02.

Source: INES ad-hoc survey and OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

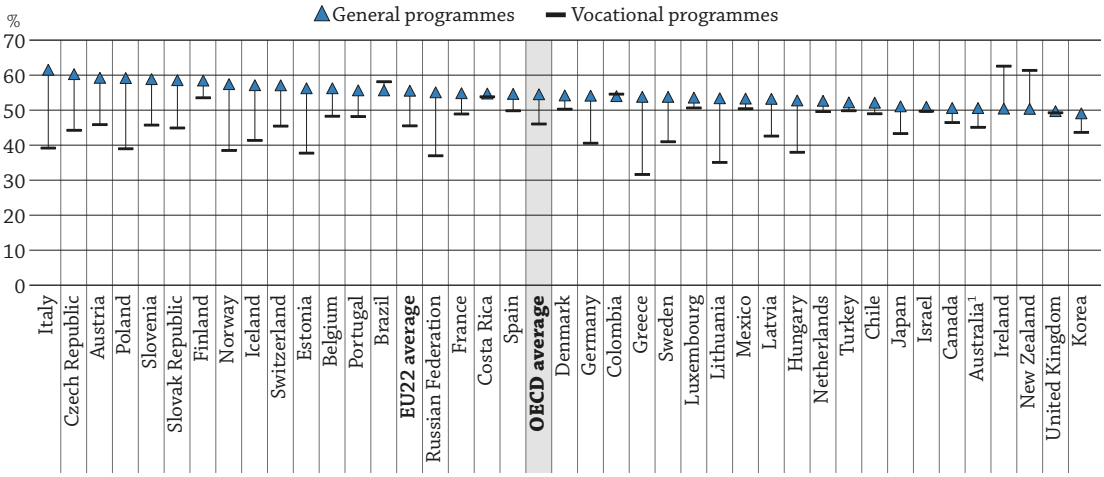
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WHO IS EXPECTED TO GRADUATE FROM UPPER SECONDARY EDUCATION?

- On average across OECD countries, women make up 55% of upper secondary graduates in general programmes, but this figure goes down to 46% for vocational programmes.
- On average across OECD countries, the average age in vocational programmes is higher than in general programmes (for both men and women).
- Based on current patterns, it is estimated that on average across OECD countries, 81% of today's young people will graduate from upper secondary education before the age of 25, compared to 73% in 2005.

Figure B3.1. Share of women among upper secondary graduates, by programme orientation (2016)



1. Year of reference 2015.

Countries are ranked in descending order of the share of women in general programmes.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Upper secondary education, which develops students' basic skills and knowledge through either academic or vocational pathways, aims to prepare students to enter further levels of education or the labour market and to become engaged citizens. In many countries, this level of education is not compulsory and can last from two to five years.

What is crucial, however, is to provide education of good quality that meets the needs of the labour market and the economy. Given that inequality in upper secondary education is likely to translate into inequality in tertiary education and in the labour market (see Indicator B7 and Chapter A), it is also important to ensure that graduation from upper secondary education is not dependent on gender, socio-economic or demographic background.

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

- At the upper secondary level, first-time graduation rates exceed 75% in more than four out of five countries with available data. At the post-secondary non-tertiary level, this rate is below 15% in almost three out of four countries with available data.
- In countries for which data are available for 2005, 2010 and 2016, first-time graduation rates increased by 7 percentage points at the upper secondary level between 2005 and 2016. In contrast, they remained constant (around 11%) at the post-secondary non-tertiary level.
- For both general and vocational programmes, students with at least one tertiary-educated parent are more likely to complete upper secondary education than students whose parents have not attained tertiary education.

Note

Graduation rates, when calculated for all ages, represent the estimated percentage of people from a given age cohort that is expected to graduate within the country at some point during their lifetime. This estimate is based on the number of graduates in 2016 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.

When the 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 2016 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.

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 only when measuring graduates by field of study (see *Definitions* section).

B3

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, most students pursue general programmes. First-time upper secondary graduates are students who obtained an upper secondary qualification for the first time. On average across OECD countries, 42% 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, Greece, Hungary, Japan, Korea and Lithuania (below 25%). In contrast, in Austria, the Czech Republic and the Slovak Republic, more than 65% 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). But in some countries, VET has been neglected and marginalised in policy discussions, often overshadowed by the increasing emphasis on general academic education. However, an increasing number of countries are recognising that good initial VET can make a major contribution to economic competitiveness (OECD, 2015[1]).

Vocational programmes can be offered in combined school-based and work-based programmes, where less than 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 and Switzerland, this type of dual system attracts at least 30% of the students enrolled in upper secondary VET programmes (see Indicator B1). 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. Employment rates tend to be higher, and inactivity rates lower, among young adults who graduated from vocational training than among those who pursued an upper secondary general programme as their highest level of educational attainment (see Education at a Glance Database). 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 in general programmes, compared to 46% in 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 60% in the Czech Republic and 62% in Italy. In contrast, women are under-represented in vocational programmes in more than three-quarters of the countries with available data.

There is, however, significant cross-country variation in vocational programmes. The share of women ranges from less than 36% in Greece and Lithuania to more than 60% in Ireland and New Zealand. In fact, Ireland and New Zealand are two of just four countries where women make up a higher share of graduates in vocational programmes than in general programmes (with around 60% of women among vocational graduates and around 50% among general graduates). In the other two countries, Brazil and Colombia, the difference between the share of women in vocational and general programmes is much smaller (below 3 percentage points).

Profile of upper secondary vocational graduates, by field of study

On average across OECD countries, 34% of graduates in vocational programmes earn a diploma with a specialisation in engineering, manufacturing and construction. This drops to 19% for a diploma in business, administration and law, 17% in services, and 12% in health and welfare. However, this pattern does not hold for every country. In Brazil, Colombia, Italy, Luxembourg, Switzerland and the United Kingdom, most upper secondary graduates in vocational programmes obtained a qualification in business, administration and law. In Denmark, the Netherlands and Spain, the most popular field is health and welfare, and in New Zealand and Portugal, it is services (Table B3.1).

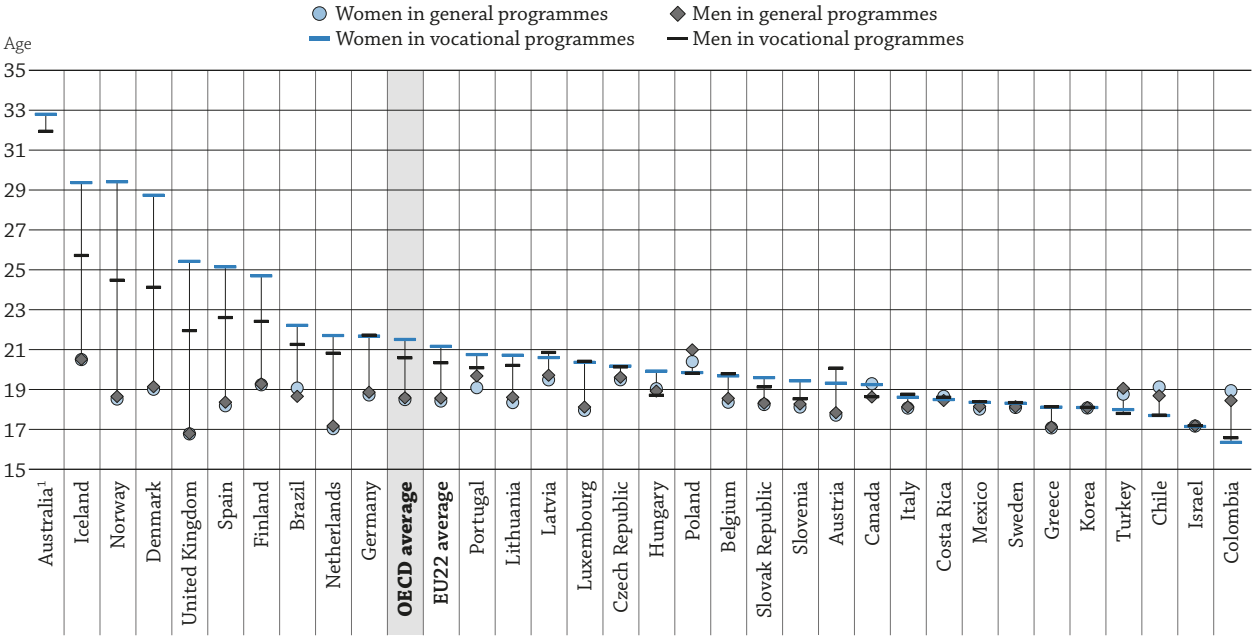
The percentage of women pursuing a programme in engineering, manufacturing and construction is low at the upper secondary vocational level: only 12% of graduates in this field of study are women. On the other hand, women are over-represented in health and welfare, where they make up 77% of the graduates. In fact, in health and welfare, the share of female graduates exceeds 75% in all countries except Italy (74%), New Zealand (72%), Poland (68%), Slovenia (73%) and Sweden (73%). Some countries, such as Colombia, Estonia and Latvia, do not offer such programmes at the upper secondary level. Between these two extremes, there is more gender balance in the field of services (where, on average, 60% of graduates are women) and in business, administration and law (where 66% of graduates are women).

The gender gap by fields of study may be due, in part, 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[2]). From an equity perspective, it is crucial to ensure that men and women have the same opportunities in their personal and professional lives, and formal education plays an important role in that regard (OECD, 2014[3]). Gender diversity has also been acknowledged as highly beneficial for the performance and productivity of teams within the labour market (Hoogendoorn, Oosterbeek and van Praag, 2013[4]).

Profile of upper secondary graduates, by age

Graduation rates vary according to the age of the students. Students' age at graduation can be related to changes in the education system, such as whether opportunities become available to complete upper secondary education later in life or if the duration of general and vocational programmes is altered.

Figure B3.2. Average age of first-time upper secondary graduates, by programme orientation and gender (2016)



1. Year of reference 2015.

Countries are ranked in descending order of the average age of women in vocational programmes.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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The average age of upper secondary graduates tends to be higher in vocational programmes than in general programmes for both men and women. On average across OECD countries, male graduates obtain their qualification at age 21 in vocational programmes, compared to age 19 in general programmes. Similarly, the average graduation age for women is 22 in vocational programmes, compared to 18 in general programmes (Figure B3.2). However, there is some variation across countries. In Denmark, Iceland, the Netherlands, Norway, Spain and the United Kingdom, the average graduation age is significantly higher in vocational programmes than in general programmes, with a

difference of at least four years for both men and women. In contrast, students graduate from general programmes at least one year later than from vocational programmes in Chile, Colombia, Poland and Turkey. In Canada, Costa Rica, Israel, Korea, Mexico and Sweden, the average graduation age is the same in general and vocational programmes (for both men and women). 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 can contribute to the higher graduation age in vocational programmes (See Indicator A2 in [OECD, 2014[5]]).

In general programmes, the average graduation age is virtually the same for men and women, with a gender gap of less than one year in all countries with available data. However, there is more variation in vocational programmes. Although the average graduation age remains similar for both men and women in most countries (with a one-year difference on average across OECD countries), women graduate around two years later than men on average in Finland, three years later in Spain and the United Kingdom, four years later in Iceland, and five years later in Denmark and Norway.

First-time graduation rates

Upper secondary graduation rates

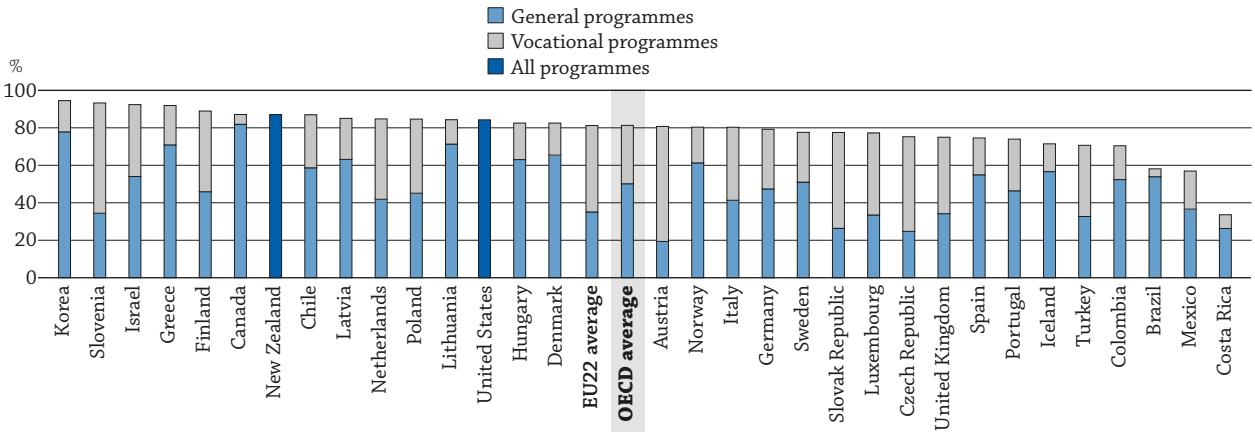
An upper secondary education is often considered to be the minimum credential for successful entry into the labour market and necessary for continuing to further education. The costs of not completing this level of education on time can be considerable to both individuals and society (see Indicators A3 and A4).

Graduation rates offer an indication of whether government initiatives have been successful in increasing the number 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, 87% of people across OECD countries will graduate from upper secondary education in their lifetime, and 81% of people will do so before age 25. First-time graduation rates (before age 25) exceed 80% in more than half of the countries with available data, but values range from less than 60% in Brazil, Costa Rica and Mexico to over 90% in Greece, Israel, Korea and Slovenia (Table B3.2).

In the majority of countries, first-time graduation rates below age 25 are significantly higher in general programmes than in vocational programmes. On average across OECD countries, around 50% of young adults are expected to graduate from upper secondary general programmes before age 25, compared to 31% for vocational programmes. In fact, Austria, the Czech Republic, Luxembourg, the Netherlands, the Slovak Republic, Slovenia, Turkey and the United Kingdom are the only countries where first-time graduation rates are higher in vocational programmes – although the difference in the Netherlands is only 1 percentage point (Figure B3.3).

Figure B3.3. First-time upper secondary graduation rates for students below the age of 25, by programme orientation (2016)



Countries are ranked in descending order of first-time graduation rates in general and vocational programmes combined.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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The higher graduation rates in general programmes may reflect the lower share of students enrolled in upper secondary vocational programmes than in general programmes (see Indicator B1), along with the lower completion rates in vocational education (OECD, 2017[6]) (Box B3.1).

In countries with available data for 2005, 2010 and 2016, the first-time upper secondary graduation rate below age 25 increased by 9 percentage points between 2005 and 2016 (compared to a 7 percentage-point increase in first-time graduation rates for all ages). The increase was striking in four countries: Portugal, Turkey (both 23 percentage points), Spain (22 percentage points) and Slovenia (21 percentage points). In contrast, in Greece and the Slovak Republic, the first-time graduation rate below age 25 declined by at least 5 percentage points over the period.

Graduation rates, however, do not imply 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 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

Various kinds of post-secondary non-tertiary programmes 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.

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 post-secondary non-tertiary programmes over their lifetime. The only countries where first-time graduation rates 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 2016, the first-time graduation rate (for all ages) remained constant over the past decade (around 11% 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 B3.2).

Box B3.1. Equity in students' choice of upper secondary programme and completion of this level of education

Equity in students' choice of upper secondary programme orientation.

Across OECD countries, there is an increasing interest in the development of vocational upper secondary programmes as an alternative for young people seeking to acquire labour-market skills. In addition to providing technical skills, strong vocational programmes also offer stepping stones for students to succeed in their working life and to move between different tracks and career options (OECD, 2010[7]). These programmes are not meant to be seen as a second-best option for low achievers, but as centres of excellence for developing important skills.

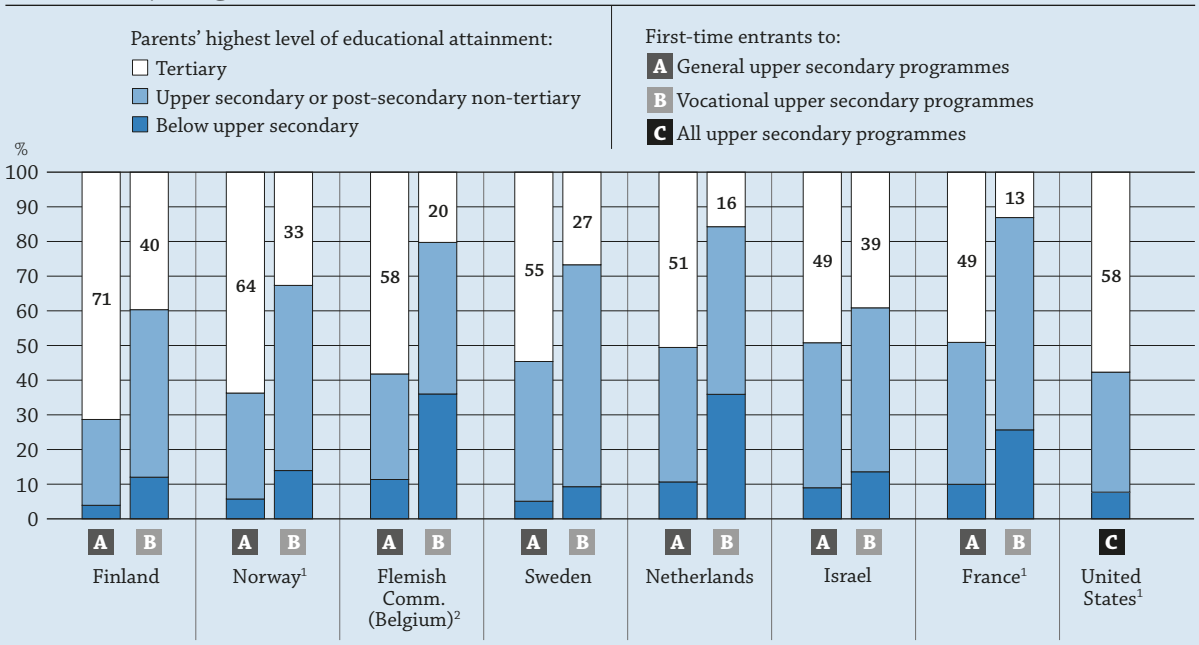
Nevertheless, vocational education also raises equity concerns, especially if the decision to enrol in vocational programmes is mainly determined by students' socio-economic background. Figure B3.a shows the composition of general and vocational programmes by parents' educational attainment. In all countries with available data, students whose parents have lower educational attainment are substantially over-represented in vocational programmes.

In nearly every country with available data, the share of students whose parents have not attained upper secondary education is at least twice as high among entrants to vocational programmes as among entrants to general programmes. This gap can be even more striking at the other end of the spectrum, for students with at least one tertiary-educated parent. In France and the Netherlands, for example, students with at least one tertiary-educated parent represent about 50% of general programmes, but less than 20% of vocational programmes.

...

The magnitude and attractiveness of vocational programmes can, however, vary widely across countries. Among the countries presented in Figure B3.a, the share of upper secondary graduates who obtain a vocational degree ranges from about one-third in Norway and Sweden to more than half in Finland and the Netherlands (Table B3.1). The share is even higher in other OECD countries without data available for Figure B3.a, such as Austria, the Czech Republic, the Slovak Republic and Switzerland, where over two-thirds of upper secondary graduates obtain a vocational degree. These are also countries where vocational graduates fare well in the labour market, suggesting that attaining a vocational education in these countries may be more a deliberate choice than the result of students' socio-economic background. These findings suggest caution against generalising the results presented here, especially as they refer to a limited number of countries.

Figure B3.a. Share of first-time entrants to upper secondary education, by programme orientation and parents' educational attainment (2015)



1. Year of reference other than 2015. Please see Annex 3 for further information (http://dx.doi.org/10.1787/eag-2018-36-en).
2. Parents' educational attainment refers to mother's educational attainment.
Countries and economies are ranked in descending order of share of students in general programmes with at least one tertiary-educated parent.
Source: OECD 2018 ad hoc survey on upper secondary completion rate by equity dimension. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Equity in completion of upper secondary education.

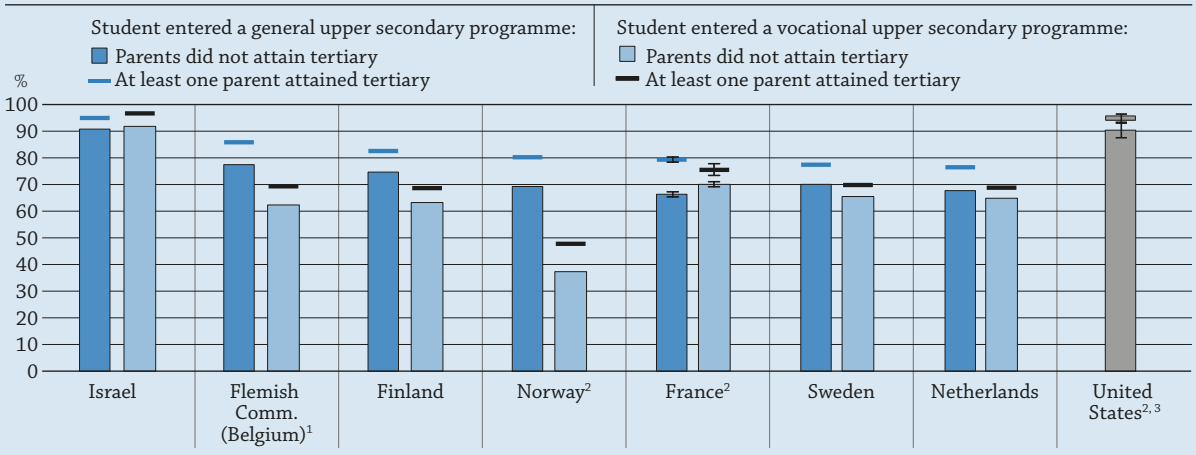
In addition to influencing the choice of upper secondary programme orientation, the socio-economic background of students can have an important impact on their educational outcomes. Figures B3.b and B3.c explore the completion rate of upper secondary education by two measures that may indicate disadvantaged groups: parents' educational attainment and immigrant background.

Figure B3.b. shows the share of students who complete upper secondary education within the theoretical duration of the programme in which they entered. The results highlight the fact that for both general and vocational programmes, students with at least one tertiary-educated parent are more likely to complete upper secondary education than students whose parents have not attained tertiary education. This is true for every country with available data, although at varying degrees. The gap in completion between students with at least one tertiary-educated parent and those whose parents have not attained this level ranges from around 5 percentage points in Israel to over 10 percentage points in Norway.

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Figure B3.b. Completion rate of upper secondary education, by parents' educational attainment and programme orientation (2015)

Completion of any upper secondary programme within the theoretical duration of the programme in which the student entered



Note: France and the United States have provided data based on longitudinal studies whereas the other countries provided data based on registries. The error bars included for France and the United States correspond to the 95% confidence interval.

1. Parents' educational attainment refers to mother's educational attainment.

2. Year of reference other than 2015. Please see Annex 3 for further information (http://dx.doi.org/10.1787/eag-2018-36-en).

3. Data for the United States refer to general and vocational programmes combined.

Countries and economies are ranked in descending order of completion rate in general programmes of students with at least one tertiary-educated parent.

Source: OECD 2018 ad hoc survey on upper secondary completion rate by equity dimension. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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In most countries, the gap between these two groups of students is similar across general and vocational programmes. However, in France and the Netherlands, the gap in general programmes is higher than in vocational programmes. This indicates that, in these countries, vocational programmes are more successful than general programmes in decreasing the impact of socio-economic background on students' graduation.

Figure B3.c shows the completion rate of upper secondary programmes by the theoretical duration of programmes, disaggregated by students' immigrant background. In most of the countries with available data, the completion rate of first-generation immigrants (those born outside the country and whose parents were both also born in another country, excluding international students) or second-generation immigrants (those born in the country, but whose parents were both born in another country) was lower than students without first-generation or second-generation immigrant background.

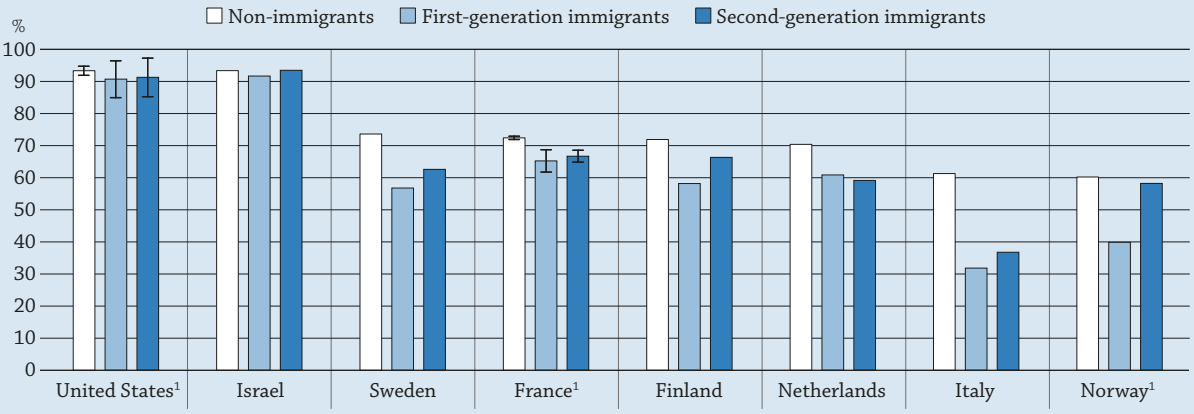
The largest gap is observed in Italy, where 60% of non-immigrants complete upper secondary education on time, compared to 32% of first-generation immigrants and 37% of second-generation immigrants. It must be kept in mind that the share of students with an immigrant background varies across countries. Less than 6% of upper secondary entrants in Italy and Finland have an immigrant background, compared to around 10% in France and Norway and around 15-20% in Israel, the Netherlands, Sweden and the United States. These percentages represent only the school-age immigrants who enter the educational system, which may not always be the case. Moreover, immigrant populations may be very different across countries, and it is important to understand the specificities of each case when designing policies.

The gap between first-generation and second-generation immigrants does not follow a specific pattern in the countries presented. In some countries, such as Finland, Norway and Sweden, first-generation immigrants are considerably less likely to complete upper secondary education than second-generation immigrants. A plausible explanation for the lower outcomes of first-generation immigrants is the language barrier, particularly for students who arrive in the host country at an older age. In other countries, such as the Netherlands, the gap in completion between first-generation and second-generation students is quite small.

...

Figure B3.c. Completion rate of upper secondary education, by immigration background (2015)

Completion of any upper secondary programme within the theoretical duration of the programme in which the student entered



Note: France and the United States have provided data based on longitudinal studies whereas the other countries provided data based on registries. Longitudinal studies would not account for the most recent waves of immigration. The error bars included for France and the United States correspond to the 95% confidence interval.

1. Year of reference other than 2015. Please see Annex 3 for further information (http://dx.doi.org/10.1787/eag-2018-36-en).

Countries and economies are ranked in descending order of completion rate of students without an immigrant background.

Source: OECD 2018 ad hoc survey on upper secondary completion rate by equity dimension. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933806332

Young people who leave school before completing upper secondary education have lower skills, are less likely to be employed and earn less than their counterparts who attain at least this level of education (see Indicators A1, A3 and A4). Thus, the lower completion rates associated with students whose parents have low levels of educational attainment and with those who have an immigrant background can play an important role in furthering inequalities in society.

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-based 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.

Please see Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-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

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Table B3.1	**Profile of upper secondary graduates from vocational programmes (2016)**
Table B3.2	**Upper secondary and post-secondary non-tertiary first-time graduation rates (2016)**
Table B3.3	**Trends in upper secondary and post-secondary non-tertiary first-time graduation rates (2005, 2010 and 2016)**

Cut-off date for the data: 18 July 2018. 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.

Table B3.1. Profile of upper secondary graduates from vocational programmes (2016)

		Percentage of first-time graduates who obtained a vocational programmes	Percentage of female graduates	Distribution of graduates by field of study				Percentage 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)
OECD	Australia[1]	m	45	16	37	23	13	66	9	83	59
	Austria	78	46	28	35	3	19	67	13	77	73
	Belgium	m	48	20	26	16	19	54	7	82	70
	Canada	6	46	m	m	m	m	m	m	m	m
	Chile	31	49	31	40	6	12	65	19	83	67
	Czech Republic	68	44	19	39	6	19	67	12	89	65
	Denmark	30	50	22	27	30	13	65	10	87	42
	Estonia	m	38	1	52	0	29	97	20	0	74
	Finland	55	54	17	27	22	20	68	17	84	61
	France	m	49	21	34	19	19	64	11	91	64
	Germany	45	41	34	34	11	12	58	9	85	49
	Greece	24	32	20	49	1	5	69	14	93	53
	Hungary	24	38	11	47	5	28	76	8	90	56
	Iceland	29	41	13	40	10	17	54	8	89	56
	Ireland	m	63	m	m	m	m	m	m	m	m
	Israel	42	50	m	m	m	m	m	m	m	m
	Italy	56	39	32	26	6	21	52	15	74	49
	Japan	23	43	31	42	6	8	63	11	83	81
	Korea	18	44	24	44	2	6	75	16	82	68
	Latvia	27	43	15	39	0	23	79	9	0	68
	Luxembourg	59	51	30	23	11	6	60	15	77	47
	Mexico	36	50	m	m	m	m	m	m	m	m
	Netherlands	54	50	20	18	24	22	53	9	88	44
	New Zealand	m	61	16	14	8	19	76	14	72	71
	Norway	32	38	6	45	25	17	78	7	85	40
	Poland	45	39	12	39	0	25	66	12	68	70
	Portugal	38	48	17	20	13	25	66	17	86	54
	Slovak Republic	67	45	16	37	8	25	72	9	85	60
	Slovenia	64	46	15	32	14	15	65	10	73	60
	Spain	33	50	13	18	20	13	64	8	77	49
	Sweden	34	41	8	45	18	20	60	9	73	64
	Switzerland	m	45	33	33	15	9	60	12	90	57
	Turkey	52	50	17	38	21	8	55	15	85	63
	United Kingdom	63	49	19	15	18	15	62	6	78	52
	United States	m	m	a	a	a	a	a	a	a	a
	OECD average	42	46	19	34	12	17	66	12	77	60
	EU22 average	48	46	19	33	12	19	66	11	74	58
Partners	Argentina	m	m	m	m	m	m	m	m	m	m
	Brazil	8	58	25	17	10	5	60	32	79	63
	China	m	m	m	m	m	m	m	m	m	m
	Colombia	24	55	m	m	m	m	m	m	m	m
	Costa Rica	21	54	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m
	Lithuania	17	35	16	49	1	27	46	3	91	79
	Russian Federation	52	37	m	m	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: 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 2015.
Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
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Table B3.2. Upper secondary and post-secondary non-tertiary first-time graduation rates (2016)

Sum of age-specific graduation rates, by programme orientation

		Upper secondary						Post-secondary non-tertiary			
		All programmes		General programmes		Vocational programmes		All programmes		Vocational programmes	
		All ages	Younger than 25 years	All ages	Younger than 25 years	All ages	Younger than 25 years	All ages	Younger than 30 years	All ages	Younger than 30 years
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Australia[1]	m	m	m	m	33	14	13	5	13	5
OECD	Austria	86	81	19	19	67	61	8	4	8	4
OECD	Belgium	m	m	m	m	m	m	m	m	m	m
OECD	Canada	93	87	87	82	6	5	m	m	m	m
OECD	Chile	91	87	63	59	29	28	a	a	a	a
OECD	Czech Republic	76	75	25	25	52	50	30	m	7	m
OECD	Denmark	95	82	67	65	28	17	0	0	0	0
OECD	Estonia	m	m	m	m	m	m	m	m	m	m
OECD	Finland	101	89	46	46	55	43	8	1	8	1
OECD	France	m	m	m	m	m	m	m	m	m	m
OECD	Germany	84	79	47	47	37	32	24	21	21	19
OECD	Greece	94	92	71	71	22	21	m	m	m	m
OECD	Hungary	85	82	65	63	20	19	21	19	21	19
OECD	Iceland	89	71	63	57	26	15	10	4	9	4
OECD	Ireland	m	m	100	100	m	m	m	m	m	m
OECD	Israel	92	92	54	54	38	38	m	m		m
OECD	Italy	94	80	41	41	53	39	1	m	1	m
OECD	Japan	95	m	73	m	22	m	m	m	m	m
OECD	Korea	94	94	78	78	17	17	a	a	a	a
OECD	Latvia	90	85	67	63	23	22	9	7	9	7
OECD	Luxembourg	79	77	33	33	46	44	2	1	2	1
OECD	Mexico	57	57	37	37	20	20	a	a	a	a
OECD	Netherlands	89	85	42	42	47	43	a	a	a	a
OECD	New Zealand	93	87	m	m	m	m	26	15	m	m
OECD	Norway	90	80	62	61	28	19	4	2	4	2
OECD	Poland	88	84	48	45	39	39	15	11	15	11
OECD	Portugal	80	74	50	46	30	28	3	3	3	3
OECD	Slovak Republic	79	77	26	26	53	51	8	5	8	5
OECD	Slovenia	95	93	34	34	61	59	a	a	a	a
OECD	Spain	81	74	56	55	25	20	2	1	2	1
OECD	Sweden	77	77	51	51	27	27	5	2	5	2
OECD	Switzerland	m	m	m	m	m	m	m	m	m	m
OECD	Turkey	75	71	36	33	39	38	a	a	a	a
OECD	United Kingdom	90	75	34	34	55	41	a	a	a	a
OECD	United States	84	84	m	m	m	m	22	m	22	m
	OECD average	87	81	53	51	36	31	11	m	9	m
	EU22 average	87	81	49	48	41	36	10	m	8	m
Partners	Argentina[1]	63	m	m	m	m	m	m	m	m	m
Partners	Brazil	65	58	59	54	6	4	7	4	7	4
Partners	China	86	m	m	m	m	m	m	m	m	m
Partners	Colombia	77	70	59	52	18	18	1	1	a	a
Partners	Costa Rica	36	34	29	26	8	7	a	a	a	a
Partners	India	33	m	m	m	m	m	m	m	m	m
Partners	Indonesia	72	m	m	m	m	m	a	a	a	a
Partners	Lithuania	87	84	73	71	14	13	21	16	21	16
Partners	Russian Federation	98	m	46	m	51	m	4	m	4	m
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m	m	m	m
	G20 average	79	m	m	m	m	m	m	m	m	m

1. Year of reference 2015.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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B3

Table B3.3. Trends in upper secondary and post-secondary non-tertiary first-time graduation rates (2005, 2010 and 2016)

Sum of age-specific first-time graduation rates

		Upper secondary						Post-secondary non-tertiary					
		All ages			Younger than 25 years			All ages			Younger than 30 years		
		2005	2010	2016	2005	2010	2016	2005	2010	2016	2005	2010	2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia[1]	m	m	m	m	m	m	m	16	13	m	7	5
OECD	Austria	m	87	86	m	84	81	m	7	8	m	4	4
OECD	Belgium	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Canada	80	85	93	75	81	87	m	m	m	m	m	m
OECD	Chile	83	86	91	77	82	87	a	a	a	a	a	a
OECD	Czech Republic	100[d]	100[d]	76	m	m	75	x(1)	x(2)	30	m	m	m
OECD	Denmark	83	85	95	74	76	82	1	1	0	1	0	0
OECD	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Finland	94	95	101	85	85	89	6	7	8	1	1	1
OECD	France	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Germany	78	83	84	m	m	79	23	25	24	m	m	21
OECD	Greece	96	89	94	96	89	92	m	m	m	m	m	m
OECD	Hungary	84	86	85	80	82	82	20	18	21	18	16	19
OECD	Iceland	m	m	89	m	m	71	m	m	10	m	m	4
OECD	Ireland	92	86	m	90	85	m	14	10	m	14	7	m
OECD	Israel	89	91	92	89	91	92	m	m	m	m	m	m
OECD	Italy	85	85	94	67	67	80	6	4	1	4	2	m
OECD	Japan	m	96	95	m	m	m	m	m	m	m	m	m
OECD	Korea	94	92	94	m	m	94	a	a	a	a	a	a
OECD	Latvia	m	89	90	m	88	85	m	3	9	m	2	7
OECD	Luxembourg	74	70	79	72	68	77	m	2	2	m	1	1
OECD	Mexico	40	45	57	39	44	57	a	a	a	a	a	a
OECD	Netherlands	m	m	89	m	m	85	m	m	a	m	m	a
OECD	New Zealand	95	91	93	86	80	87	26	29	26	12	18	15
OECD	Norway	90	87	90	74	75	80	5	10	4	3	7	2
OECD	Poland	m	84	88	m	83	84	15	13	15	11	10	11
OECD	Portugal	54	100	80	51	66	74	m	3	3	m	3	3
OECD	Slovak Republic	86	86	79	84	84	77	12	10	8	11	8	5
OECD	Slovenia	85	94	95	72	83	93	a	a	a	a	a	a
OECD	Spain	56	61	81	53	57	74	a	a	2	a	a	1
OECD	Sweden	76	75	77	76	75	77	1	3	5	0	2	2
OECD	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Turkey	48	54	75	48	54	71	a	a	a	a	a	a
OECD	United Kingdom	87	88	90	m	m	75	a	a	a	a	a	a
OECD	United States	74	77	84	74	77	84	17	22	22	m	m	m
	OECD average	80	84	87	73	76	81	12	11	11	m	m	m
	Average for countries with available data for all reference years	80	83	86	73	75	81	12	11	11	m	m	m
	EU22 average	82	86	87	75	78	81	11	8	10	m	m	m
Partners	Argentina[1]	m	m	63	m	m	m	m	m	m	m	m	m
Partners	Brazil	m	m	65	m	m	58	m	m	7	m	m	4
Partners	China	m	m	86	m	m	m	m	m	m	m	m	m
Partners	Colombia	m	m	77	m	m	70	m	m	1	m	m	1
Partners	Costa Rica	m	m	36	m	m	34	a	a	a	a	a	a
Partners	India	m	m	33	m	m	m	m	m	m	m	m	m
Partners	Indonesia	m	m	72	m	m	m	a	a	a	a	a	a
Partners	Lithuania	82	94	87	78	89	84	8	9	21	8	7	16
Partners	Russian Federation	89	97	98	m	m	m	7	12	4	m	m	m
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	79	m	m	m	m	m	m	m	m	m

1. Year of reference 2015 instead of 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

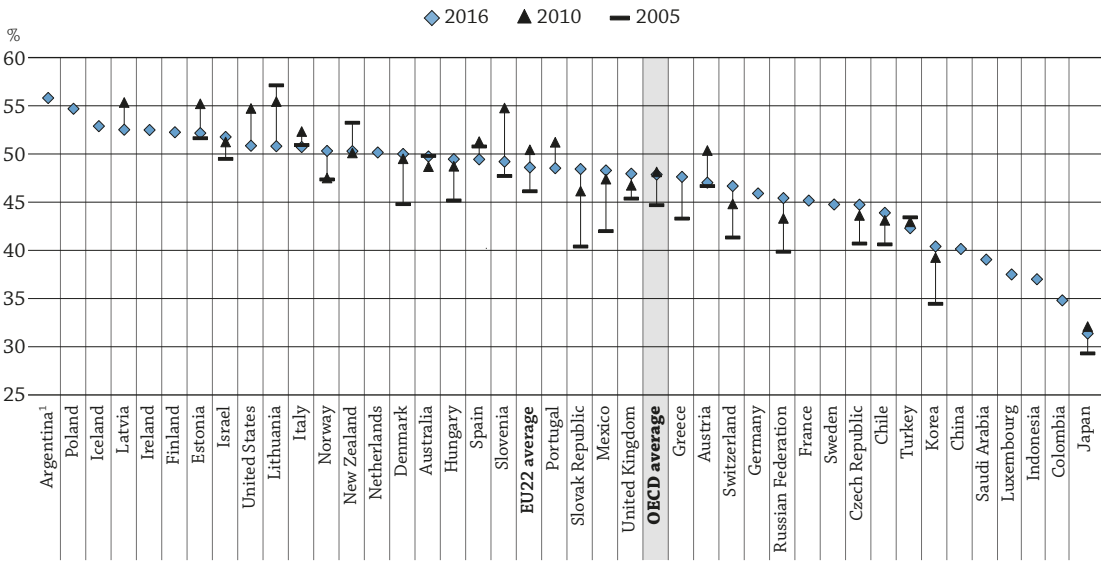
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WHO IS EXPECTED TO ENTER TERTIARY EDUCATION?

- On average, the share of female new entrants into doctoral programmes has increased by 2.5 percentage points between 2005 and 2016, and women now represent almost half of the doctoral new entrants across OECD.
- In 24 of the 31 countries with available data, the median age of entry into tertiary education is between 18 and 20 years old.
- In almost all OECD countries, first-time entry rates to tertiary education below age 25 are higher for women than for men.

Figure B4.1. Share of female new entrants into doctoral programmes (2005, 2010, 2016)



1. Year of reference 2015 instead of 2016.

Countries are ranked in descending order of the share of female new entrants into doctoral (ISCED 8) programmes in 2016.

Source: OECD / UIS / Eurostat (2018), Table B4.1, Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Entry rates estimate the proportion of people who are expected to enter a specific type of tertiary education programme (including short-cycle tertiary, bachelor's degrees, master's degrees, long first degrees and doctoral programmes) 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.

By enabling young adults to access higher-quality and better paid jobs, granting equal opportunities to students of all socio-economic backgrounds to higher education can be a powerful tool to reduce socio-economic and intergenerational inequalities. Ensuring gender parity in access to higher levels of tertiary education and fields of study also ensures greater gender equity in the workplace. Several governments have placed particular emphasis on improving the quality of education in science, technology, engineering and mathematics (STEM), reflecting the critical importance of these disciplines for modern society in driving economic progress and supporting innovation. However, women are still less likely to enrol in these programmes in most OECD countries, despite the fact that they lead to higher employment rates and higher earnings.

A tertiary education system can also provide for equitable outcomes through flexible entrance criteria that support lifelong learning. Second-chance programmes can offer new opportunities to older students who might have dropped out of the education system earlier than they had wished or for those who want to improve the relevance of their skills for the labour market.

Other findings

- Based on current patterns, it is estimated that an average of 58% of young adults in OECD countries will enter a bachelor's degree or equivalent programme in their lifetime, and 24% are expected to enter a master's or equivalent programme.
- International students represent a large share of first-time entrants into tertiary education in Luxembourg (47%) and New Zealand (32%), well above the OECD average of 12%.

Note

Compared to enrolment, entry rates measure the inflow to education during a specific period and represent the percentage of an age cohort that is expected to enter a tertiary programme over a lifetime. The estimates in this indicator are based on the number of new entrants in 2016 and the age distribution of this group. Therefore, the entry rates are based on a "synthetic cohort" assumption, according to which the current pattern of entry constitutes the best estimate of the behaviour of today's young adults over their lifetime.

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.

Entry rates are sensitive to changes in the education system, such as the introduction of new programmes. The rates can be very high, even greater than 100% (thus clearly indicating that the synthetic cohort assumption is implausible), during a period when there is an unexpectedly high number 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 rejoin education through second-chance programmes can also boost entry rates.

B4

Analysis

Profile of new entrants into tertiary education

Share of new entrants by level of education

Knowing the level at which students first enter tertiary education helps to determine the depth and length of the studies in which they engage. Most education systems begin tertiary education at the bachelor's degree level.

In most OECD countries, about three-quarters of first-time entrants into tertiary education enter bachelor's programmes, but the relative importance of either short-cycle tertiary programmes or long first degree masters' programmes varies greatly across countries. In a few countries, such as Austria, Chile, the Russian Federation, Turkey and the United States, over 40% of both male and female new entrants into tertiary education entered short-cycle programmes. Long first degrees leading to master's diplomas are almost non-existent in some countries, but they attract up to 25% of new entrants in others (see detailed explanation in Indicator B5).

The distribution of male and female new entrants across levels of tertiary education does not always follow the same pattern within countries. In some of them, more men than women enter short-cycle programmes. The fields of study offered in such programmes can help explain part of this difference. In Austria, Israel, Mexico, Norway, Slovenia and Sweden, for instance, at least 30% of new entrants into short-cycle tertiary programmes choose engineering, manufacturing and construction, a highly male-dominated field.

Among first-time entrants into tertiary education who entered short-cycle tertiary programmes, Japan stands out as the only country in which women (43%) significantly outnumber men (28%). Many of these programmes are in health and welfare and in services, both fields that are traditionally dominated by women.

Box B4.1. Applicants and applications to tertiary education

The number of new entrants in tertiary education depends on the potential population with an upper secondary qualification who can apply to tertiary education (see Indicator A2), the attractiveness of tertiary education (see Indicators A4 and A5), the potential offer (number of available first-degree tertiary programmes and places in these programmes), and the selectivity of admission systems to these programmes (see Indicator D6 in *Education at a Glance 2017* [OECD, 2017[1]]). In 2017, to shed light on systems for admission to tertiary education, the OECD carried out a survey on the number of applicants and applications to first-degree tertiary programmes (see Annex 3 for notes).

Among the 30 countries and economies that responded to the survey, data on the number of applicants and/or applications are available in only 13 countries. Several factors may explain why data are not available elsewhere. In some countries data are not centrally compiled/located (for example, in Austria, Germany, New Zealand and Poland). In other countries, data are not available as there are open admissions systems where all people with the required attainment level are accepted (for example in the French and Flemish Communities of Belgium and Switzerland).

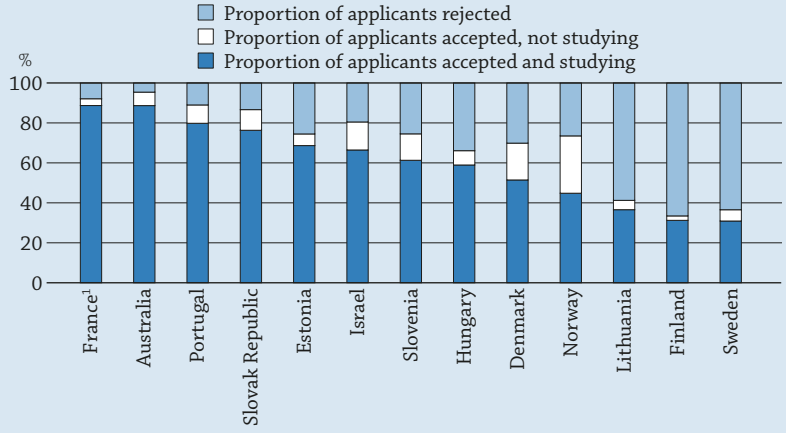
Among countries with available data, the number of applications to tertiary education varies largely between countries, partly reflecting differences in admissions systems. In the ten countries with data on both the number of applicants and the number of applications for the 2016 reference year, each student (excluding international students) made, on average, one application in the Netherlands, but about seven applications in France. Students in France applied through a centralised system, and could make up to 24 applications and received 1 potential offer. In the Netherlands, students also applied through a centralised system, but could make only up to 3 applications and received the result for each of them. Application fees can also affect the number of applications. These fees can vary between institutions and fields of study and can reach significant amounts. In countries with available data, they average USD 100 or less, but they can reach USD 1 000 or more in some countries for specific institutions or fields (OECD, 2017[1]).

While more than half of countries and economies with available data have open admission systems in public tertiary institutions (all applicants with the minimum qualification level required are admitted), the other half operate on a selective system in which enrolment in programmes is limited and decided on the basis of specific selection criteria. However, nearly all systems, whether open or selective, have limitations in the admission systems for at least some fields of study (OECD, 2017[1]).

...

The most selective systems may be those with the highest proportions of applicants whose applications were 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 (Figure B4.a). The proportion of applicants rejected 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. These rates may hide larger variations within countries between different fields of study.

Figure B4.a. Applicants to first-degree tertiary education by application status (2016)



1. Including applicants to short-cycle tertiary programmes.

Countries are ranked in descending order of the proportion of applicants accepted and studying.

Source: OECD (2018). See Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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However 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 of deferred enrolment may explain differences in the number of successful applicants and new entrants.

More generally, there may be delays between upper secondary graduation, application and entry to tertiary education. Among the ten countries that provided data, the number of applicants is lower than the number of upper secondary graduates. This is expected, as graduates can stop or delay their studies (to enter the labour market), and this is not necessarily counterbalanced by people applying several years after graduating from upper secondary level. However, the number of applicants to tertiary education is higher than the number of upper secondary graduates in both Finland (by 35%) and Norway (by 75%). This is likely due to delayed entry to tertiary education combined with the limited number of student positions in tertiary institutions. This is consistent with the wider age distribution observed among new entrants to tertiary education in these countries, as well as the lower entry rate of adults under 25. Difficulties in balancing changes in the number of upper secondary graduates and available positions in tertiary institutions may also explain the difference in some countries.

The different systems of admission to tertiary education combined with the different ways people graduate from upper secondary level and apply to and enrol in tertiary programmes and challenges in compiling the data make difficult to estimate the demand for tertiary education in the different countries.

Age of new entrants into tertiary education

National differences in the age at which young people graduate from upper secondary education and the intake capacity of tertiary education institutions result in significant variations in the age of new entrants into tertiary education among OECD countries. In particular, admissions with *numerus clausus* (a fixed maximum number of entrants admissible to an academic institution), one of many methods used to limit the number of students who may study at a tertiary institution, may defer the entry of a significant share of students (Box B4.1). Besides, a few countries implemented mandatory army or civil service, which can also delay entry into tertiary education (e.g. Israel).

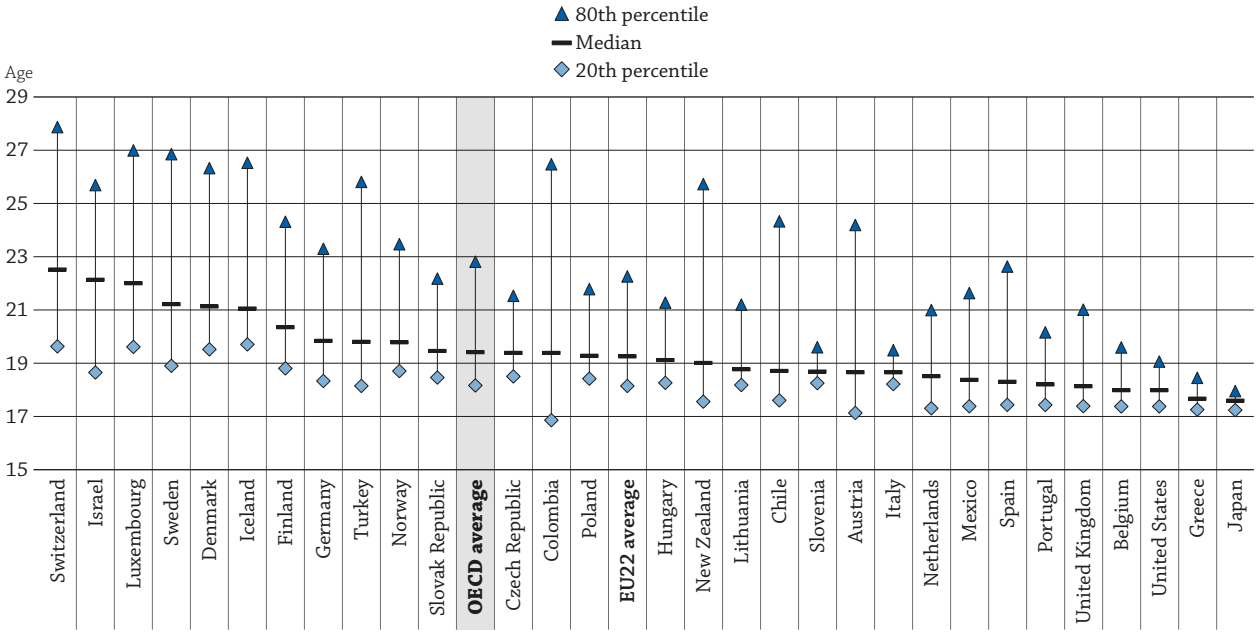
Traditionally, students enter tertiary programmes immediately after completing upper secondary education, and this remains true in many countries. Indeed, in 24 of the 30 countries with available data, the median age of entry into tertiary education is between 18 and 20 years old, meaning that half of the new entrants into tertiary education have entered tertiary programmes by the age of 20. Structural factors, such as admission procedures or the typical age at which students graduate from upper secondary education, explain the small differences in the median age of entry across countries. In a few countries, over half of the students enter tertiary education at a later age. This is the case in Israel, for example, where military service is compulsory, and in Finland, where universities have implemented a *numerus clausus* (Figure B4.2).

In six countries, the oldest 20% of new entrants are older by 5 years or more than the median age of entry, which itself is between 18 and 20. The causes of such a wide entry-age distribution are ambiguous. They could reflect the existence of second-chance and lifelong learning programmes and, therefore, be characteristic of a more flexible system that allows for re-entry into the education system after having worked. On the other hand, delayed entry can be the sign of *numerus clausus* or difficulties in financing tertiary education right after graduating from upper secondary education. Delayed entry might be a problem from an economic point of view, because it means that adults take longer to enter the labour market and to start contributing financially to society. However, second-chance programmes can also be aimed at adults who, for some reason, were not able to move to tertiary education and entered the labour market right after graduating from upper secondary education. It is difficult to determine the right balance between promoting earlier access and graduation from tertiary education and enabling opportunities for older adults through second-chance programmes. The internationalisation of higher education can also influence the age distribution at entry. In Austria, Denmark and New Zealand, for instance, international students represent a higher share of new entrants than on average across OECD countries, and they are usually older.

Profile of new entrants into doctoral programmes

Among the different levels of tertiary education, graduate-level research, particularly at the doctoral level, plays a crucial role in innovation and contributes significantly to the national and international knowledge base. Businesses are attracted to countries that make this level of research readily available (Halse and Mowbray, 2011[2]), while individuals who attain this level of education benefit from higher employment rates (see Indicator A3).

Figure B4.2. Age distribution of first-time entrants into tertiary education (2016)



Countries are ranked in descending order of the median entry age of first-time entrants into tertiary education.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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International students

Several countries are developing doctoral programmes or changing their funding policy to attract international students. Attracting the best students from around the world helps to ensure that a country plays a leading role in research and innovation. Among all tertiary programmes, international students make up the largest share of the new entrants population at doctoral level. On average across OECD countries, international students account for 28% of the new entrants to programmes at the doctoral level. In 7 of the 33 countries for which data are available, more than 40% of new entrants to doctoral programmes are international, and the proportion reaches 78% in Luxembourg (Table B4.2).

Age of entry

On average across OECD countries, 59% of entrants at the doctoral level are under age 30 (Table B4.1). Across OECD countries, the average age of entry at this level is between 26 (the Netherlands) and 38 (Korea). A larger share of younger entrants may reflect lower dropout rates and greater emphasis on acquiring specialised skills. Some countries offer incentives (such as grants, scholarships, international mobility programmes, part-time jobs and distance learning) to encourage students to pursue advanced studies right after completion of their first degree in tertiary education. Given that the academic labour market is becoming increasingly competitive, pursuing doctoral studies as early as possible might increase one's chances of having a better career in research. Depending on the type of career one expects after completing a doctorate, gaining a few years of experience on the labour market before pursuing doctoral studies might also be a relevant choice. By contrast, tuition fees, availability of scholarships, and country-specific social expectations (such as being expected to enter the labour force by a certain age or to gain professional experience before entering advanced education) may explain why some new entrants are older.

Fields of study

New entrants to doctoral programmes are more likely to enrol in STEM fields than any others, reflecting the differences in employability of doctoral graduates across fields, as well as the research and innovation funding policies of countries. Quite a few new entrants to doctoral studies also enter health and welfare programmes, while students are much less likely to enrol in doctoral studies in the humanities, degrees that mainly lead to careers in academia.

Gender

The share of women in doctoral programmes has increased in the past decade. On average across OECD countries, the share of female new entrants into doctoral programmes increased by 2.5 percentage points between 2005 and 2016, reaching 48% in 2016. Women accounted for about half of doctoral new entrants (between 48 and 52%) in 20 countries in 2016, displaying a common trend towards a fairer representation of women in doctoral programmes. However, some strong differences across countries remain, ranging from 55% or more of female new entrants in Argentina and Poland to under 40% in Colombia, Indonesia, Japan, Luxembourg and Saudi Arabia (Figure B4.1).

International students make up the largest share of new entrants at the doctoral level, but only four out of ten are women, on average across OECD countries. Women represent less than 50% of international new entrants into doctoral programmes in all countries except Austria and Chile. Therefore, the gender imbalance observed in some countries might be influenced by the higher share of international students entering doctoral studies and the relative under-representation of women among them.

On average across OECD countries, about a third of the women and half of the men who pursue doctoral studies enter a STEM field of study. Among these fields, men are twice as likely as women to pursue a doctorate in engineering, manufacturing and construction and three times as likely to enter a doctoral programme in information and communication technologies (ICT).

These differences in how men and women select their field of study closely reflect those observed at bachelor's level. Women are not under-represented in all STEM fields, but mostly in technical fields such as engineering, manufacturing and construction and ICT. Women are, however, over-represented in the health and welfare field, which requires just as much scientific knowledge as other fields, but generally leads to jobs that could be qualified as "care jobs", in which women are usually over-represented. The gender divide in choice of field of study does not, therefore, fully correspond to the expected "humanistic-scientific" divide, but rather to what (Barone, 2011[3]) calls a "care-technical" divide that translates later on in labour market occupations.

These two phenomena, however, cannot fully account for the under-representation of women in doctoral studies in some countries. In some countries, women may choose to apply less often to doctoral programmes, anticipating the likelihood of lower-paid less prestigious positions in academia (Ginther and Kahn, 2004[4]). As the academic workforce is often male-dominated, women might be deterred from trying to have a career in academic research, fearing cultural and gender bias (Bosquet, Combes and García-Peúalosa, 2014[5]). Also, women could tend to self-select into less competitive career paths because they have been taught to do so earlier in life (Niederle and Vesterlund, 2007[6]) (Gneezy, Niederle and Rustichini, 2003[7])

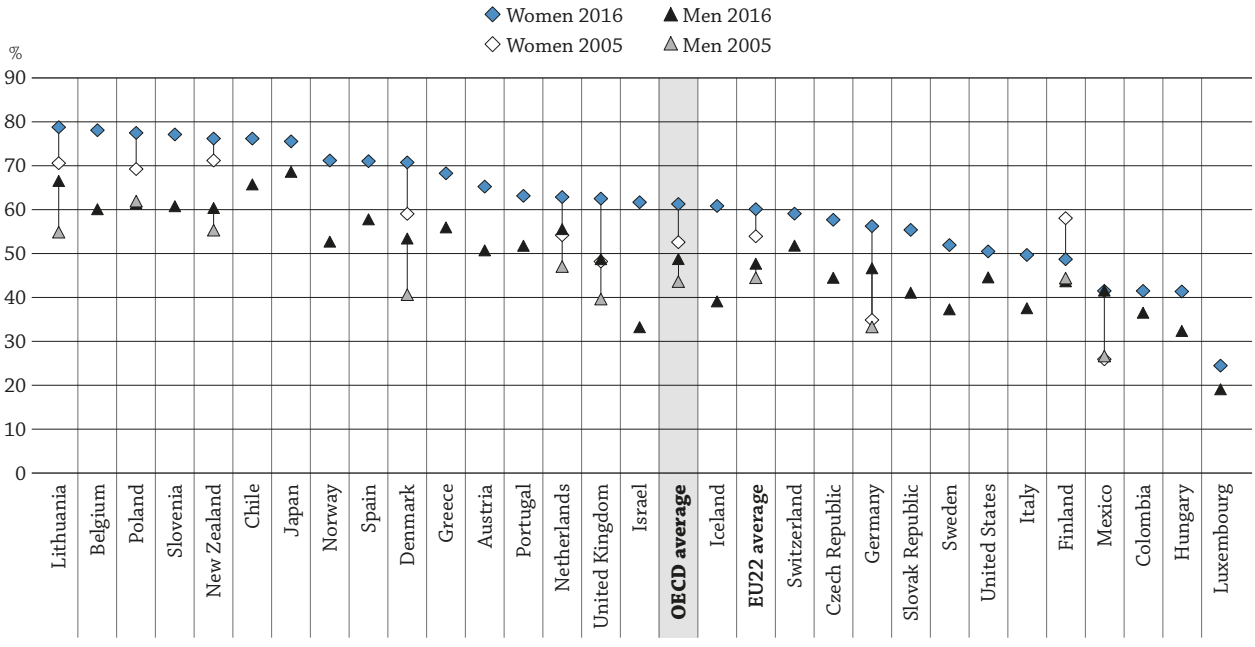
Entry rates to tertiary education

It is estimated that, on average across OECD countries, 66% of young adults will enter tertiary education for the first time in their life, if current patterns of entry continue. Chile (89%), Denmark (86%) and New Zealand (91%) have the highest first-time tertiary entry rates among OECD countries. In these countries, these rates 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 age 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 of adults under age 25 are similar in Italy and Sweden (40-41%, compared to the OECD average of 49%), but the total first-time entry rate in Sweden is 10 percentage points higher than in Italy, suggesting that the lower entry rate below age 25 is more a question of deferred entrance in Sweden and of access in Italy. This is also corroborated by the age distribution of new entrants into tertiary education shown in Figure B4.2.

While 50% of young adults are likely to enter tertiary education for the first time under age 25, in most OECD countries with data, the trend to enter higher education at an earlier age is driven by women (Figure B4.3). The difference between the first-time entry rates of women and men under age 25 is 13 percentage points on average across OECD countries, but is equal to or higher than 17 percentage points in Belgium, Denmark, Iceland, Israel and Norway. Only in Colombia, Finland, Luxembourg and Mexico do entry rates of men and women under age 25 differ by 5 percentage points or less. While men may choose to enter higher education at a later age, this suggests that the already established trend for women to outnumber men in higher education is likely to continue.

Figure B4.3. First-time tertiary entry rates below the age of 25, by gender (2005, 2016)



Countries are ranked in descending order of the first-time entry rates of female students younger than 25 years old in 2016.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/.

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Indeed, the first-time entry rates under age 25 have increased for both men and women between 2005 and 2016 in almost all countries with available data, but the gender gap has not been significantly reduced. Entry rates have increased by 9 percentage points on average for women and 8 percentage points for men, across countries for which data are available for both dates and the trends in entry rates for men and women have followed parallel trajectories. Germany is an exception, as the entry rates under age 25 were almost equal in 2005 (35% for women and 33% for men), and they are almost 10 percentage points apart in 2016 (56% for women and 47% for men). Denmark and Lithuania are the only two countries in which the entry rates under age 25 have increased more for men than for women. In both Denmark and Lithuania, however, the entry rates remain much higher for women than for men.

International students can significantly affect tertiary entry rates in certain countries. When international students are excluded, Australia, a strong destination country for international students, sees its entry rate to bachelor's programmes drop from 97% to 78%, still remaining, however, the highest entry rate in bachelor's programmes across OECD countries. Conversely, Luxembourg has the lowest entry rate across OECD countries, due to the large proportion of its citizens that study 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 very first time.

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 considered first-time entrants.

New entrants are students who enrol at the relevant level of education for the first time.

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

The net entry rate for a specific age is obtained by dividing the number of first-time 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/her lifetime if current age-specific entry rates continue.

For more information, please see the *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classification* (OECD, 2018[8])and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Data were collected on applicants and applications to tertiary education for first-degree programmes (i.e. first-degree bachelor's programmes/applied higher education programmes [ISCED 665, 666] and first-degree master's programmes [ISCED 766]). The population includes new applicants and applications. New applicants include people who applied for the first time to first-degree tertiary programmes, and people who applied for the second or subsequent time to these first-degree programmes, excluding applicants who were already enrolled as students and asked to change their field of study or institution.

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en).

Data on applicants and applications to tertiary education were collected for the school year 2015/16 through an ad hoc OECD survey carried out in 2017.

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

StatLink https://doi.org/10.1787/888933803482

Table B4.1 Profile of new entrants into doctoral programmes (2016)

Table B4.2 Profile of first-time entrants into tertiary education (2016)

Table B4.3 First-time entry rates, by tertiary level (2016)

Cut-off date for the data: 18 July 2018. 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.

Table B4.1. Profile of new entrants into doctoral programmes (2016)

		Percentage of female new entrants	Percentage of new entrants younger than 30 years old	Average age of new entrants	Average age of female new entrants	Percentage of international new entrants	Percentage of women among international new entrants	Distribution of female new entrants by field[1]					Distribution of male new entrants by field[1]				
								Education	Natural sciences, mathematics and statistics	Information and communication technologies (ICT)	Engineering, manufacturing and construction	Health and welfare	Education	Natural sciences, mathematics and statistics	Information and communication technologies (ICT)	Engineering, manufacturing and construction	Health and welfare
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Australia	50	49	33	33	39	43	8	20	2	10	23	4	23	6	25	13
	Austria	47	66	30	30	36	50	5	12	2	13	16	1	17	6	26	12
	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	44	45	32	33	21	53	10	32	1	12	10	5	35	2	19	6
	Czech Republic	45	76	28	28	21	44	6	22	1	14	14	2	18	7	30	8
	Denmark	50	62	30	31	38	45	0	11	0	17	42	0	19	0	34	24
	Estonia	52	66	30	29	19	27	5	28	5	11	11	1	27	15	21	5
	Finland	52	44	33	34	30	40	10	10	4	8	20	2	12	10	23	15
	France	45	75	28	28	m	m	2	36	3	9	4	1	42	6	14	3
	Germany	46	71	29	29	14	48	6	25	3	9	18	4	26	6	24	13
	Greece	48	42	33	33	3	36	8	11	4	13	23	3	12	6	22	24
	Hungary	49	68	30	29	16	40	7	18	1	4	19	3	22	6	9	13
	Iceland	53	39	35	37	46	33	7	11	2	4	31	4	37	6	14	16
	Ireland	52	56	31	31	33	49	7	21	3	9	24	3	23	7	21	15
	Israel	52	39	34	34	9	48	8	37	3	6	8	2	38	7	17	2
	Italy	51	72	28	28	15	44	0	22	1	16	21	0	24	4	30	11
	Japan	31	69	m	m	15	43	5[d]	9[d]	x	9[d]	46[d]	2[d]	15[d]	x	23[d]	40[d]
	Korea	40	41	38	38	m	m	14	10	0	10	22	4	14	2	34	12
	Latvia	53	49	33	33	15	42	7	15	4	14	8	3	15	7	33	4
	Luxembourg	38	74	28	28	78	40	11	22	6	14	0	2	20	23	18	0
	Mexico	48	m	33	33	2	m	38	13	0	6	3	27	14	1	11	2
	Netherlands	50	87	26	26	43	47	m	m	m	m	m	m	m	m	m	m
	New Zealand	50	49	32	33	58	45	12	20	3	10	17	5	23	6	27	9
	Norway	50	46	33	34	31	42	6	22	1	6	34	1	34	2	18	21
	Poland	55	73	29	28	m	m	4	17	1	11	12	1	14	5	19	6
	Portugal	49	37	35	34	31	43	13	13	1	13	14	7	14	5	19	7
	Slovak Republic	48	67	29	29	9	31	6	17	1	11	20	3	13	5	24	13
	Slovenia	49	62	31	31	10	46	6	16	0	13	6	3	20	10	24	4
	Spain	49	41	35	34	19	46	8	16	1	8	23	5	16	4	17	13
	Sweden	45	56	31	32	38	38	4	14	3	14	45	1	21	7	29	25
	Switzerland	47	73	29	29	58	46	3	27	2	9	25	1	30	4	19	17
	Turkey	42	57	30	30	11	31	10	17	0	18	12	7	11	1	28	5
	United Kingdom	48	66	29	30	44	46	7	28	3	8	18	3	28	6	20	11
	United States	51	74	28	30	50	38	24	31	1	6	11	7	36	6	18	3
	OECD average	48	59	31	31	28	42	8	19	2	10	19	4	22	6	22	12
	EU22 average	49	62	30	30	27	42	6	19	2	11	18	2	20	7	23	11
Partners	Argentina[2]	56	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
	China	40	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	35	30	35	34	6	17	10	24	2	21	11	5	20	2	29	6
	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	37	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	51	66	30	30	9	47	6	23	1	10	17	2	21	4	29	10
	Russian Federation	45	m	m	m	7	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	39	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	45	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. The distribution excludes several fields (Agriculture, forestry, fisheries and veterinary; Services; Social sciences; Arts and humanities; and Business and administration). The data for all fields are available in the Education at a Glance Database, http://stats.oecd.org/.

2. Year of reference 2015.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table B4.2. Profile of first-time entrants into tertiary education (2016)

		Percentage of female first-time entrants	Percentage of female first-time entrants among international first-time entrants	Average age of first-time entrants	Average age of female first-time entrants	Percentage of international first-time entrants	Distribution of female first-time entrants by level of education			Distribution of male first-time entrants by level of education		
							Short-cycle tertiary (2-3 years)	Bachelor's or equivalent	Master's or equivalent	Short-cycle tertiary (2-3 years)	Bachelor's or equivalent	Master's or equivalent
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD	Australia	m	m	m	m	m	m	m	m	m	m	m
	Austria	53	54	22	22	21	44	41	15	46	38	16
	Belgium	56	61	20	20	13	m	m	m	m	m	m
	Canada	m	m	m	m	m	m	m	m	m	m	m
	Chile	53	55	22	23	1	46	52	2	45	54	1
	Czech Republic	55	53	22	22	18	1	86	13	1	87	12
	Denmark	55	51	25	25	16	19	74	7	27	65	8
	Estonia	m	m	m	m	m	m	m	m	m	m	m
	Finland	53	45	23	23	11	a	95	5	a	93	7
	France	m	m	m	m	m	m	m	m	m	m	m
	Germany	51	54	22	22	12	0	78	22	0	86	14
	Greece	54	37	19	19	4	a	100	a	a	100	a
	Hungary	55	50	21	22	10	14	69	18	10	75	16
	Iceland	60	63	24	25	16	5	88	6	6	87	6
	Ireland	m	m	m	m	m	m	m	m	m	m	m
	Israel	57	m	24	23	m	22	78	a	30	70	a
	Italy	55	59	20	20	6	1	84	15	2	88	10
	Japan	51	m	18	18	m	43	55	2	28	70	3
	Korea	m	m	m	m	m	m	m	m	m	m	m
	Latvia	m	m	m	m	m	m	m	m	m	m	m
	Luxembourg	53	54	25	25	47	14	47	39	12	47	41
	Mexico	50	m	21	21	0	7	93	a	10	90	a
	Netherlands	52	53	20	20	19	1	91	8	1	91	8
	New Zealand	55	49	23	23	32	25	75	a	32	68	a
	Norway	55	55	23	22	4	2	88	10	11	77	12
	Poland	54	49	21	21	5	m	m	m	m	m	m
	Portugal	53	51	20	20	4	6	81	13	12	73	15
	Slovak Republic	57	56	22	22	7	3	90	7	2	93	5
	Slovenia	54	52	20	20	4	14	80	6	24	73	3
	Spain	53	m	21	21	m	30	58	12	38	52	10
	Sweden	57	49	24	24	12	11	66	23	16	55	29
	Switzerland	49	50	25	25	15	3	69	27	2	70	28
	Turkey	47	33	23	23	1	45	53	2	43	56	1
	United Kingdom	56	54	21	21	12	10	88	1	10	89	1
	United States	52	36	20	20	3	44	56	a	47	53	a
	OECD average	54	51	22	22	12	16	74	10	18	73	10
	EU22 average	54	52	22	22	13	10	77	13	13	75	12
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m
	Colombia	51	52	23	22	0	38	62	a	45	55	a
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m
	India	47	m	m	m	m	0	100	0	a	99	1
	Indonesia	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	53	41	21	21	4	a	93	7	a	97	3
	Russian Federation	52	m	m	m	m	47	43	10	48	43	9
	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	51	m	m	m	m	23	71	7	23	73	5

Note: This table refers to students entering tertiary education for the first time regardless of tertiary level.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

Sum of age-specific entry rates, by demographic groups

		Short-cycle tertiary (2-3 years)			Bachelor's or equivalent			Master's or equivalent			Doctoral or equivalent			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	Australia	m	m	m	97	78	62	34	15	8	3.4	2.1	0.9	m	m	m
	Austria	35	34	29	45	36	30	24	17	14	3.3	2.1	1.5	70	56	48
	Belgium	1	1	1	75	67	66	28	24	24	m	m	m	72	63	62
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	47	47	32	58	57	47	11	10	5	0.4	0.3	0.1	89	89	71
	Czech Republic	0	0	0	59	52	46	31	26	23	3.4	2.7	2.1	57	47	42
	Denmark	28	24	10	71	64	47	34	27	23	3.3	2.1	1.1	86	72	53
	Estonia	a	a	a	64	60	48	27	23	17	2.0	1.6	1.1	m	m	m
	Finland	a	a	a	57	53	42	13	9	4	2.3	1.6	0.6	58	51	42
	France	29	m	m	55	m	m	39	m	m	2.2	m	m	m	m	m
	Germany	0	0	0	49	46	39	29	21	20	3.8	3.2	m	60	53	45
	Greece	a	a	a	64	62	60	12	12	8	2.5	2.4	1.1	64	62	60
	Hungary	5	5	4	29	27	25	16	13	11	1.7	1.5	1.0	41	37	33
	Iceland	7	4	1	65	58	43	35	31	15	2.2	1.2	0.3	70	59	43
	Ireland	11	11	4	74	70	62	31	25	14	3.2	2.2	1.2	m	m	m
	Israel	22	m	m	56	54	36	22	21	9	1.7	1.6	0.5	69	m	m
	Italy	1	1	0	41	38	35	18	16	14	1.3	1.1	0.9	48	45	41
	Japan	28	m	m	50	m	m	9	m	m	1.2	1.0	0.7	80	m	m
	Korea	32	m	m	56	m	m	13	m	m	3.5	m	m	m	m	m
	Latvia	26	25	15	76	69	56	27	22	17	2.3	2.0	1.0	m	m	m
	Luxembourg	4	4	4	16	11	11	14	4	3	1.2	0.3	0.2	31	17	15
	Mexico	4	4	m	45	45	m	6	6	m	0.6	0.6	m	49	49	m
	Netherlands	2	2	1	59	51	49	23	17	15	1.5	0.9	0.7	64	52	50
	New Zealand	34	24	11	76	55	42	11	8	4	3.2	1.3	0.5	91	63	49
	Norway	5	5	3	69	65	54	31	28	22	2.7	1.8	0.7	75	72	60
	Poland	0	0	0	69	m	m	42	m	m	3.2	m	m	76	72	66
	Portugal	6	5	5	50	48	44	34	31	26	3.5	2.4	1.1	62	60	56
	Slovak Republic	1	1	1	50	48	42	34	32	29	2.3	2.1	1.5	54	51	46
	Slovenia	24	24	19	71	68	64	33	31	29	2.2	1.9	1.3	72	69	66
	Spain	27	m	m	48	47	44	19	16	14	3.9	3.2	1.7	73	m	m
	Sweden	9	9	3	44	42	30	30	25	19	2.2	1.4	0.6	62	55	40
	Switzerland	2	2	1	62	55	39	22	15	13	4.7	2.0	1.5	82	70	47
	Turkey	49	49	35	61	60	45	11	10	8	1.1	1.0	0.6	m	m	m
	United Kingdom	14	14	8	65	55	48	26	15	9	4.0	2.3	1.4	64	56	48
	United States	38	37	26	m	m	m	13	11	7	1.2	0.6	0.4	52	50	46
	OECD average	16	13	9	58	53	45	24	19	15	2.5	1.7	0.9	66	57	49
	EU22 average	12	9	6	56	51	44	27	20	17	2.6	1.9	1.1	62	54	48
Partners	Argentina[1]	60	m	m	54	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	38	m	m	34	m	m	4	m	m	0.4	m	m	m	m	m
	Colombia	24	24	15	33	33	24	9	9	3	0.1	0.1	0.0	57	57	39
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	a	a	a	45	m	m	10	m	m	m	m	m	63	m	m
	Indonesia	6	m	m	22	m	m	2	m	m	0.1	m	m	m	m	m
	Lithuania	a	a	a	77	74	66	23	20	17	1.6	1.5	1.0	81	78	70
	Russian Federation	45	44	m	63	56	m	20	m	m	1.5	1.4	m	83	m	m
	Saudi Arabia	13	m	m	66	m	m	2	m	m	0.3	m	m	78	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	26	m	m	53	m	m	15	m	m	1.8	m	m	65	m	m

Note: Mismatches between the coverage of the population data and the new-entrant data mean that the entry rates for those countries that are net exporters of students may be underestimated and those that are net importers may be overestimated. The adjusted entry rates seek to compensate for that. Please refer to Annex 3 for further specific information by country.

1. Year of reference 2015.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

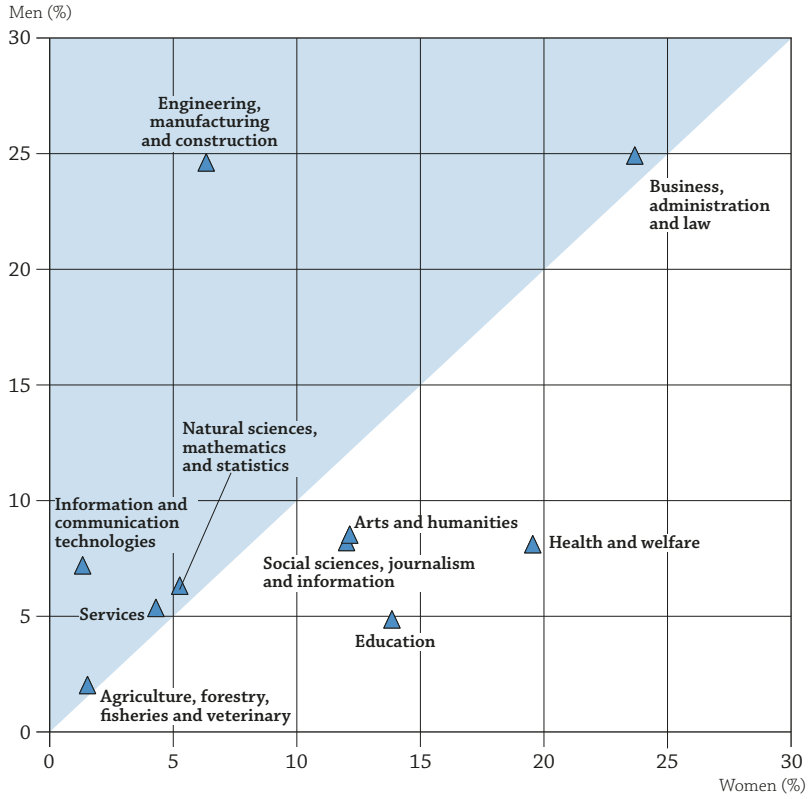
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WHO IS EXPECTED TO GRADUATE FROM TERTIARY EDUCATION?

- Tertiary education is marked by a large gender gap by field of study. While a high share of male graduates obtain a degree in engineering, manufacturing and construction (25% on average across OECD countries), the proportion of female graduates in this field is low (6% on average). In contrast, only 5% of male graduates obtained a degree in education, compared to 14% of female graduates.
- Bachelor's degrees remain the most common tertiary diploma held by graduates in OECD countries. In 2016, on average across OECD countries, a majority (75%) of first-time tertiary graduates earned a bachelor's degree, 11% earned a master's degree and 15% earned a short-cycle tertiary diploma.
- Based on current patterns of graduation, an average of 49% of today's young people across OECD countries is expected to graduate from tertiary education at least once in their lifetime.

Figure B5.1. Distribution of tertiary graduates, by gender and field of study (2016)

On average across OECD countries



Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Tertiary graduation rates illustrate a country's capacity to provide future workers with advanced and specialised knowledge and skills. Incentives to earn a tertiary degree, including higher salaries and better employment prospects, remain strong across OECD countries (see Indicators A3, A4 and A5 for further reading on these themes). Tertiary education varies in structure and scope among countries, and graduation rates seem to be influenced by the ease of access to and flexibility in programmes, the supply of spaces available by education level and fields of study, and also the labour-market demand for higher skills.

In recent decades, access to tertiary education has expanded remarkably, with new types of institutions that offer more choice and new modes of delivery (OECD, 2016[1]) . In parallel, the student population is becoming increasingly diverse in study pathways chosen. Students are also becoming more likely to seek a tertiary degree outside their country of origin.

Policy makers are exploring ways to help ease the transition from tertiary education into the labour market (OECD, 2015[2]). Analysing current graduation patterns can help to understand student progression through higher education and better anticipate the flow of new tertiary-educated workers into the labour force. From an equity perspective, given the better labour-market and social outcomes associated with tertiary education (see Chapter A), governments should also ensure that graduation from tertiary education is not dependent on gender, socio-economic or demographic background (see Indicator B7). For instance, to tackle inequity in tertiary education, countries such as Australia propose scholarships, academic support and alternative entry schemes for students from disadvantaged socio-economic backgrounds (OECD, 2014[3]).

Other findings

- Advanced tertiary degrees attract more international students (see *Definitions* section at the end of this indicator) than bachelor's or equivalent degrees. Some 26% of students in OECD countries who graduated for the first time from a doctoral programme in 2016 were international students, as were 17% of students who earned a master's degree or the equivalent, and 7% of graduates who earned a bachelor's degree for the first time.
- First-time tertiary graduation rates are significantly lower for men than for women in all countries with available data. On average across OECD countries, 43% of women are expected to obtain a tertiary degree before the age of 30, compared to only 29% of men.
- Across OECD countries with available data, the average age at which people graduate for the first time from a tertiary level programme is 26.

Note

Graduation rates are the estimated percentage of an age cohort that is expected to graduate in their lifetime. This estimate is based on the total number of graduates in 2016 and the age-specific distribution of graduates. Therefore, graduation rates are based on the current pattern of graduation and are sensitive to any changes in education systems, such as the introduction of new programmes or any variations in a programme's duration (as has occurred in many countries in the European Union with the implementation of the Bologna Process).

In this indicator, age generally refers 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. Age 30 is used as the upper limit for completing short-cycle tertiary, bachelor's degrees and first-time tertiary education overall. At the master's and doctoral levels, 35 is considered to be the upper age limit for graduation.

Analysis

Profile of graduates and first-time graduates from tertiary education

Over the past two decades, tertiary education has changed significantly in OECD countries. The student body is more international, more women than men are graduating from this level of education, and the fields of study chosen have evolved. These changes may reflect concerns about competitiveness in the global economy and the labour market, but they also signal the interests and priorities of a growing student population.

Profile of graduates, by field of study

The distribution of graduates by field of study is related, for instance, to the relative popularity of these fields among students, the number of study spaces offered in universities and equivalent institutions, and the degree structure of the various disciplines in each country.

Currently, in most OECD countries, the largest share of graduates across all tertiary education programmes complete degrees in business, administration and law, with a few exceptions (Table B5.2). In Korea and Portugal the most popular field among tertiary graduates is engineering, manufacturing and construction; in Belgium, Finland, Norway and Sweden it is health and welfare; in India it is social sciences, information and journalism; in Argentina it is education; and in Saudi Arabia and the United States it is arts and humanities. Some of these differences can be explained by the structure of educational systems and the types of institutions offering qualifications in each field of study across countries. For example, degrees in fields of study such as nursing (included in the health and welfare field) are more likely to be offered in tertiary programmes in countries that have integrated most of the post-secondary vocational education into their tertiary education system.

In most countries, the fields of science, technology, engineering, and mathematics (also known as STEM) are less popular. In more than half of the OECD and partner countries with available data, the combined share of students graduating from the fields of natural sciences, mathematics and statistics, engineering, manufacturing and construction, and information and communication technologies is still lower than the share of students graduating from business, administration and law. In 2016, 24% of tertiary graduates obtained a degree from STEM fields on average across OECD countries, although this ranges from 16% in the Netherlands to 36% in Germany.

Profile of graduates, by field of study and gender

The field of business, administration and law attracts an equally high share of male and female tertiary graduates on average across OECD countries (24% for women and 25% for men) (Figure B5.1). This makes it, by far, the most popular field among women – the second most popular field being health and welfare, which accounts for 20% of female graduates.

In contrast, other fields, such as engineering, manufacturing and construction, are significantly more attractive to men than women. While this is among the most popular fields for men (25% of male graduates on average across the OECD), only 6% of female graduates obtained a degree in engineering, manufacturing and construction in 2016. In fact, the only countries where the share of female graduates from engineering, manufacturing and construction exceeds 10% are Mexico (11%) and Portugal (12%).

The pattern of gender imbalance is reversed in the field of education, with 14% of female graduates, but only 5% of male graduates on average across OECD countries. Similarly, 20% of female graduates obtained a degree in health and welfare, compared to 8% of male graduates. This gender gap in the fields of education and health and welfare is common to all OECD countries with available data.

The relevance of gender balance across fields of study is twofold. First, from an equity perspective, it is important to ensure that individuals can choose the studies or career paths that appeal to them, without being discouraged by social perceptions of what constitutes female or male occupations (OECD, 2014[4]). Second, gender imbalances in fields of study can translate into imbalances in the labour market, and there is evidence of GDP gains from more equal participation of male and female workers (Elborgh-Woytek et al., 2013[5]).

Profile of first-time graduates, by education level

First-time graduates from tertiary education are defined as students who receive a tertiary degree for the first time in their life in a given country.

In 2016, the large majority of first-time tertiary graduates were awarded a bachelor's degree. On average across OECD countries, 75% of first-time tertiary graduates earned a bachelor's degree, 11% earned a master's degree and 15% earned a short-cycle tertiary diploma (Table B5.1).

However, this pattern varies significantly across countries. Over 30% of first-time graduates obtained a master's or equivalent degree in Luxembourg, the Russian Federation, Slovenia and Sweden, and over 40% of first-time graduates obtained a short-cycle tertiary degree in Austria, Chile, Turkey and the United States. Bachelor's or equivalent degrees remain the most common tertiary diploma held by first-time graduates in all of these countries, with two exceptions: Austria, where short-cycle tertiary degrees are the most common tertiary diploma, and the Russian Federation, where master's or equivalent degrees are the most common tertiary diploma.

These differences may result from the structure of the tertiary system, the attractiveness of the programmes to international students (particularly at master's level, long first degrees), or more vigorous promotion of certain programmes in some countries (such as short-cycle tertiary diplomas).

Profile of first-time graduates, by gender

Recognising the impact that education has on participation in the labour market, occupational mobility and quality of life, policy makers and educators are emphasising the importance of reducing differences between men and women in educational opportunities and outcomes.

In 2016, more women than men graduated from tertiary education: on average, 57% of first-time graduates from tertiary education in OECD countries were women, ranging from 49% in Switzerland to 65% in Latvia (Table B5.1). In addition, the share of female graduates was higher than the share of female first-time entrants into tertiary education (see Indicator B4) in almost all OECD and partner countries with available data. The gap between first-time graduates and first-time entrants is particularly important in the Czech Republic, Lithuania and the Slovak Republic, with a difference of over 6 percentage points. This confirms previous findings that women are more likely to complete tertiary education than their male counterparts (see Indicator A9 in [OECD, 2016[6]]).

Although most tertiary graduates in 2016 were women, men still have better labour market outcomes. Earnings for tertiary-educated men are higher, on average, than those for tertiary-educated women, and tertiary-educated men tend to have higher employment rates than women with the same level of education (see Indicators A3 and A4).

Profile of first-time graduates, by age

For some years now, many OECD countries have been concerned about the length of time tertiary students take to complete their studies. They have developed policies to encourage students to graduate more quickly in order to get more workers into the labour market at an earlier age. For example, the reforms following the Bologna Declaration in 1999 (which introduced a new degree structure in European countries) were explicitly motivated by a policy objective to reduce the length of studies.

Across OECD countries in 2016, 82% of first-time tertiary graduates graduated before age 30, and the average age of graduation was 26 (Table B5.1). The variation among countries is large, however, ranging from 23 in Lithuania and the United Kingdom, to 28 in Luxembourg, Sweden and Switzerland. The average age at which most students graduate reflects a combination of average age at entry and programme duration. Entrance to tertiary education can be delayed by the structure of upper secondary education systems, processes for entry and admission into tertiary education, conscription requirements, or diverse pathways to transition from study to work. Programme duration depends on the structure of the educational programme, or on the intensity of enrolment, i.e. full time or part time. In Luxembourg, Sweden and Switzerland, students graduate later but the average age of entry is two to three years older than the OECD average (age 24-25 compared to the average of 22). The older age at both graduation and entry in these countries reflects students' various trajectories before entering higher education, the flexibility of the education system to accommodate transitions between educational programmes or between work and study, and adults' lifelong learning (see Indicator B4). The higher enrolment in part-time studies, as observed in Sweden and Switzerland, also tends to delay the average graduation age (see Indicator B1).

The difference between entry and graduation age can be very small in some countries and can be driven in part by the prevalence of short-cycle tertiary degrees, as these programmes generally take only two years, compared to three or four years for a bachelor's degree. Moreover, in some countries, short-cycle tertiary programmes are specifically designed for older students, who may take longer to graduate, increasing the entry age compared to the graduation age at this level.

B5

First-time graduation rates from tertiary education

Based on 2016 patterns of graduation, 49% of today's young people (including international students) can expect to graduate from tertiary education at least once in their lifetime on average across OECD countries. The proportion ranges from 18% in Luxembourg (although this percentage is negatively biased by the 74% of secondary graduates who pursue tertiary studies abroad) to 70% or more in Australia, Denmark, Japan and New Zealand (Table B5.3).

First-time graduation rates, by levels of education

More young people are expected to graduate from a bachelor's degree programme in their lifetime than from any other level of tertiary education. Based on patterns of graduation prevailing in 2016, on average across OECD countries, 38% of young people are expected to graduate with a bachelor's degree, 18% are expected to earn a master's degree, 10% are expected to graduate from a short-cycle tertiary programme, and roughly 2% are expected to graduate from a doctoral programme in their lifetime (Table B5.3).

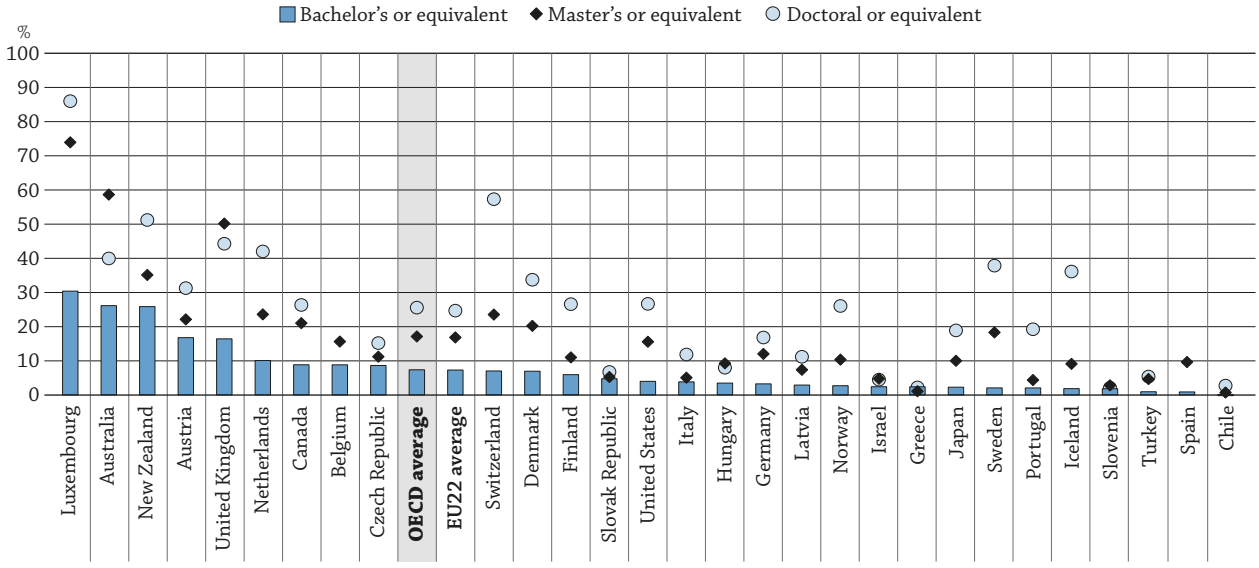
Although bachelor's degrees remain the most commonly held tertiary diploma, OECD countries are also promoting other levels of tertiary education. In an effort to improve employability and the transition into the labour market, some countries are encouraging participation in short-cycle tertiary programmes. The probability of a person in Chile, China, Japan, New Zealand, the Russian Federation and Turkey graduating from a short-cycle tertiary programme in his or her lifetime is 25% or higher. Other ways of boosting employability and easing the transition into the labour market include promoting professional or vocational programmes at bachelor's and master's levels.

First-time graduation rates, excluding international students

International students (see *Definitions* section at the end of this indicator) can have a marked impact on graduation rates by inflating the estimate of graduate students compared to the national population. In countries with a high proportion of international students, such as Australia and New Zealand, the difference can be significant. When international students are excluded, first-time tertiary graduation rates drop by 31 percentage points for Australia and 24 percentage points for New Zealand (Table B5.3).

The share of first-time international graduates varies significantly across countries. It is particularly high in Australia, Luxembourg and New Zealand, with at least 20% of international graduates in bachelor's or equivalent programmes, at least 30% in master's or equivalent programmes, and at least 40% in doctoral or equivalent programmes. In contrast, the lowest shares of international graduates are found in Chile, Greece and Slovenia, with less than 5% of international graduates in all levels of tertiary education (Figure B5.2).

Figure B5.2. Share of first-time international graduates, by level of education (2016)



Countries are ranked in descending order of the share of international graduates at bachelor's or equivalent level.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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In spite of these cross-country differences, there is a common pattern across countries with available data: advanced tertiary degrees attract more international students than bachelor's or equivalent degrees. Some 26% of students in OECD countries who graduated for the first time from a doctoral programme in 2016 were international students, compared to 17% of students who were awarded a master's degree or equivalent, and 7% of students who earned a bachelor's degree for the first time (Figure B5.2).

The high share of international students in advanced tertiary degrees may be due, in part, to the emergence of knowledge-based economies (economies directly based on the production, distribution and use of knowledge and information). This phenomenon has contributed to the internationalisation of research. As a consequence, many students are seeking opportunities to study abroad at the master's or doctoral level. From the point of view of host countries, attracting international students can be beneficial for several reasons, such as the fees and other living expenses the students pay, and the social and business networks that they help to build with their home countries. In addition, international students, particularly at the master's or doctoral or equivalent level, can contribute to research and development (R&D) in the host country, initially as students and later on potentially as researchers or highly qualified professionals. Doctoral students, in particular, form an integral part of the research staff of a country (OECD, 2016[7]).

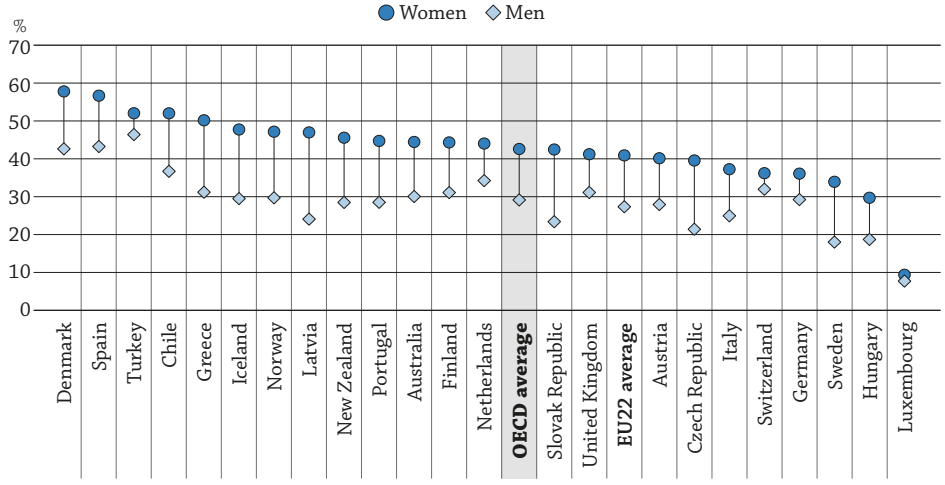
First-time graduation rates among people under age 30

The first-time graduation rate from tertiary education among people under the age of 30 is an indicator of how many young people are expected to enter the labour force for the first time with a tertiary qualification. On average across the 23 countries with available data, 36% of young people (excluding international students) are expected to obtain a tertiary diploma for the first time before age 30 (Table B5.3). This rate ranges from 9% in Luxembourg (although this value is negatively biased by the three-quarters of secondary graduates pursuing tertiary studies abroad) to 50% in Denmark and Spain.

Men are less likely than women to graduate from tertiary education. On average across OECD countries, 43% of women are expected to obtain a tertiary degree before age 30, compared to only 29% of men (Figure B5.3). There is significant cross-country variation, especially for women – with graduation rates ranging from 9% in Luxembourg to 58% in Denmark for women, and from 8% in Luxembourg to 46% in Turkey for men.

In all countries with available data, first-time tertiary graduation rates are lower for men than for women, but the magnitude of the gender gap varies significantly across countries. The difference between men and women goes from less than 5 percentage points in Luxembourg and Switzerland to more than 20 percentage points in Latvia.

Figure B5.3. First-time tertiary graduation rates for national students younger than 30, by gender (2016)



Countries are ranked in descending order of first-time graduation rates for women.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Some education systems accommodate a wider range of ages among their students than others. In Chile, Denmark, Latvia, New Zealand, Sweden, Switzerland and Turkey, first-time graduation rates at the tertiary level drop by 10 percentage points or more when restricted to young people under age 30 (excluding international students). This suggests that these education systems are more flexible in terms of access to programmes and their duration, particularly for students outside the typical age of study. It may also reflect the different policies and attitudes towards adult and lifelong learning. Indeed, with the exception of Turkey, the average age of first-time graduates in these countries is typically higher than the OECD average, mainly driven by entrance at a later age.

Definitions

First-time graduate is a student who has graduated for the first time at a given level of education during the reference period. Therefore, 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.

First-time tertiary graduate is a student who graduates for the first time with a tertiary diploma, regardless of the education programme in which he or she is enrolled. This definition is applied in Tables B5.1 and B5.3 (Columns 13 to 15).

First-time graduate from a given programme or level of tertiary education is a first-time graduate from the given programme, but may have a diploma from another programme. For example, a first-time graduate at the master's level has earned a master's degree for the first time, but may have previously graduated with a bachelor's degree. This definition is applied in Tables B5.1 (Columns 5 to 7) and B5.3 (Columns 1 to 12).

International students are those students who left their country of origin and moved to another country for the purpose of study. In the majority of countries, international students are considered first-time graduates, regardless of their previous education in other countries. In the calculations described here, when countries could not report the number of international students, foreign students have been used as an approximation. Foreign students are students who do not have the citizenship of the country in which they studied (for more details, please refer to Annex 3, http://dx.doi.org/10.1787/eag-2018-36-en).

Net graduation rates represent the estimated percentage of people from a specific age cohort who will complete tertiary education in their lifetime, based on current patterns of graduation.

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 used when data by age are missing. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs (see Annex 1). The typical age of graduation for a given education level is defined in *Education at a Glance* as the age range comprising at least half of the graduate population. The number of graduates of which the age is unknown is divided by the population at the typical graduation age. However, in many countries, defining a typical age at graduation is difficult, because graduates are dispersed over a wide range of ages.

Some of the outliers were removed from Table B5.3 and Figure B5.3 due to comparability issues. They are, however, presented in Annex 3 (http://dx.doi.org/10.1787/eag-2018-36-en)

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. As a consequence, the average age of first-time graduates may be underestimated by up to six months.

Please see Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-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 B5 Tables

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Table B5.1	**Profile of a first-time tertiary graduate (2016)**
Table B5.2	**Distribution of tertiary graduates, by field of study (2016)**
Table B5.3	**First-time graduation rates, by tertiary level (2016)**

Cut-off date for the data: 18 July 2018. 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.

Table B5.1. Profile of a first-time tertiary graduate (2016)

		Share of female graduates	Share of graduates below the typical age of 30	Average age	Share of international graduates	Share of first-time tertiary graduates by level of education		
						Short-cycle tertiary (2-3 years)	Bachelor's or equivalent	Master's or equivalent
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	Australia	56	83	26	41	8	74	19
OECD	Austria	56	83	24	17	46	34	20
OECD	Belgium	m	m	m	m	m	m	m
OECD	Canada	m	m	m	m	m	m	m
OECD	Chile	57	76	27	0	45	53	2
OECD	Czech Republic	64	86	26	9	1	90	9
OECD	Denmark	56	85	26	15	18	73	9
OECD	Estonia	m	m	m	m	m	m	m
OECD	Finland	57	80	27	10	a	90	10
OECD	France	m	m	m	m	m	m	m
OECD	Germany	52	87	26	3	0	84	16
OECD	Greece	60	92	25	2	a	100	a
OECD	Hungary	60	79	26	5	5	81	14
OECD	Iceland	62	78	27	2	2	98	0
OECD	Ireland	m	m	m	m	m	m	m
OECD	Israel	m	m	m	m	m	m	m
OECD	Italy	58	91	25	4	1	81	18
OECD	Japan	52	m	m	4	35	63	2
OECD	Korea	m	m	m	m	m	m	m
OECD	Latvia	65	78	27	3	29	66	5
OECD	Luxembourg	53	74	28	50	12	52	36
OECD	Mexico	53	90	24	m	8	92	a
OECD	Netherlands	56	94	24	16	2	90	8
OECD	New Zealand	56	79	26	33	33	67	a
OECD	Norway	60	83	26	2	8	83	9
OECD	Poland	m	m	m	m	m	m	m
OECD	Portugal	59	90	25	2	0	83	16
OECD	Slovak Republic	64	87	24	6	3	91	6
OECD	Slovenia	58	57	m	2	8	59	33
OECD	Spain	55	84	25	4	34	49	17
OECD	Sweden	63	75	28	10	2	64	34
OECD	Switzerland	49	76	28	7	1	99	0
OECD	Turkey	51	83	25	1	42	56	2
OECD	United Kingdom	56	91	23	13	13	85	1
OECD	United States	58	m	m	3	41	59	a
	OECD average	57	82	26	10	15	75	11
	EU22 average	58	83	26	10	10	75	15
Partners	Argentina	m	m	m	m	m	m	m
Partners	Brazil	m	m	m	m	m	m	m
Partners	China	m	m	m	m	m	m	m
Partners	Colombia	m	m	m	m	m	m	m
Partners	Costa Rica	m	m	m	m	m	m	m
Partners	India	m	m	m	m	m	m	m
Partners	Indonesia	m	m	m	m	m	m	m
Partners	Lithuania	61	94	23	m	a	93	7
Partners	Russian Federation	57	m	m	m	27	34	39
Partners	Saudi Arabia	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table B5.2. Distribution of tertiary graduates, by field of study (2016)

		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
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Australia	9	11	7	34	6	4	8	1	18	2
OECD	Austria	12	7	11	22	6	4	21	2	7	8
OECD	Belgium	9	10	11	22	4	2	12	2	27	2
OECD	Canada	8	10	16	26	7	3	12	2	14	2
OECD	Chile	15	3	4	24	1	3	16	2	21	10
OECD	Czech Republic	10	9	11	22	5	4	16	3	12	7
OECD	Denmark	6	13	11	25	6	5	10	1	20	3
OECD	Estonia	8	12	9	24	7	6	14	2	12	6
OECD	Finland	6	12	7	18	5	7	18	2	20	4
OECD	France	4	9	8	33	8	3	15	1	15	3
OECD	Germany	10	12	7	23	9	5	22	2	7	3
OECD	Greece	7	13	12	21	8	3	17	2	12	4
OECD	Hungary	17	10	10	24	4	4	14	3	8	5
OECD	Iceland	14	10	16	22	5	5	10	1	15	3
OECD	Ireland	6	14	6	25	8	7	10	2	17	5
OECD	Israel[1]	17	9	21	24	6	4	9	1	10	0
OECD	Italy	4	18	14	21	8	1	16	3	15	0
OECD	Japan[2]	10[d]	15[d]	8[d]	20[d]	3[d]	x	18[d]	3[d]	16[d]	8[d]
OECD	Korea	7	17	6	16	5	2	22	1	14	9
OECD	Latvia	7	8	10	31	3	5	13	2	14	8
OECD	Luxembourg	9	11	12	40	6	6	7	2	6	2
OECD	Mexico	14	4	9	35	3	2	21	2	10	1
OECD	Netherlands[3]	10	9	15	29	6	2	8	1	16	5
OECD	New Zealand	10	11	9	26	6	7	8	2	15	6
OECD	Norway	17	8	11	16	5	3	13	1	21	6
OECD	Poland	14	7	10	24	4	3	16	1	13	7
OECD	Portugal	5	9	11	19	7	1	21	2	18	6
OECD	Slovak Republic	13	7	12	20	6	3	12	2	18	6
OECD	Slovenia	11	11	11	23	5	3	17	3	8	7
OECD	Spain	17	9	7	19	5	4	15	1	16	7
OECD	Sweden	12	6	13	17	5	4	18	1	22	2
OECD	Switzerland	10	8	7	29	7	2	16	2	15	5
OECD	Turkey	10	11	8	35	3	2	14	2	10	5
OECD	United Kingdom	9	15	12	22	14	4	9	1	13	0
OECD	United States	7	20	12	19	7	4	7	1	17	6
	OECD average	10	11	10	24	6	4	14	2	15	5
	EU22 average	9	11	10	24	6	4	15	2	14	5
Partners	Argentina[4]	21	13	7	17	8	1	5	2	21	4
Partners	Brazil	20	3	4	36	3	3	11	3	14	4
Partners	China	m	m	m	m	m	m	m	m	m	m
Partners	Colombia	8	4	7	46	1	5	17	2	7	3
Partners	Costa Rica	22	3	7	36	2	5	7	1	14	2
Partners	India	9	6	31	18	13	7	12	1	3	0
Partners	Indonesia	m	m	m	m	m	m	m	m	m	m
Partners	Lithuania	7	9	12	30	4	2	18	2	14	2
Partners	Russian Federation	7	4	10	33	3	5	23	1	6	7
Partners	Saudi Arabia	15	23	9	21	9	7	8	0	7	2
Partners	South Africa[4]	18	5	15	33	8	3	9	2	7	0
	G20 average	11	11	11	26	7	3	14	2	12	4

1. Excludes short-cycle tertiary graduates.
2. Data on Information and communication technologies are included in other fields.
3. Excludes doctoral graduates.
4. Year of reference 2015.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table B5.3. First-time graduation rates, by tertiary level (2016)

Sum of age-specific graduation rates, by demographic group

		Short-cycle tertiary (2-3 years)			Bachelor's or equivalent			Master's or equivalent			Doctoral or equivalent			First-time tertiary		
			Excluding international students			Excluding international students			Excluding international students			Excluding international students			Excluding international students	
		Total	Total	Younger than 30	Total	Total	Younger than 30	Total	Total	Younger than 35	Total	Total	Younger than 35	Total	Total	Younger than 30
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	13	9	5	60	44	35	21	9	6	2.6	1.6	0.7	77	46	37
OECD	Austria	24	24	23	25	21	18	20	16	14	1.9	1.3	1.0	47	40	34
OECD	Belgium	m	m	m	44	40	39	27	23	22	m	m	m	m	m	m
OECD	Canada	22	18	14	38	34	31	12	9	7	1.6	1.1	0.7	m	m	m
OECD	Chile	28	28	19	36	36	27	10	10	6	0.3	0.3	0.1	60	60	44
OECD	Czech Republic	0	0	0	35	32	27	24	22	19	1.6	1.3	0.9	39	35	30
OECD	Denmark	13	11	9	57	53	44	37	30	27	3.2	2.1	1.4	70	60	50
OECD	Estonia	a	a	a	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Finland	a	a	a	48	45	35	24	22	16	2.7	2.0	0.8	51	46	38
OECD	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Germany	0	0	0	32	31	28	18	15	15	2.8	2.3	1.9	38	37	33
OECD	Greece	a	a	a	45	44	41	10	10	7	1.4	1.3	0.6	45	44	41
OECD	Hungary	2	2	2	26	25	20	16	14	12	0.9	0.9	0.6	31	30	24
OECD	Iceland	1	1	0	51	50	38	29	27	15	1.6	1.0	0.4	51	50	38
OECD	Ireland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Israel	m	m	m	42	41	31	20	19	11	1.4	1.4	0.5	m	m	m
OECD	Italy	0	0	0	30	28	26	20	19	18	1.5	1.3	1.2	36	35	31
OECD	Japan	25	24	m	45	44	m	8	7	m	1.2	1.0	m	72	69	m
OECD	Korea	m	m	m	m	m	m	m	m	m	1.8	m	m	m	m	m
OECD	Latvia	14	13	9	31	30	25	15	14	12	0.7	0.6	0.4	46	45	35
OECD	Luxembourg	2	2	2	10	7	6	8	2	2	1.2	0.2	0.1	18	9	9
OECD	Mexico	2	m	m	28	m	m	5	m	m	0.5	m	m	31	m	m
OECD	Netherlands	1	1	1	44	40	38	19	14	13	2.4	1.4	1.2	49	41	39
OECD	New Zealand	27	16	9	54	40	31	9	6	4	2.1	1.0	0.5	73	49	37
OECD	Norway	4	4	3	40	39	33	18	16	13	1.8	1.3	0.5	47	45	38
OECD	Poland	0	0	0	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Portugal	0	0	0	34	33	30	15	15	14	1.7	1.4	0.7	40	40	37
OECD	Slovak Republic	1	1	1	35	33	30	32	30	27	2.1	2.0	1.6	38	36	33
OECD	Slovenia	7	7	5	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Spain	22	22	19	33	33	30	19	17	15	2.2	m	m	58	56	50
OECD	Sweden	7	6	4	26	26	19	20	16	13	2.3	1.4	0.7	40	36	26
OECD	Switzerland	0	0	0	47	44	34	18	14	12	3.3	1.4	1.1	48	44	34
OECD	Turkey	25	25	20	34	34	28	5	4	3	0.5	0.5	0.3	60	60	49
OECD	United Kingdom	8	7	5	46	38	34	22	11	8	3.1	1.7	1.2	45	40	36
OECD	United States	23	23	m	40	39	m	20	17	m	1.6	1.2	m	56	54	m
	OECD average	10	9	6	38	36	30	18	15	13	1.8	1.3	0.8	49	44	36
	EU22 average	6	6	6	35	33	29	20	17	15	2.0	1.4	0.9	43	39	34
Partners	Argentina[1]	19	m	m	13	m	m	2	m	m	0.4	m	m	m	m	m
Partners	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	China	32	m	m	31	m	m	3	m	m	0.2	m	m	m	m	m
Partners	Colombia	17	m	m	24	m	m	12	m	m	0.1	m	m	m	m	m
Partners	Costa Rica	6	m	m	46	m	m	5	m	m	0.2	m	m	m	m	m
Partners	India	a	a	a	28	m	m	7	m	m	0.1	m	m	m	m	m
Partners	Indonesia	6	6	m	19	19	m	2	2	m	0.1	m	m	m	m	m
Partners	Lithuania	a	a	a	50	m	m	18	m	m	0.9	m	m	53	m	m
Partners	Russian Federation	31	m	m	34	m	m	36	m	m	1.1	m	m	m	m	m
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	South Africa[1]	6	m	m	13	m	m	1	m	m	0.2	m	m	m	m	m
	G20 average	16	m	m	33	m	m	12	m	m	1.3	m	m	m	m	m

1. Year of reference 2015.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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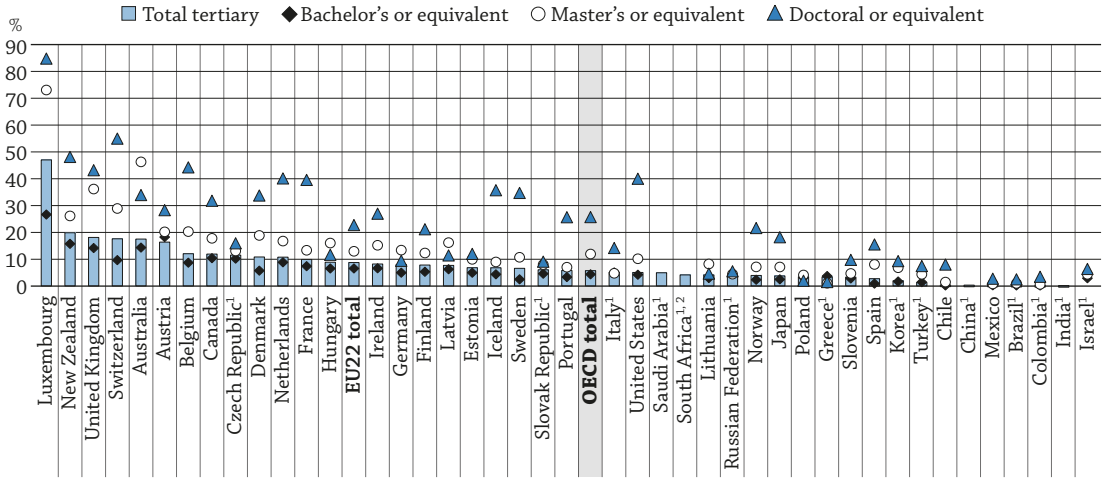
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WHAT IS THE PROFILE OF INTERNATIONALLY MOBILE STUDENTS?

- Students become more mobile as they reach more advanced levels of education. International students account for only 6% of total enrolment in tertiary education, but they represent 26% of enrolment in doctoral programmes.
- International tertiary students favour fields in science, technology, engineering and mathematics (STEM): one-third of them enrolled in these fields in 2016. International students represent at least 9% of tertiary enrolment in natural sciences, mathematics and statistics, and information and communication technologies, and 7% in engineering, manufacturing and construction.
- Asian students are more internationally mobile at short-cycle tertiary and master's level, while European students tend to be more mobile at bachelor's and doctoral level. Student mobility increases at the doctoral level for all other regions of origin of international students.

Figure B6.1. Incoming student mobility in tertiary education, by level of education (2016)

International or foreign student enrolment as a percentage of total tertiary education



1. Share of foreign rather than international students.

2. Year of reference 2015.

Countries are ranked in descending order of the percentage of international or foreign students in tertiary education.

Source: OECD (2018), Table B6.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 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 (OECD, 2016[1]). In the short run, international students often pay higher tuition fees than domestic students and, in some countries, incur higher registration fees (see Indicator C5). 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 knowledge creation, 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[2]). 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. 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. Recent data suggest that students leaving to study overseas are a good predictor of future scientist flows in the opposite direction, providing evidence of a significant brain circulation effect (Appelt et al., 2015[3]). In addition, student mobility appears to shape future international scientific co-operation networks more deeply than either a common language or geographical or scientific proximity.

For increasingly autonomous educational institutions, competition for talent has become more intense and global, prompting them to access a wider pool of high-potential students, with a view to increasing their reputation and revenues and promoting cross-faculty fertilisation (Hénard, Diamond and Roseveare, 2012[4]); (OECD, 2016[2]). In that respect, the popularity of university league tables and other institutional rankings has reinforced a perception of differences in quality across institutions and the value of enrolling at prestigious institutions (Perkins and Neumayer, 2014[5]). As part of their internationalisation strategy, more and 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. For example, massive open online courses (MOOCs) have expanded the reach of existing campuses (see Box C6.1 in *Education at a Glance 2017* [OECD, 2017[6]]). As a consequence, the international activities of tertiary 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 exploded in past few decades, rising from 2 million in 1999 to 5 million 17 years later. In the OECD area, there were 3.5 million international or foreign students for study purposes in 2016 (see *Definitions* section at the end of this indicator).
- Incoming student mobility has increased for almost all OECD and partner destination countries, and it has almost doubled between 2013 and 2016 in Estonia, Latvia and Poland. Outward mobility towards OECD destination countries is more varied: the number of nationals leaving their country for study purposes increased the most for Hungary, India, Italy, Spain and Saudi Arabia, but it decreased in some countries.

Analysis

Profiles of internationally mobile students

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.

The more advanced education programmes are, the more internationally open they are likely to be. 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 26% of all enrolments at doctoral level.

Several factors could account for these trends, including capacity constraints in the countries of origin at higher levels of education levels; higher returns on investing in international studies, especially in prestigious institutions or the existence of narrow specialisations in the host countries or post-migration programmes. Students who are more likely to travel and live abroad because of their socio-economic background are also more likely to access more advanced educational programmes. For host countries, there are strong incentives to invest in these later stages of education, especially at doctoral level, because graduates at that level make a large contribution to research and development (R&D) and innovation, and to addressing socio-economic challenges.

International enrolment in bachelor's programmes remains relatively low (below 5% in half of the countries for which data are available and below 10% in more than 80% of the countries under review) (Figure B6.1). However, a few countries show a more international profile at this level (10% or more of international students). In Austria, Luxembourg and New Zealand, more than 15% of students at bachelor's level are international.

International enrolment increases significantly at master's level. On average across the OECD, there is more than one international student for every ten students enrolled at this level. The proportion of incoming students at least doubles between bachelor's and master's levels in two-thirds of OECD countries. Spain and Sweden host at least four times more international students at master's than bachelor's level, while Australia (46% vs. 14%), Denmark (19% vs. 6%) and Norway (7% vs. 2%) host at least three times more. The most striking increases in inflows of students at master's level occur in Australia (46% vs. 14%) and the United Kingdom (36% vs. 14%), as both are already large recipients of international students at bachelor's level. Austria, on the other hand, seems relatively less attractive to master's students, as its inflows are fairly similar to those at bachelor's level. Data based on foreign students' citizenship show a similar trend. In Korea (7% vs. 2%) and Turkey (4% vs. 1%), the increase in student inflows is noticeable between bachelor's and master's programmes.

International enrolment is much higher at doctoral level in the OECD area. The proportion of international students in doctoral programmes in Iceland and the United States is much larger than in master's programmes, and it reaches 40% in the United States. However, the increase of student inflows from master's to doctoral programmes is much less homogenous across countries than the increase from bachelor's to master's programmes. This is particularly striking in Australia (decreasing from 46% at master's level to 34% at doctoral level), Germany (from 13% to 9%), Hungary (from 16% to 12%), Latvia (from 16 to 11%), Lithuania (from 8% to 5%) and Poland (from 4% to 2%).

Doctoral programmes in the United States attract a large share of international students, as do those in some small countries such as Belgium, Ireland, Norway and Sweden. 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). France, Iceland, Norway, Portugal, Sweden and the United States host three times more students from abroad in doctoral programmes than in master's programmes. This is also the case for doctoral programmes in Chile, Colombia and Mexico, although incoming international mobility in tertiary education is generally low in these countries (Figure B6.1).

Preference for studies in science technology, engineering and mathematics

International students tend to mainly enrol in science, technology, engineering and mathematics (STEM) fields of study, as well as in business, administration and law. About one-third of OECD mobile students at all tertiary levels are enrolled in STEM fields of study, with the following break-down: engineering, manufacturing and construction (17%); natural sciences, mathematics and statistics (10%); and information and communication technologies (6%). In the fields of natural sciences, mathematics and statistics, as well as in information and communication technologies, international or foreign students represent at least 9% of total tertiary enrolment across the OECD. This percentage reaches 7% in the fields of engineering, manufacturing and construction.

The lower language proficiency required to perform in STEM fields could partly explain the internationalisation of these fields of study. But the central role played by science, engineering and business management in innovation processes and value creation (Hénard, Diamond and Roseveare, 2012[4]), (OECD, 2014[7]) and the wage premium and better career opportunities associated with graduating in these disciplines (see Indicator A4) are probably of greater importance.

Across the OECD, international or foreign students represent 7% of all students enrolled in social sciences, journalism and information and 6% of those enrolled in arts, humanities, business, administration and law. International students represent the majority, or a high share (at least 19%), of total enrolment in tertiary education in most fields of study in Luxembourg. International students also account for more than one-third of all students in Australia in information and communication technologies, in New Zealand in the fields of services, business, administration, law, information and communication technologies, and in Switzerland in the fields of natural sciences, mathematics and statistics.

International student flows in tertiary education

In 2016, there were 3.5 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.

Origin and destination of mobile students studying in OECD countries

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 OECD tertiary education programmes at all levels (1.9 million, 55% of all international students in 2016, Figure B6.2). Of these, over 860 000 come from China. Two-thirds of Asian students converge towards only three countries: Australia (15%), the United Kingdom (11%) and the United States (38%).

The second major region of origin of international students is Europe, with 845 000 European students crossing borders for the purpose of studying (24% of all mobile students enrolled in OECD countries). European students prefer to stay in Europe: 80% of them enrol in tertiary studies in another European country. This is partly explained by the existence and popularity of the Erasmus student exchange programme within the European Union.

Africa and the Americas (North America, South America and the Caribbean) – both with fewer than 300 000 international students – remain far behind as sending regions. Three-quarters of African students enrolled in OECD countries study in Europe, especially France (35%), the United Kingdom (12%) and Germany (7%), whereas North and Latin American students are divided between the United States (37%) and Europe (45%). Among Latin American students in OECD countries, 12% choose to study in Spain. This reflects their stronger cultural, linguistic and historical connections, as does North American students' tendency to gravitate towards the United Kingdom (22%).

The United States is the top OECD destination country for mobile tertiary students. Of the 3.5 million international students in the OECD area, 971 000 enrol in programmes in the United States. English-speaking countries are the most attractive overall, with four countries receiving over half the mobile students. After the United States, the United Kingdom accounts for 432 000 international students, Australia 336 000 and Canada 189 000. International students in these countries mainly originate from Asia, accounting for 87% of international students in Australia, 77% in the United States, 61% in Canada and 52% in the United Kingdom.

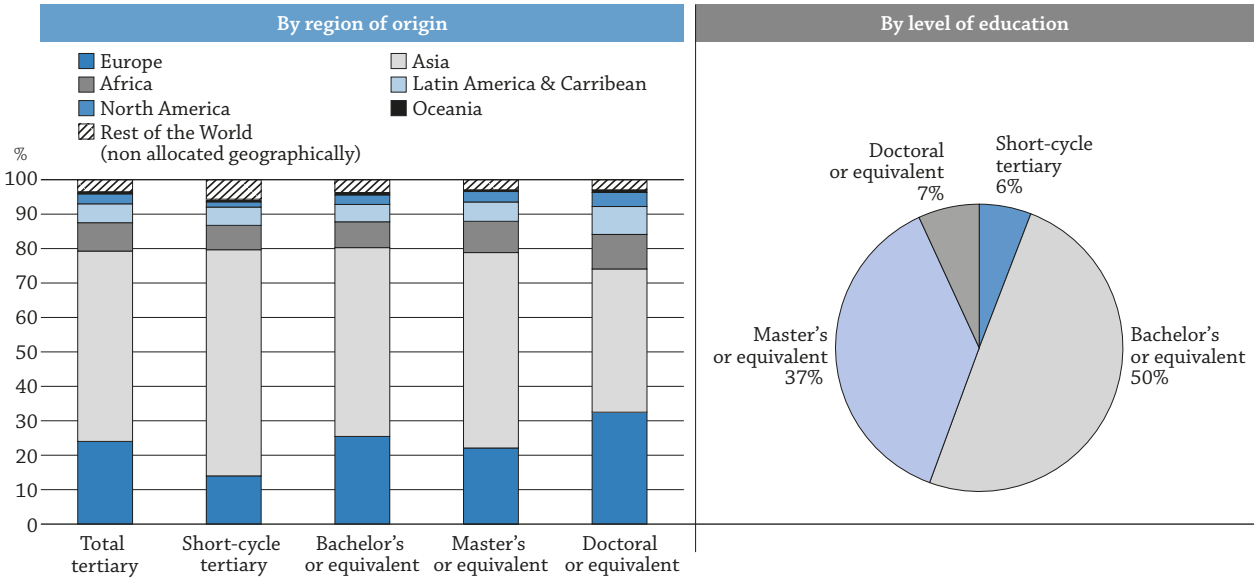
The European Union is another key geographical area of inward mobility, with 1.6 million international students enrolled in European programmes. France and Germany (both at 245 000) are major host countries for international students, far ahead of Italy (93 000), the Netherlands (90 000) and Austria (70 000). But mobility channels differ significantly between these two large players. While a majority of mobile students entering France come from Africa (42%), other European countries remain the main source of international enrolment for Germany (40%). For both countries, Asia comes second as a region of origin, accounting for 21% of total incoming mobile students in France and 36% in Germany. International students in Austria, Italy and the Netherlands are also mainly European, while inflows from Latin American countries make a significant contribution to Spanish tertiary cohorts, as well as to those of smaller receiving countries, such as Portugal. Small European countries particularly rely on intra-European mobility. More than 80% of students entering the Czech Republic, Denmark, Luxembourg, Poland, the Slovak Republic and Slovenia travel from inside Europe.

The Russian Federation is also a major destination country, with 250 000 students enrolled from abroad. It is also a regional catalyst of student inflows, with two-thirds of them coming from neighbouring countries that have historical links with the former Soviet Union: Azerbaijan (6%), Belarus (6%), Kazakhstan (28%), Turkmenistan (7%), Ukraine (9%) and Uzbekistan (8%).

Asian students (55% of OECD international students) enrolled in short-cycle tertiary and master's programmes are more mobile than those enrolled in bachelor's or doctoral programmes. They represent 66% of the number of international students at short-cycle tertiary level and 57% at master's level. By contrast, European students (who represent 24% of the OECD international enrolment in tertiary education) tend to be more mobile at bachelor's (25%) and doctoral level (32%). Student mobility increases at the doctoral level for all the other regions of origin of international students, with students from Africa, the Americas and Oceania representing a higher share of international students than at lower educational levels (Figure B6.2).

Figure B6.2. Distribution of international students studying in OECD countries, by region of origin and level of education (2016)

Percentage of international or mobile students enrolled in OECD countries



Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Brain circulation: the state of play

The growth in international student mobility and its impact on national talent pools also vary significantly across countries.

Some countries experience an outward flow of students, measured by the percentage of all national students studying abroad. This percentage reaches at least 7% in several European countries, such as Estonia, Iceland, Ireland, Latvia, Lithuania, Norway and the Slovak Republic. Luxembourg is a particularly stark example, with nearly three-quarters of its students enrolled in foreign tertiary programmes (seven out of ten national students abroad are enrolled in neighbouring countries). In these countries, the percentage of national students enrolled abroad significantly exceeds the share of international students enrolled in national institutions, with the exception of Ireland and Latvia.

In some countries, large cohorts of international students outnumber their own national talent. This inflow of students is measured by the number of international (or foreign) students on a country's soil for every hundred national students enrolled in tertiary education programmes (at home or abroad). The top destinations for international students are mainly, but not exclusively, English-speaking countries. The countries where the ratio between incoming international students and national students is the highest are Australia (21), New Zealand (24) and the United Kingdom (22), but also Luxembourg (23) and Switzerland (20) (Table B6.3).

Determinants of international mobility

Identifying the determinants of international student mobility is key for designing efficient policies to encourage brain circulation. 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: 1) higher economic performance in the host country; 2) exchange rate differentials that could influence mobility and education cost differentials; and 3) more affordable mobility and education costs in the host country (due, for instance, to lower tuition fees or higher education subsidies). In addition, the decision to study abroad may be determined by non-economic factors, such as political stability and the robustness of institutions in the receiving country, or cultural and religious proximity between origin and destination countries (Guha, 1977[8]), (UNESCO, 2013[9]) (Weisser, 2016[10]).

Fixing appropriate tuition fees remains one of the most debated topics in education policy, in a context in which 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, as a result of different systems of tuition fees and costs of ancillary services, combined with different levels of public allocations for tertiary education and public support for 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[11]); (Beine, Noël and Ragot, 2014[12]); (Marconi, 2013[13]). 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 diffused. 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.

The language of instruction is a strong determinant of students' choice of destination. Countries where the language of instruction is widely spoken and read, such as English, French, German, Russian and Spanish, can be particularly attractive to international students.

English is the *lingua franca* of the globalised world, with one in four people using it worldwide (OECD, 2016[2]) (Sharifian, 2013[14]). Not surprisingly, countries where English is an official language (either legally or de facto), such as Australia, Canada, New Zealand, the United Kingdom and the United States, are top OECD destination countries for international students. In many countries, English has increasingly been included in the mandatory school curriculum, even at early education levels, and many students aim to improve their English-language skills through immersion in a native context. In addition, an increasing number of institutions in non-English-speaking countries offer tertiary-education programmes taught in English. In Europe, the diffusion of English as a medium of instruction is especially noticeable in the Nordic countries (see [Wächter and Maiworm, 2015[15]] and Box C4.1 in [OECD, 2015[16]]).

Trends in the number of international students

The increase in foreign enrolment has been driven by a variety of domestic and external factors, both push (encouraging outward mobility) and pull (encouraging inward mobility) (UNESCO, 2013[9]). 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 in a growing middle class 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.

Initiatives at national, regional, local, supranational or institutional level have also contributed to cross-border mobility. In 2011, the European Union set the ambitious goal of increasing the proportion of EU graduates from higher education who complete study or training abroad to 20% by 2020 (Council of the European Union, 2011[17]).

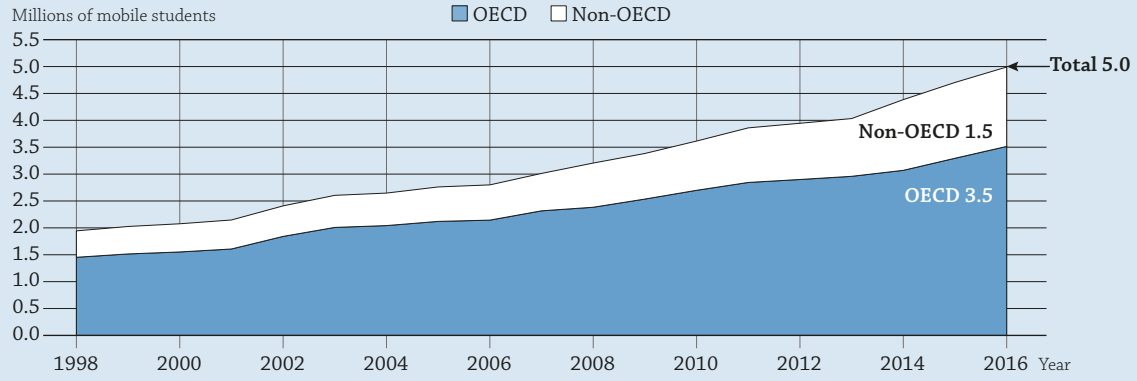
In Europe, many students benefitted from the Erasmus programme. In addition, the Nordic and Baltic countries operate the Nordplus Higher Education Programme, a broad mobility and network programme that aims to reinforce collaboration, joint curriculum planning, student and teacher mobility and the sharing of best practices between institutions. Most countries have implemented reforms aiming to lower barriers to migration of the highly skilled, beyond education purposes, and most countries operate funding programmes to support inward, outward or return mobility. While their 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).

Box B6.1. Long-term growth in the global number of mobile students

The number of foreign students enrolled in tertiary education programmes worldwide has exploded over the past two decades. It rose from 2 million in 1999 to 5 million in 2016, at an average annual rate of 5.1% among OECD countries and 6.4% among non-OECD countries. This increase was exponential until early 2010, when data show a levelling off in long-term trends (Figure B6.a). However, the number of international students began increasing strongly again in 2014 (an increase of 9% compared to 2013) and the following years (an increase of 7% in 2015 and 6% in 2016) (Figure B6.a).

Figure B6.a. Growth in international or foreign enrolment in tertiary education worldwide (1998 to 2016)

Number of foreign students enrolled in OECD and non-OECD countries



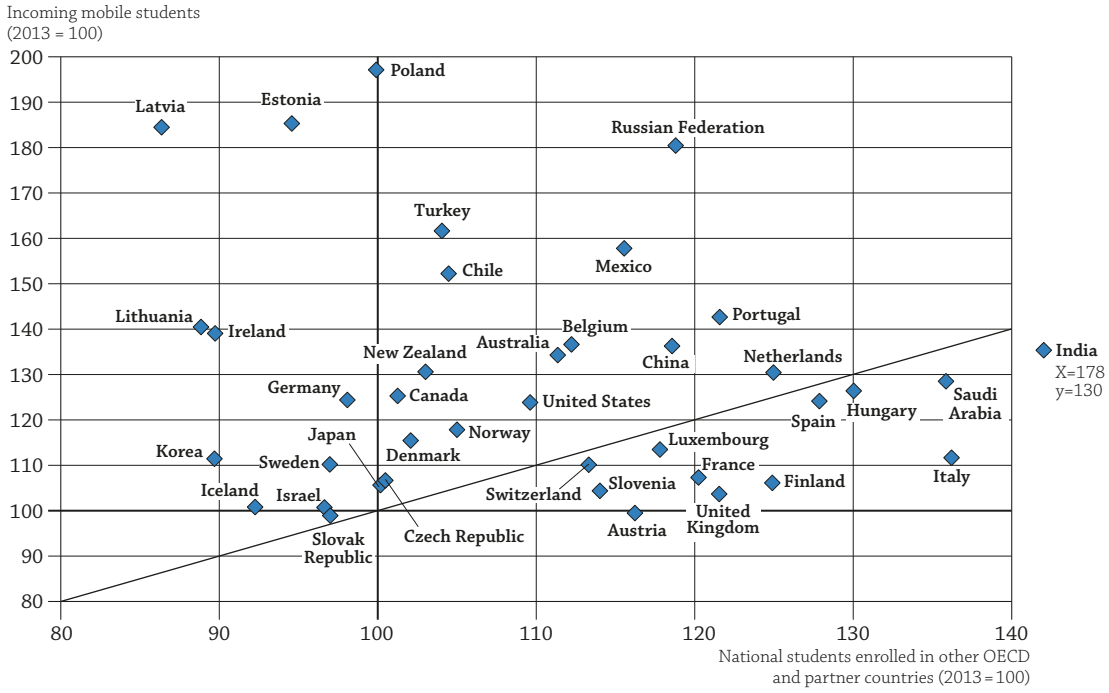
Note: The data sources use similar definitions, thus making their combination possible. Missing data were imputed with the closest data reports to ensure that breaks in data coverage do not result in breaks in time series.
Source: OECD/UIS/Eurostat (2018). See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933803881

Student migration into the OECD area remains dynamic, but new migration poles are consolidating in developing economies. Data on the students who cross borders for the sole purpose of study (also defined as international students, see *Definitions* section at the end of this indicator) between 2013 and 2016 show an estimated 19% increase in international student flows towards the OECD area. The largest increases in incoming student numbers have been observed in Estonia, Latvia, Poland and the Russian Federation, where the number of international students enrolled in national tertiary programmes nearly doubled over the period. Other attracting poles include Chile (an increase of 52%), Mexico (58%) and Turkey (62%). Conversely, Austria and the Slovak Republic experienced a slight decline (a decrease of 1%) in the number of international enrolments between 2013 and 2016.

Outward student mobility towards OECD countries also increased between 2013 and 2016 for many origin countries, but to a more limited extent. The largest increase was observed for students coming from India (an increase of 78% compared to 2013), far ahead of students coming from OECD countries, such as Finland, Hungary, Italy, the Netherlands, Spain and the United Kingdom (increases between 22% and 37% over the same period) and from China and Saudi Arabia. Conversely, outward mobility decreased by 10% or more for students coming from Ireland, Korea, Latvia and Lithuania.

Figure B6.3. Change in the outflow compared to the inflow of mobile students (2013 to 2016)

Indices of change of inward and outward mobility (2013 = 100)



Note: Excludes incoming mobile students in short-cycle tertiary education for Italy and Spain. The black diagonal line represents where the inward mobility change equals the outward mobility change.

Source: OECD (2018), Education at a Glance Database, http://stats.oecd.org. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933803862

Definitions

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 is 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 (http://dx.doi.org/10.1787/eag-2018-36-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[18]).

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 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[18]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en).

Data from Argentina, 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 B6 Tables

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	Table B6.1	International student mobility and foreign students in tertiary education (2016)
	Table B6.2	Share of international and foreign students among tertiary students and distribution by field of education (2016)
	Table B6.3	Mobility patterns of foreign and international students (2016)
WEB	Table B6.4	Distribution of international and foreign students in tertiary education, by country of origin (2016)
WEB	Table B6.5	Distribution of international and foreign students in tertiary education, by country of destination (2016)

Cut-off date for the data: 18 July 2018. 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.

B6

Table B6.1. International and foreign student mobility in tertiary education (2016)

International or foreign student enrolment as a percentage of total tertiary enrolment

Reading the first column of the upper section of the table (international): 17% of all students in tertiary education in Australia are international students and 18% of all students in tertiary education in Switzerland are international students. The data presented in this table on international student mobility represent the best available proxy of student mobility for each country.

Reading the first column of the lower section of the table (foreign): 12% of all students in tertiary education in the Czech Republic are not Czech citizens, and 2% of all students in tertiary education in Korea are not Korean citizens.

		Share of international or foreign students by level of tertiary education					Number of international or foreign students (in thousands)
		Total tertiary education	Short-cycle tertiary programmes	Bachelor's or equivalent level	Master's or equivalent level	Doctoral or equivalent level	
		(1)	(2)	(3)	(4)	(5)	(6)
		OECD					
International students	Australia	17	9	14	46	34	336
	Austria	16	1	18	20	28	70
	Belgium[1]	12	7	9	20	44	61
	Canada	12	10	10	18	32	189
	Chile	0	0	0	1	8	5
	Denmark	11	16	6	19	34	34
	Estonia	7	a	5	10	12	3
	Finland	8	a	5	12	21	23
	France	10	5	7	13	40	245
	Germany	8	0	5	13	9	245
	Hungary	9	1	7	16	12	26
	Iceland	7	25	4	9	36	1
	Ireland	8	2	7	15	27	18
	Japan	4	5	2	7	18	143
	Latvia	8	2	6	16	11	6
	Luxembourg	47	9	27	73	85	3
	Mexico	0	0	0	1	3	13
	Netherlands	11	1	9	17	40	90
	New Zealand	20	27	16	26	48	54
	Norway	4	1	2	7	22	11
	Poland	3	0	3	4	2	55
	Portugal	6	2	3	7	26	20
	Slovenia	3	1	3	5	10	3
	Spain	3	2	1	8	15	53
	Sweden	7	0	2	11	35	28
	Switzerland	18	0	10	29	55	52
	United Kingdom	18	4	14	36	43	432
	United States	5	2	4	10	40	971
Foreign students	Czech Republic	12	6	10	13	16	43
	Greece	3	a	4	1	1	24
	Israel	m	m	3	4	6	10
	Italy	5	7	5	5	14	93
	Korea	2	0	2	7	9	62
	Slovak Republic	6	1	5	8	9	10
	Turkey	1	0	1	4	7	88
	OECD total	6	3	4	12	26	3 520
	EU22 total	9	4	7	13	23	1 585
		Partners					
International students	Lithuania	4	a	3	8	5	5
Foreign students	Argentina	m	m	m	m	m	m
	Brazil	0	0	0	1	2	20
	China	0	x(1)	x(1)	x(1)	x(1)	138
	Colombia	0	0	0	1	3	4
	Costa Rica	m	m	m	m	m	m
	India	0	a	x(1)	x(1)	x(1)	45
	Indonesia	m	m	m	m	m	m
	Russian Federation	4	3	x(4)	4[d]	5	250
	Saudi Arabia	5	x(1)	x(1)	x(1)	x(1)	80
	South Africa[2]	4	x(1)	x(1)	x(1)	x(1)	43

1. Data on short-cycle tertiary programmes are based on nationality and refer to the Flemish Community only.
2. Year of reference 2015.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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B6

Table B6.2. Share of international and foreign students among tertiary students and distribution by field of education (2016)

		Total tertiary education																	
		Share of international and foreign students among all students, by field of education									Distribution of international and foreign students, by field of education								
		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	Health and welfare	Services	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	Health and welfare	Services
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
		OECD																	
International students	Australia	3	10	9	28	17	37	26	8	6	2	6	3	51	5	9	13	9	1
	Austria	7	23	28	12	21	17	15	18	4	6	15	20	16	10	5	15	9	1
	Belgium	5	17	15	8	20	6	14	16	13	4	13	11	13	6	2	12	33	2
	Canada	3	10	10	15	15	20	19	4	4	1	11	13	29	12	6	20	5	1
	Chile	0	0	0	1	1	0	0	0	0	9	5	6	34	6	3	15	13	8
	Denmark	3	11	10	14	12	17	20	4	18	2	12	9	29	6	7	19	8	5
	Estonia	0	7	10	12	3	8	5	2	0	0	13	11	42	3	9	12	4	0
	Finland	4	7	5	10	9	15	8	4	9	2	10	5	23	6	17	20	10	5
	France	5	13	13	10	13	19	11	4	4	2	17	11	28	13	5	16	6	1
	Germany	2	10	8	6	7	10	11	7	3	2	17	8	18	8	8	29	6	1
	Hungary	2	8	9	3	5	5	4	29	2	3	10	10	9	2	2	10	43	2
	Iceland	7	24	4	4	18	2	4	2	2	8	44	9	12	13	2	5	4	1
	Ireland	1	6	9	9	8	9	11	13	4	1	11	6	21	9	8	14	27	2
	Japan[1]	1[d]	5[d]	12[d]	2[d]	2[d]	x	4[d]	1[d]	2[d]	2[d]	25[d]	32[d]	12	2	x	19[d]	3[d]	3[d]
	Latvia	2	5	8	8	3	7	5	16	8	2	5	8	33	1	5	9	28	9
	Luxembourg	19	37	46	61	61	59	33	22	74	5	10	10	45	8	7	6	3	3
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	2	15	17	12	11	8	13	6	12	2	12	17	32	5	2	11	9	7
	New Zealand	9	12	13	34	18	33	25	7	44	3	7	7	38	8	10	11	5	9
	Norway	1	7	4	3	11	6	5	3	2	5	18	12	14	15	6	15	11	3
	Poland	1	3	7	4	2	5	1	5	4	2	9	21	26	2	6	8	15	9
	Portugal	11	7	6	7	6	7	5	4	4	7	11	12	25	6	2	21	11	4
	Slovenia	2	4	5	3	5	5	4	3	2	5	12	15	16	8	7	20	9	5
	Spain	2	3	3	3	2	2	2	4	2	7	11	11	24	4	3	11	23	4
	Sweden	1	7	7	6	17	10	9	4	3	3	13	12	12	14	7	26	12	1
	Switzerland	9	25	24	14	35	19	20	9	12	5	15	12	20	17	3	18	8	2
	United Kingdom	6	15	20	32	13	19	29	8	0	2	13	12	34	11	4	15	7	0
	United States[2]	2	4[d]	5	7	10	8	12	2[d]	2	3	13[d]	11	24	13	6	17	9[d]	2
Foreign students	Czech Republic	2	12	14	13	14	22	11	17	7	2	10	11	21	8	9	15	18	4
	Greece	4	5	4	2	4	4	2	4	3	5	20	15	15	10	4	15	11	3
	Israel	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	2	8	4	4	3	7	6	4	2	2	26	11	20	5	2	21	12	0
	Korea	1	2	4	4	1	1	1	1	1	3	21	14	30	4	2	16	4	6
	Slovak Republic	4	5	2	4	2	2	3	19	2	8	7	4	11	2	1	6	56	2
	Turkey	1	1	2	1	3	1	3	2	1	6	13	15	19	6	1	25	11	3
	OECD total	2	6	7	6	9	10	7	3	2	3	14	12	27	10	6	17	9	2
	EU22 total	3	10	10	10	9	11	10	7	4	3	15	12	25	9	5	17	11	2
		Partners																	
International students	Lithuania	2	6	7	4	1	4	3	5	2	3	12	18	28	1	3	15	18	1
Foreign students	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	0	1	0	0	1	0	0	0	0	10	8	8	19	8	4	23	12	4
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	0	0	0	0	0	0	0	0	0	7	10	13	25	2	3	16	19	3
	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	m	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	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: The distribution excludes one field (Agriculture, forestry, fisheries and veterinary) which tends to represent a lower share of international enrolment in tertiary education. Data for all fields are available at http://stats.oecd.org/, Education at a Glance Database.

1. Data on Information and communication technologies are included in other fields.

2. Columns 2 and 11 include all interdisciplinary programmes, columns 8 and 17 include public administration.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

Percentage of national students enrolled abroad and balance of cross-border mobility in total tertiary education

		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[1]
		(1)	(2)	(3)	(4)
OECD	Australia	1	26	21	4
OECD	Austria	5	4	19	59
OECD	Belgium	3	4	13	40
OECD	Canada	3	4	13	4
OECD	Chile	1	0	0	37
OECD	Czech Republic[2]	4	3	13	55
OECD	Denmark	2	7	12	38
OECD	Estonia	8	1	7	50
OECD	Finland	4	2	8	16
OECD	France	4	3	11	16
OECD	Germany	4	2	8	15
OECD	Greece[2]	5	1	3	66
OECD	Hungary	4	2	9	27
OECD	Iceland	13	0	6	8
OECD	Ireland	7	1	8	10
OECD	Israel[2, 3]	4	1	3	2
OECD	Italy[2]	4	1	5	21
OECD	Japan	1	5	4	63
OECD	Korea[2]	3	1	2	65
OECD	Latvia	7	1	8	18
OECD	Luxembourg	74	0	23	58
OECD	Mexico	1	0	0	m
OECD	Netherlands	2	5	12	31
OECD	New Zealand	3	10	24	6
OECD	Norway	7	1	4	19
OECD	Poland	2	2	3	72
OECD	Portugal	4	2	6	5
OECD	Slovak Republic[2]	17	0	5	56
OECD	Slovenia	4	1	3	36
OECD	Spain	2	1	3	29
OECD	Sweden	4	2	7	20
OECD	Switzerland	5	4	20	55
OECD	Turkey[2]	1	2	1	44
OECD	United Kingdom	2	13	22	11
OECD	United States	0	14	5	5
	OECD total	2	3	6	~
	EU22 total	4	3	9	~
Partners	Argentina[2, 4]	m	0	m	m
Partners	Brazil[2]	1	0	0	37
Partners	China[2]	2	0	0	m
Partners	Colombia[2]	1	0	0	54
Partners	Costa Rica[2]	m	1	m	m
Partners	India[2]	1	0	0	43
Partners	Indonesia[2]	m	0	m	m
Partners	Lithuania	8	1	4	27
Partners	Russian Federation[2]	1	4	4	55
Partners	Saudi Arabia	6	1	5	32
Partners	South Africa[2, 4]	1	6	4	46

1. Neighbouring countries are considered to be those with land or maritime borders with the host country.
2. National tertiary students are calculated as total enrolment minus foreign students instead of total enrolment minus international students.
3. Excluding internationally mobile students enrolled in short-cycle tertiary programmes.
4. Year of reference 2015.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

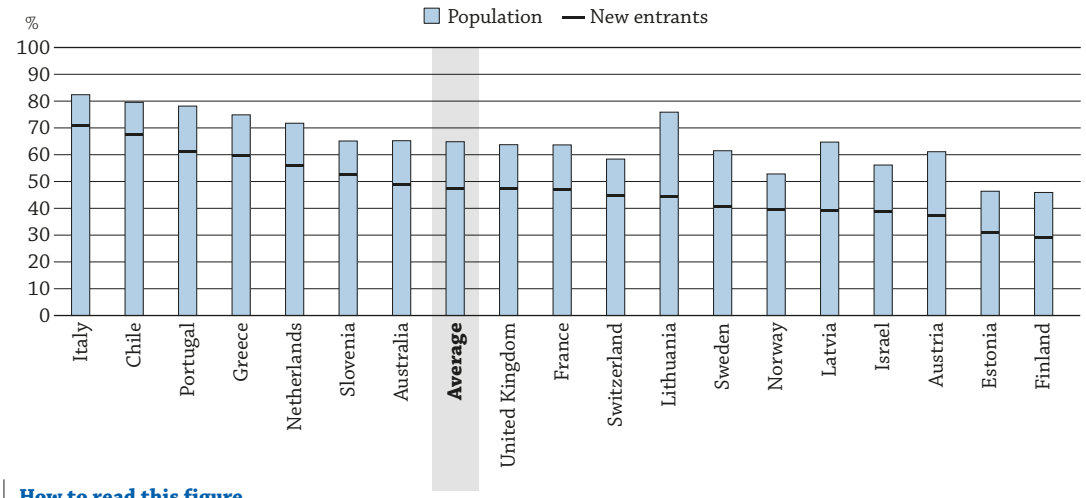
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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HOW EQUITABLE ARE ENTRY AND GRADUATION IN TERTIARY EDUCATION?

- Individuals whose parents have not attained tertiary education are under-represented among new entrants and first-time graduates from bachelor's, long first degree or equivalent programmes.
- Men whose parents are not tertiary-educated are less likely than their female counterparts to enter and graduate from bachelor's, long first degree or equivalent programmes.
- The share of first- or second-generation immigrants is lower among new entrants to bachelor's, long first degree or equivalent programmes than in the population.

Figure B7.1. Share of 18-24 year-olds whose parents have not attained tertiary education among new entrants to bachelor's, long first degree or equivalent programmes and in the population (2015)



How to read this figure
In Italy, 18-24 year-olds without tertiary-educated parents represent 82% of the total population of that age group, but only 71% of new entrants to bachelor's, long first degree or equivalent programmes.

Note: Reference years may be different from 2015. Please see Annex 3 for details.
Countries are ranked in descending order of the share of individuals whose parents have not attained tertiary education among new entrants.
Source: OECD (2018), Table B7.1; ad-hoc survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Context

Growing evidence that a tertiary education leads to better labour-market and social outcomes (see Chapter A) has raised a number of questions around access to higher education and brought equity to the forefront of the policy debate on tertiary education. Across OECD and partner countries, governments are increasingly committed to ensuring that access to tertiary education is not dependent on socio-economic or demographic background.

This indicator measures the extent to which entry to and graduation from tertiary programmes differ for individuals from potentially disadvantaged backgrounds. Two characteristics are used to identify potentially disadvantaged groups: 1) parents' highest level of educational attainment; and 2) immigrant background. 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[1]). Immigrant background, although not always indicative of a disadvantage, is also correlated with lower student performance (OECD, 2018[2]). Students with an immigrant background must often overcome adversities associated with displacement, socio-economic disadvantage and language barriers.

Inequalities observed at the tertiary level may not only reflect barriers to entry to tertiary education, but also differences in study and career choices. Moreover, inequalities can stem from earlier levels of education. Many disadvantaged students leave the education system before even reaching the point at which they could enter a tertiary programme (Box B7.1). In order to design effective policies to tackle inequality, it is important to better understand when and how these observed inequalities start to accumulate.

Other findings

- Lower parental educational attainment tends to be associated with a delay in entering a bachelor's, long first degree or equivalent programme.
- Among countries with data, students without tertiary-educated parents represent an increasingly smaller share at each step when comparing upper secondary entrants, upper secondary graduates and tertiary entrants. The under-representation of students from potentially disadvantaged backgrounds in tertiary education may reflect inequities at earlier levels of education, not necessarily barriers to entry at the tertiary level.
- The patterns of inequality observed for first or second- generation immigrants in tertiary education varies widely across countries, reflecting the heterogeneity of the immigrant populations in these countries.

B7

Analysis

Representativeness of potentially disadvantaged groups among tertiary students

Inequality in tertiary education can be measured by comparing the share of young adults from potentially disadvantaged groups among tertiary students and in the overall population. In a perfectly equal society, these two shares should coincide, i.e. the share of individuals from a potentially disadvantaged group in the population should match their share among tertiary entrants and graduates. For instance, a lower share among entrants than in the overall population signals under-representation and lower access of this demographic group to higher education.

Analysis by parents' educational attainment

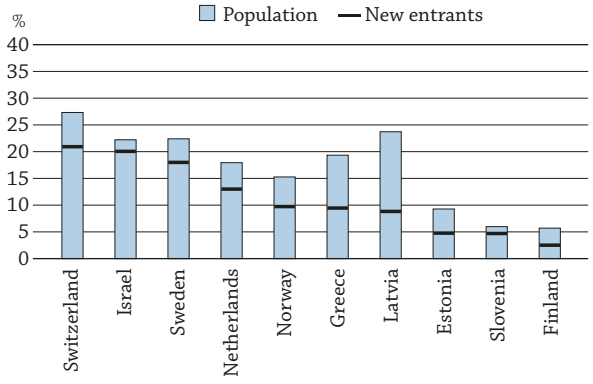
In all countries with available data, individuals whose parents have not attained tertiary education are under-represented among new entrants to bachelor's, long first degree or equivalent programmes. On average across countries with available data, people whose parents are not tertiary-educated represent 65% of the population aged 18-24, but only 47% of 18-24 year-old new entrants. There is, however, significant variation across countries. In Italy, the share of 18-24 year-olds without tertiary-educated parents is 82% in the population and 71% among new entrants, while the share in Finland is 46% in the population and 29% among new entrants (Figure B7.1).

Individuals without tertiary-educated parents tend to be disadvantaged not only in entry to tertiary education, but also in graduation from tertiary education. In fact, in all countries with available data, they are also under-represented among first-time graduates from bachelor's, long first degree or equivalent programmes (Table B7.2). On average in countries with available data, 61% of 20-29 year-olds in the overall population have parents who are not tertiary-educated, but this share goes down to 44% among first-time graduates aged 20-29.

Analysis by immigrant background

Immigrant background also appears to affect individuals' entry to and graduation from tertiary education. In all countries with available data, first- or second- generation immigrants are less likely to enter bachelor's, long first degree or equivalent programmes than their non-immigrant counterparts (Figure B7.2). First-generation immigrants refer to individuals born abroad and whose both parents were also born abroad, and second-generation immigrants refer to those born in the country, but whose both parents were born abroad. The analysis throughout this indicator does not disaggregate between first- and second- generation immigrants. Both definitions exclude international students.

Figure B7.2. Share of 18-24 year-olds who are first- or second- generation immigrants among new entrants to bachelor's, long first degree or equivalent programmes and in the population (2015)



How to read this figure
In Switzerland, 18-24 year-olds who are first- or second-generation immigrants represent 27% of the total population of that age group, but only 21% of new entrants to bachelor's, long first degree or equivalent programmes.

Note: International students are excluded from the immigrant data. The definition of international students and the year of reference may differ across countries. Please see Annex 3 for details.
Countries are ranked in descending order of the share of individuals who are first- or second-generation immigrants among new entrants.
Source: OECD (2018), Table B7.3; ad-hoc survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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In Norway, first- or second- generation immigrants age 18-24 make up 15% of the population, compared to 10% of new entrants to bachelor's, long first degree or equivalent programmes, while in Greece they make up 19% of the population and 9% of new entrants. These differences may reflect, in part, differences in the level of education of the immigrant population of these countries (see Indicator A1). In a few countries, the share of immigrants in the population is quite low (e.g. 6% in Finland and Slovenia), which should be taken into account when analysing these results.

A similar pattern of under-representation of first- or second- generation immigrants is observed among first-time graduates (Table B7.4). However, the extent of this under-representation varies across countries. In Switzerland, 33% of the population aged 20-29 are immigrants, and this share goes down to 14% among first-time graduates, while in Israel, 27% of the 20-29 year-olds are immigrants, compared to 25% of first-time graduates. It is important to exercise caution when comparing the share of immigrants among graduates with their share in the population because immigrants of this age group may arrive in the host country having already attained tertiary education, or may not have enough time to attain it before the age of 29 (see Indicator A1).

The under-representation of first- or second- generation immigrants in bachelor's, long first degree or equivalent programmes may be due to several factors, including potential language barriers (in particular for individuals who entered the country at a later age), or systematic differences in the socio-economic background of the immigrant population (OECD, 2018[2]). It is, therefore, important to take into account the particularities of the immigrant population of each country when drawing policy conclusions.

The compounded effect of gender

There is a general pattern showing that men whose parents have not attained tertiary education are even less likely to enter and graduate from a bachelor's, long first degree or equivalent programme than their female counterparts. On average in countries with available data, 64% of 18-24 year-old men and women have parents who have not attained tertiary education. However, only 43% of male new entrants have parents who have not attained this level, compared to 49% of female new entrants (Figure B7.3). This means that individuals with lower-educated parents are more under-represented among male new entrants than among female new entrants. This may be at least partly explained by the higher opportunity cost of entering tertiary education for men. Although men benefit from higher financial returns to tertiary education (see Indicator A5), they may decide to enter the labour market earlier because, in the short-term, pursuing tertiary education implies higher foregone earnings for them than for women (see Indicator A3). Men also have lower completion rates from upper secondary education (see Indicator A9 in [OECD, 2017[3]]), which can contribute to their lower entry rates to tertiary education.

The pattern observed for first-time graduates of bachelor's, long first degree or equivalent programmes is similar. In all countries with available data, the share of 20-29 year-olds without tertiary-educated parents is similar for men and women, but it is higher among female first-time graduates than among male first-time graduates (Table B7.2). On average, 62% of the female population aged 20-29 and 61% of their male counterparts do not have tertiary-educated parents, but this share goes down to 47% among female first-time graduates and only 39% among male first-time graduates.

While greater inequalities linked to parental education are observed with men, strong gender differences do not exist in inequalities linked to immigrant background. In most countries with available data, the share of first- or second- generation immigrants is similar for men and women, both in the overall population and among students.

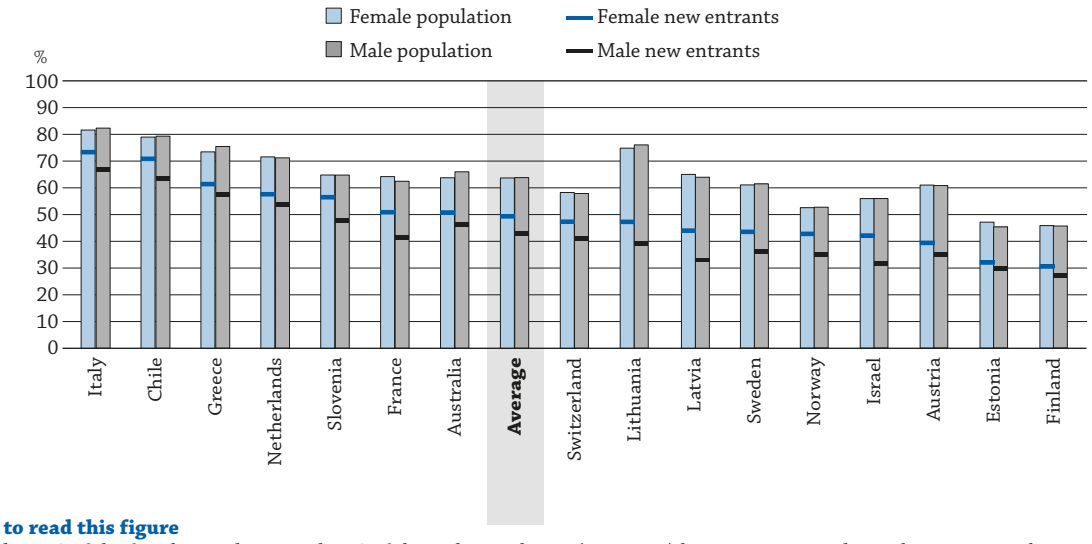
Relationship between parents' educational attainment and the age of entry to tertiary education

Previous figures have indicated that individuals whose parents have not attained tertiary education tend to be under-represented among new entrants to bachelor's and long first degree programmes. However, it is also interesting to investigate whether parents' educational attainment can affect decisions on when to enter such programmes.

Figure B7.4 shows that lower parental educational attainment is associated with delayed entrance to bachelor's, long first degree or equivalent programmes. On average across countries with available data, 82% of new entrants whose parents are not tertiary-educated enter before age 25, compared to as high as 90% of new entrants with at least one tertiary-educated parent. In fact, this pattern of delayed entrance to tertiary education is observed in all countries with available data, with the exception of Italy, where all students enter before age 25.

Several factors may contribute to the delayed entrance of individuals whose parents have not attained tertiary education, and this may differ across countries. Entrance may occur at a later age due to time spent in the labour force, delays in completing upper secondary education or, in the case of first-generation immigrants, to late arrival in the host country. This delay in entrance may pose equity concerns, particularly if it is not the result of a deliberate choice by the student and if it later translates into disadvantages in the labour market.

Figure B7.3. Share of 18-24 year-olds whose parents have not attained tertiary education among new entrants to bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)



How to read this figure
In Italy, 82% of the female population and 83% of the male population (age 18-24) have no tertiary-educated parent. This share goes down to 73% among female new entrants and 67% among male new entrants.

Note: Reference years may be different from 2015. Please see Annex 3 for details.
Countries are ranked in descending order of the proportion of individuals whose parents have not attained tertiary education among female new entrants.
Source: OECD (2018), Table B7.1; ad-hoc survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Box B7.1 Inequalities at the tertiary level may stem from earlier levels of education

The tables and figures in this indicator show a general pattern across OECD countries of under-representation of potentially disadvantaged groups in tertiary education. However, when interpreting inequality in entry to tertiary education, it is important to take into account the fact that inequalities tend to accumulate throughout an individual's educational path. Under-representation of disadvantaged students in tertiary programmes could thus be due to obstacles in entering tertiary education itself or to obstacles that have kept these individuals from progressing at earlier levels.

This box addresses this issue by combining data disaggregated by parental educational attainment for tertiary and upper secondary education. This analysis only provides a limited view of the accumulation of inequalities throughout education, which actually begin as soon as early childhood education, but it does help shed light on the problem.

Figure B7.a shows the student composition by parents' educational attainment at three different stages: 1) entry to upper secondary education; 2) graduation from upper secondary education within the theoretical duration; and 3) entry to tertiary education. In most countries, the shares decrease at each step, highlighting the fact that potentially disadvantaged students are less likely to advance through education.

This figure also helps determine the extent to which the inequality observed in tertiary education stems from an earlier level. In Norway, for example, students whose parents have not attained tertiary education seem to face particular obstacles to graduate from upper secondary education. However, those who do graduate from this level are almost equally likely to move on to tertiary education as students with at least one tertiary-educated parent. This finding suggests that there are no significant barriers to entry at the tertiary level in Norway, and that the inequalities observed at this level are instead a reflection of fewer students without tertiary-educated parents graduating upper secondary education than their peers with at least one tertiary-educated parent.

...

The pattern is different in Israel, where most of the students whose parents have not attained tertiary education are almost equally likely to graduate upper secondary education as those with at least one tertiary-educated parent. However, their representativeness within entrants to tertiary education drops 15 percentage points, from 54% of upper secondary graduates to 39% of tertiary entrants. This result suggests that there are particular barriers to entry into tertiary education that may be disproportionately impacting disadvantaged students.

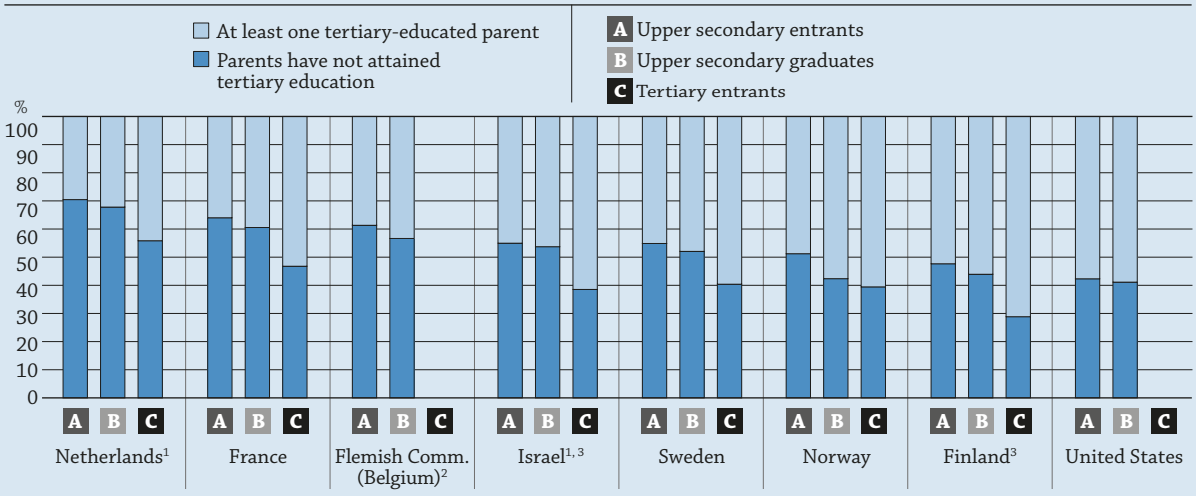
The barriers to entry at the tertiary level can also be a reflection of the student's upper secondary degree. In many countries there are upper secondary programmes that do not offer access to tertiary education. So although students from a disadvantaged background may be an upper secondary graduate, he or she may not have obtained the necessary credentials to enter tertiary education.

This is the case in the Netherlands, where about 40% of students enter upper secondary education in two-year or three-year vocational programmes that do not grant access to tertiary education. If only programmes that provide access to tertiary education were considered, the gap between upper secondary graduates and tertiary entrants in the Netherlands would drop from the 12 percentage points shown in Figure B7.a to only 4 percentage points. This indicates that the under-representation of disadvantaged groups in tertiary education in the Netherlands is more likely a result of inequalities when choosing upper secondary programmes than barriers in access to tertiary education.

The fact that inequalities observed in tertiary education may stem from earlier levels of education does not fully explain the issues with access to tertiary education and does not diminish the problem itself. However, understanding what factors contribute to the problem is essential to designing better policies.

Figure B7.a. Upper secondary entrants, upper secondary graduates and tertiary entrants aged 18-24, by parents' educational attainment

Upper secondary entrants 2010-12; upper secondary graduates by the theoretical duration of the programme 2013/14; tertiary entrants 2015



How to read this figure

The stacked bars show the composition of upper secondary entrants, upper secondary graduates and tertiary entrants by parents' educational attainment. In Finland, students whose parents have not attained tertiary education make up 48% of upper secondary entrants, 44% of upper secondary graduates and 29% of tertiary entrants.

Note: Tertiary entrants refer to the 18-24 year-old age group, and educational programmes ISCED 5, ISCED 6 and ISCED 7 long first degree programmes.

1. Tertiary entrants do not include short-cycle tertiary programmes.

2. Parents' educational attainment refers to mother's educational attainment.

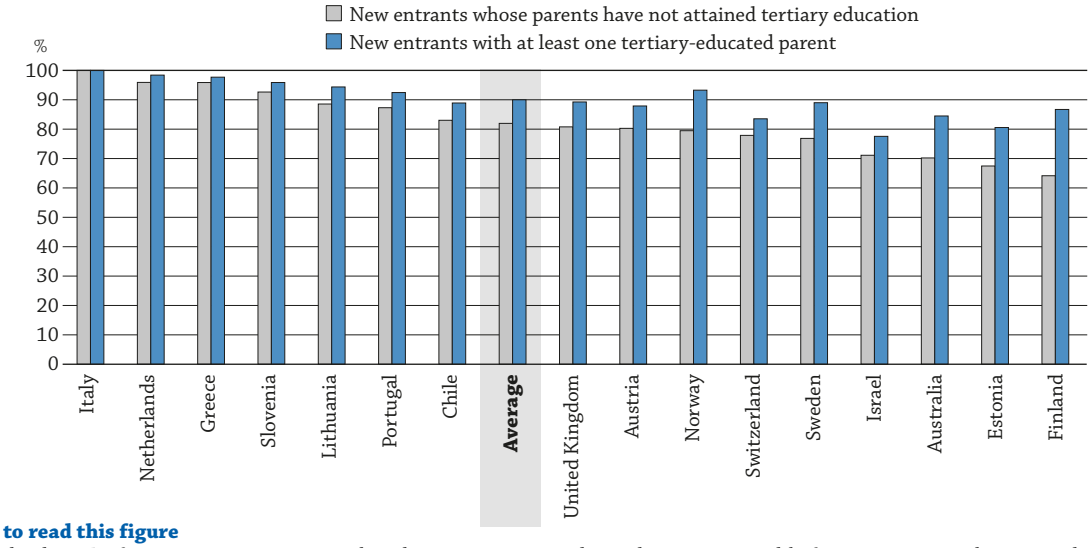
3. For Israel, year of reference for entrants in upper secondary education is 2013 and for upper secondary graduates it is 2015. For Finland, year of reference for tertiary entrants is 2016.

Countries and economies are ranked in descending order of the share of upper secondary entrants with no tertiary-educated parent.

Source: OECD (2018). Upper secondary data from the ad-hoc survey on upper secondary completion rate by equity dimension and tertiary data from the pilot survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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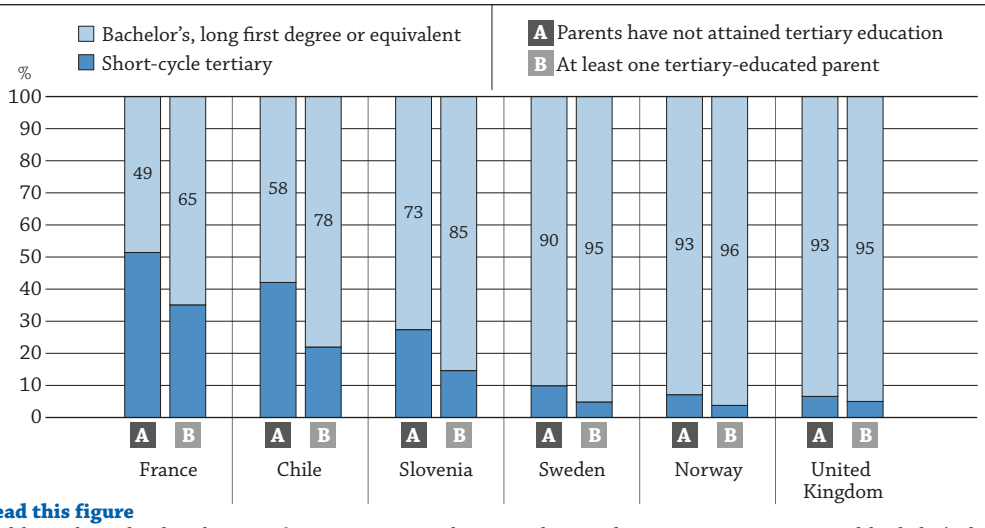
Figure B7.4. Share of new entrants to bachelor's, long first degree or equivalent programmes who are below the age of 25, by parents' educational attainment (2015)



How to read this figure
In Finland, 87% of tertiary new entrants with at least one tertiary-educated parent entered before age 25. This share goes down to 64% for new entrants whose parents have not attained tertiary education.

Note: Reference years may be different from 2015. Please see Annex 3 for details.
Countries are ranked in descending order of the share of new entrants below the age of 25 whose parents have not attained tertiary education.
Source: OECD (2018); ad-hoc survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Figure B7.5. Share of 18-24 year-olds who entered short-cycle programmes versus bachelor's, long first degree or equivalent programmes, by parents' educational attainment (2015)



How to read this figure
The stacked bars show the distribution of tertiary entrants between short-cycle tertiary programmes and bachelor's, long first degree or equivalent programmes, by parental educational attainment. In Slovenia, among new entrants whose parents have not attained tertiary education, 27% enter a short-cycle tertiary programme, and 73% enter a bachelor's, long first degree or equivalent programme. Among new entrants with at least one tertiary-educated parent, 15% enter a short-cycle tertiary programme, and 85% enter a bachelor's, long first degree or equivalent programme.

Note: Reference years may be different from 2015. Please see Annex 3 for details.
Countries are ranked in descending order of the share of new entrants whose parents have not attained tertiary education and who entered a short-cycle tertiary programme.
Source: OECD (2018); ad-hoc survey on equity in tertiary education. See *Source* section at the end of this indicator for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933804071

Relationship between parents' educational attainment and the choice of tertiary programme

Parents' educational attainment may affect not only the decision on whether to pursue tertiary education, but also the choice of tertiary programme to enter.

Figure B7.5 shows that in all countries with available data, new entrants to tertiary education whose parents have not attained this level are more likely to enter a short-cycle tertiary programme than a bachelor's or long first degree programme, compared to new entrants with at least one tertiary-educated parent. For instance, in Slovenia, among new entrants whose parents have not attained tertiary education, 27% enter a short-cycle tertiary programme, and 73% enter a bachelor's, long first degree or equivalent programme. Among new entrants with at least one tertiary-educated parent, only 15% enter a short-cycle tertiary programme, and 85% enter a bachelor's, long first degree or equivalent programme.

Graduates from bachelor's, long first degree or equivalent programmes tend to have higher earnings and higher employment rates than graduates from short-cycle tertiary programmes (see Indicators A3 and A4). Therefore, if disadvantaged groups are under-represented in bachelor's, long first degree or equivalent programmes, this may accentuate inequalities in the labour market. The potential for short-cycle tertiary programmes to contribute to improving educational equality will relate to their ability to provide students with the relevant skill sets to succeed in the labour market or in their further education.

Definitions

New entrants to bachelor's, long first degree or equivalent programmes are students who enrol in this level of education for the first time. For this indicator, we only consider new entrants age 18-24.

First-time graduates from bachelor's, long first degree or equivalent programmes are students who graduate from this level of education for the first time. For this indicator, we only consider first-time graduates age 20-29.

Parents have not attained tertiary education means that neither parent has attained ISCED 2011 levels 5 to 8.

First-generation immigrants are foreign-born of two parents who are also foreign-born. This definition excludes international students.

Second-generation immigrants are native-born of two foreign-born parents.

Methodology

For each age group, gender and critical group (individuals without tertiary-educated parents and with an immigrant background), the share of new entrants/first-time graduates is calculated as the number of new entrants/first-time graduates who belong to the critical group divided by the total number of new entrants/first-time graduates (Tables B7.1, B7.2, B7.3 and B7.4, and Figures B7.1, B7.2 and B7.3).

The share of new entrants below age 25 is computed as the number of new entrants below age 25 divided by the total number of entrants of all ages (Figure B7.4).

The share of 18-24 year-olds who entered **short-cycle tertiary programmes** is computed as the number of new entrants to short-cycle tertiary programme divided by the total number of entrants to all tertiary education programmes (both short-cycle tertiary programmes and bachelor's, long first degree or equivalent programmes). Similarly, the share of 18-24 year-olds who entered **bachelor's, long first degree or equivalent programmes** is computed as the number of new entrants to bachelor's, long first degree or equivalent programme divided by the total number of entrants to all tertiary education programmes (Figure B7.5).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2014/15 and were collected through an ad-hoc survey undertaken in 2017 and 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.

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. [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 B7 Tables

StatLink https://doi.org/10.1787/888933803900

Table B7.1	Share of 18-24 year-olds whose parents have not attained tertiary education among new entrants to bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)
Table B7.2	Share of 20-29 year-olds whose parents have not attained tertiary education among first-time graduates from bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)
Table B7.3	Share of 18-24 year-olds who are first- or second- generation immigrants among new entrants to bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)
Table B7.4	Share of 20-29 year-olds who are first- or second- generation immigrants among first-time graduates from bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)

Cut-off date for the data: 18 July 2018. 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.

Table B7.1. Share of 18-24 year-olds whose parents have not attained tertiary education among new entrants to bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)

Countries	Women		Men		Total	
	New entrants	Population	New entrants	Population	New entrants	Population
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	51	64	46	66	49	65
Austria	39	61	35	61	37	61
Chile	71	79	64	79	67	79
Estonia	32	47	30	45	31	46
Finland	30	46	27	46	29	46
France	51	64	41	63	47	63
Greece	61	74	58	76	60	75
Israel	42	56	32	56	39	56
Italy	73	82	67	83	71	82
Latvia	44	65	34	64	39	65
Lithuania	47	75	39	76	44	76
Netherlands	58	72	54	71	56	72
Norway	43	53	35	53	39	53
Portugal	m	m	m	m	61	78
Slovenia	56	65	48	65	53	65
Sweden	43	61	36	61	40	61
Switzerland	47	58	41	58	45	58
United Kingdom	m	m	m	m	47	64
Average	49	64	43	64	47	65

Note: Tables B7.1 and B7.2 refer to different cohorts and may have different sources so the data presented should not be compared across tables. Reference years may be different from 2015. Please see Annex 3 for more details.

Source: OECD (2018), ad-hoc survey on equity in tertiary education. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933803919

Table B7.2. Share of 20-29 year-olds whose parents have not attained tertiary education among first-time graduates from bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)

Countries	Women		Men		Total	
	First-time graduates	Population	First-time graduates	Population	First-time graduates	Population
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	52	65	50	66	52	65
Austria	39	66	37	62	38	64
Canada[1]	29	42	25	40	28	41
Finland	32	50	29	50	31	50
France[2]	69	71	31	65	50	68
Israel	39	55	31	55	36	55
Italy	72	82	65	83	69	83
Netherlands	57	73	54	73	55	73
Norway	44	56	35	56	41	56
Slovenia	55	68	45	68	51	68
Sweden	42	65	34	65	39	65
Switzerland	42	62	39	59	41	60
United Kingdom	m	m	m	m	46	61
United States	35	51	29	47	32	49
Average	47	62	39	61	44	61

Note: Tables B7.1 and B7.2 refer to different cohorts and may have different sources so the data presented should not be compared across tables. Reference years may be different from 2015. Please see Annex 3 for more details.

1. Values for first-time graduates are based on a small sample and should be interpreted with caution.

2. Age group for first-time graduates refers to 20-24 year-olds instead of 20-29 year-olds.

Source: OECD (2018), ad-hoc survey on equity in tertiary education. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table B7.3. Share of 18-24 year-olds who are first- or second- generation immigrants among new entrants to bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)

	Women		Men		Total	
	New entrants	Population	New entrants	Population	New entrants	Population
	(1)	(2)	(3)	(4)	(5)	(6)
Countries						
Estonia	4	9	6	9	5	9
Finland	3	6	2	6	3	6
Greece	11	18	8	20	9	19
Israel	20	22	20	22	20	22
Latvia	6	24	11	24	9	24
Netherlands	14	18	12	18	13	18
Norway	9	15	10	15	10	15
Slovenia	5	6	4	6	5	6
Sweden	18	22	19	23	18	22
Switzerland	20	29	22	26	21	27

Notes: International students are excluded from the immigrant data. The definitions of international students and the year of reference may differ across countries. Tables B7.3 and B7.4 refer to different cohorts and may have different sources so the data presented should not be compared across tables. Please see Annex 3 for more details.

Source: OECD (2018), ad-hoc survey on equity in tertiary education. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table B7.4. Share of 20-29 year-olds who are first- or second- generation immigrants among first-time graduates from bachelor's, long first degree or equivalent programmes and in the population, by gender (2015)

	Women		Men		Total	
	First-time graduates	Population	First-time graduates	Population	First-time graduates	Population
	(1)	(2)	(3)	(4)	(5)	(6)
Countries						
Finland	2	8	2	8	2	8
Germany	7	19	5	18	7	18
Israel	25	28	25	27	25	27
Netherlands	11	21	9	20	10	21
Norway	6	21	7	20	7	21
Slovenia	5	8	5	8	5	8
Sweden	14	24	13	24	14	24
Switzerland	14	33	13	33	14	33
United States	14	21	15	24	14	23

Notes: International students are excluded from the immigrant data. The definitions of international students and the year of reference may differ across countries. Tables B7.3 and B7.4 refer to different cohorts and may have different sources so the data presented should not be compared across tables. Please see Annex 3 for more details.

Source: OECD (2018), ad-hoc survey on equity in tertiary education. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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/10.1787/888933804109

Indicator C2 What proportion of national wealth is spent on educational institutions?
StatLink https://doi.org/10.1787/888933804242

Indicator C3 How much public and private investment on educational institutions is there?
StatLink https://doi.org/10.1787/888933804375

Indicator C4 What is the total public spending on education?
StatLink https://doi.org/10.1787/888933804508

Indicator C5 How much do tertiary students pay and what public support do they receive?
StatLink https://doi.org/10.1787/888933804641

Indicator C6 On what resources and services is education funding spent?
StatLink https://doi.org/10.1787/888933804774

Indicator C7 Which factors influence teachers' salary cost?
StatLink https://doi.org/10.1787/888933804888

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*.

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).

Public and international funds
Private funds
Publicly subsidised private funds

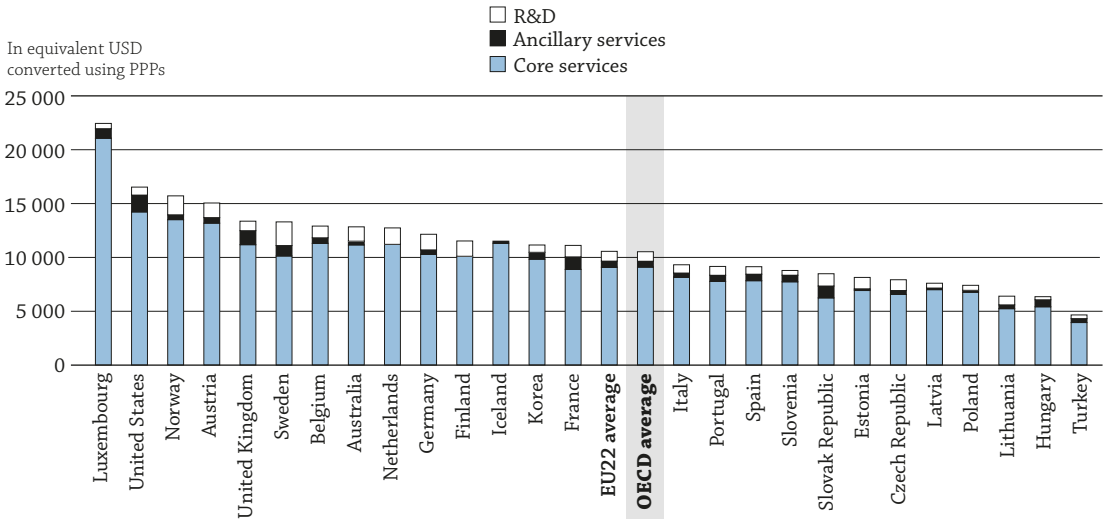
		Location of service providers	
Types of goods and services		**Spending on educational institutions** (e.g. schools, universities, educational administration and student welfare services)	**Spending on education outside educational institutions** (e.g. private purchases of educational goods and services, 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*

HOW MUCH IS SPENT PER STUDENT ON EDUCATIONAL INSTITUTIONS?

- On average, OECD countries spend USD 10 500 a year on educational institutions to educate each student from primary to tertiary education. This represents about USD 8 600 per student at primary level, USD 10 000 at secondary level and USD 15 700 at tertiary level.
- In non-tertiary education (primary, secondary and post-secondary non-tertiary levels), 94% of institutions' expenditure per student is devoted to core educational services (such as teaching costs), and the remaining is devoted to ancillary services (such as student welfare). At the tertiary level, a much lower share of institutional expenditure goes to core services (68%), while roughly 30% of total educational expenditure per student is on research and development.
- Across OECD countries, students enrolled at primary or secondary school between the age of 6 and 15 add up to a total cumulative expenditure of around USD 91 000 per student.

Figure C1.1. Total expenditure on educational institutions per student, by type of service (2015)

In equivalent USD converted using PPPs, based on full-time equivalents, from primary to tertiary education



Countries are ranked in descending order of total expenditure per student on educational institutions.

Source: OECD / UIS / Eurostat (2018), Table C1.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933804185

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 the 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 largely influenced by teachers' salaries (see Indicators C7 and D3), pension systems, instructional and teaching hours (see Indicator C7), 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 size or change staffing patterns (see Indicator D2) have also affected per-student expenditure. Ancillary services and research and development (R&D) activities can 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. Indicator C6 provides further information on how spending is distributed by the different types of services provided.

Other findings

- In almost all countries, expenditure on educational institutions per student increases at each educational level, with the exception of post-secondary non-tertiary education, where the average expenditure per student is around the level in primary education or lower than in other levels.
- On average, private sources in OECD countries spend more than USD 4 600 per student in tertiary levels of education. This share represents around 40% of the investment per student made by governments at the same level (USD 11 100).
- From 2010 to 2015, expenditure on non-tertiary educational institutions increased by 4% on average across OECD countries, while the number of students decreased by 1%, resulting in an increase of 5% in expenditure per student over the same period.
- The orientation of secondary school programmes influences expenditure on educational institutions per student in most countries. On average, across the 27 OECD countries with separate data on expenditure per student for general and vocational programmes at upper secondary levels, the cost per student in a vocational programme was almost USD 2 000 more than in a general programme in 2015.
- Excluding activities peripheral to instruction (R&D and ancillary services, such as student welfare services), OECD countries annually spend an average of USD 9 800 per student from primary to tertiary education.
- Annual expenditure per student on educational institutions as a share of GDP per capita amounts to 22% at primary level and 25% at secondary level 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 degrees.

C1

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 2015, annual spending per student from primary to tertiary education ranged from around USD 3 000 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.

Methods of resource allocation across the different levels of education vary widely and are largely a reflection of the mode of educational provision. Education still essentially takes place in settings with generally similar organisation, curriculum, teaching style and management. These shared features have tended to result in similar patterns of unit expenditure from primary through post-secondary non-tertiary levels. In recent decades, however, greater use of private funds for tertiary education has modified the allocation pattern of expenditure at this level compared to lower ones (see Indicator C3, and Table C1.5, available on line). In 2015, OECD countries on average spent around USD 8 600 per student at the primary level, USD 10 000 at the secondary level and USD 15 700 at the tertiary level, although at this level, the average is affected by high expenditure in a few OECD countries, most notably Australia, Luxembourg, Norway, Sweden, the United Kingdom and the United States (Table C1.1 and Figure C1.1). These differences in annual expenditure on educational institutions per student at each level of education can also lead to large differences in the cumulative expenditure per student over the duration of studies (Table C1.6, available on line). Significant differences are also observed at the subnational level (Box C1.1).

Comparisons of the distribution of expenditure at different levels of education reflect the relative emphasis of governments at these levels as well as 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 15% more per secondary student than they do per primary student. This percentage is around 60% in the Czech Republic and France, and slightly over 50% in the Netherlands, but countries invest more per primary student than they do per secondary student in Chile, Colombia, Iceland, Lithuania, Luxembourg, the Slovak Republic, Slovenia, Turkey and the United Kingdom. Similarly, educational institutions in OECD countries spend an average of 30% more on each tertiary student (excluding R&D) than on each primary student mostly because education policies vary more at the tertiary level (see Indicator C5). For example, Mexico and the United States spend at least 120% more on a tertiary student (excluding R&D) than on a primary student (Table C1.1).

Box C1.1. Subnational variation in annual expenditure per student on educational institutions

Annual expenditure per student is not homogeneous within countries. Among the four countries providing data, large differences are observed across regions within a country in 2015. The Russian Federation is the country with the highest subnational range in terms of annual expenditure per student on educational institutions at primary and secondary levels combined with a ratio of 9 between the region with the highest and the region with the lowest value, ranging from around USD 2 700 to USD 25 000. Canada is the country with the second-largest subnational range, with a ratio of almost 3 between the top and bottom regions in terms of expenditure per student at primary and secondary levels. Regional differences are the smallest in Belgium and Germany (countries with few subnational regions) (OECD/NCES, 2018[1]).

An examination of homogeneity in spending at primary and secondary levels within countries show that 57 out of 85 regions in the Russian Federation devoted a lower annual expenditure per student than the national average, indicating that the peak values benefit a select minority of regions. This is contrast to Canada where less than 50% of the 13 provinces and territories provide a lower level of expenditure than the national average. In Germany, 6 out of the 9 *Länder* that spend less than the national average are mainly located in the western part of the country. This could be explained by the sharp demographic downturn in the eastern *Länder* (OECD/NCES, 2018[1]).

To make these comparisons 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.

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) represents 86% of total expenditure per student from primary to tertiary educational institutions and it exceeds 90% in Iceland, Latvia, Luxembourg and Poland. In 9 of the 25 OECD and partner countries for which data are available, annual expenditure on R&D and ancillary services per student from primary to tertiary education accounts for around 15%-30% of the total annual expenditure per student and can influence the ranking of countries for all services combined.

However, this overall picture masks large variations among levels of education (Table 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 for which data are available spend 94% of the total per-student expenditure (USD 9 400) on core educational services. However, in Finland, France, Hungary, the Slovak Republic, Sweden and the United Kingdom, ancillary services account for 10% or slightly more of the expenditure per student (Table C1.2).

Greater differences are observed in the proportion of total expenditure on educational institutions per student devoted to core services at the tertiary level, partly because R&D expenditure can account for a significant proportion of educational spending (Table C1.2). Across OECD countries, 68% of total expenditure on educational institutions at tertiary level goes to core services, while almost 30% of total educational expenditure is on research and development. The OECD countries in which most R&D is performed in tertiary education institutions tend to report higher expenditure per student than those in which a large proportion of R&D is performed in other public institutions or in industry. Excluding R&D activities, average expenditure per student in all countries accounts for over USD 11 200, ranging from around USD 2 600 in Greece to more than USD 40 000 in Luxembourg. On average across OECD countries, expenditure on R&D and ancillary services at the tertiary level represents 32% of all tertiary expenditure on educational institutions per student. In 7 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 the Slovak Republic (50%) and Sweden (54%) the countries with the highest shares. Ancillary services are even less important in tertiary education than at lower levels. On average, only 4% of expenditure on tertiary institutions targets ancillary services, and the amount is negligible in the Czech Republic, Estonia, Finland, Iceland, Israel, Korea and Sweden. The United Kingdom and the United States stand out for spending over USD 2 000 per student on ancillary services in their tertiary institutions.

Cumulative expenditure over the expected duration of studies

Policy makers are interested in the relationship between the resources devoted to education and the outcomes of education systems (Box B1.1 in *Education at a Glance 2017* [OECD, 2017[2]]). In order to compare the cost of education across countries, it is important to consider not only the yearly expenditure per student, but also the cumulative expenditure for students over the total period they are expected to spend at that educational level. High expenditure per student, for example, might be offset by short programmes or weaker access to education at certain levels. On the other hand, a seemingly inexpensive education system per student 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 theoretical cumulative expenditure per student aged between 6 and 15 at these levels shows how much it costs to teach a student on average based on current compulsory education (Figure C1.2 and Table C1.6, available on line). On average across OECD countries, students aged between 6 and 15 adds up to a total cumulative expenditure of around USD 92 000 per student. Theoretical cumulative expenditure on educational institutions per student varies considerably among countries, Austria, Luxembourg, Norway and the United States spend over USD 120 000 per student across those two levels, while the figure is below USD 40 000 in Mexico and Turkey.

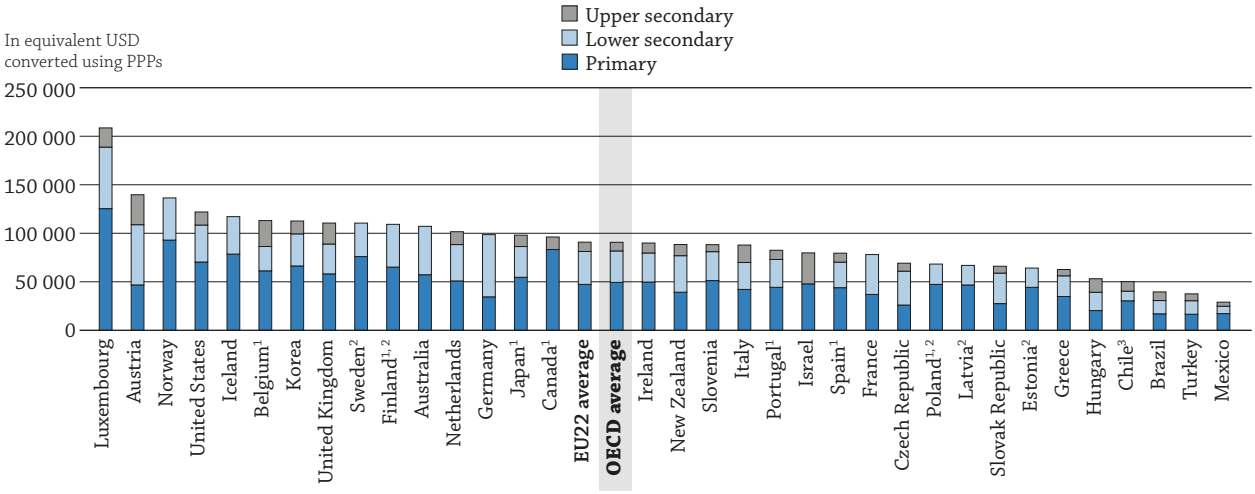
Expenditure per student on educational institutions relative to per capita GDP

Expenditure on educational institutions per student relative to GDP per capita is a spending measure that takes into account the relative worth of OECD countries. Since access to education in most OECD countries is universal (and usually compulsory) at the lower levels of schooling, the quotient between the amount spent per student and the per capita GDP can be indicative of whether the resources spent per student are correlated to the country's ability to pay. At higher levels of education, where student enrolments vary 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.

C1

Figure C1.2. Cumulative expenditure per student on educational institutions between the age of 6 and 15 (2015)

Annual expenditure on educational institutions per student multiplied by the theoretical duration of studies in equivalent USD converted using PPPs



Note: Cumulative expenditure per student on educational institutions is calculated using expected years in education.
1.Some levels of education are included with others. Refer to "x" code in Table C1.1 for details.
2. Includes one year of pre-primary education as part of core education.
3. Year of reference 2016.
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 (2018), Table C1.6. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
StatLink https://doi.org/10.1787/888933804204

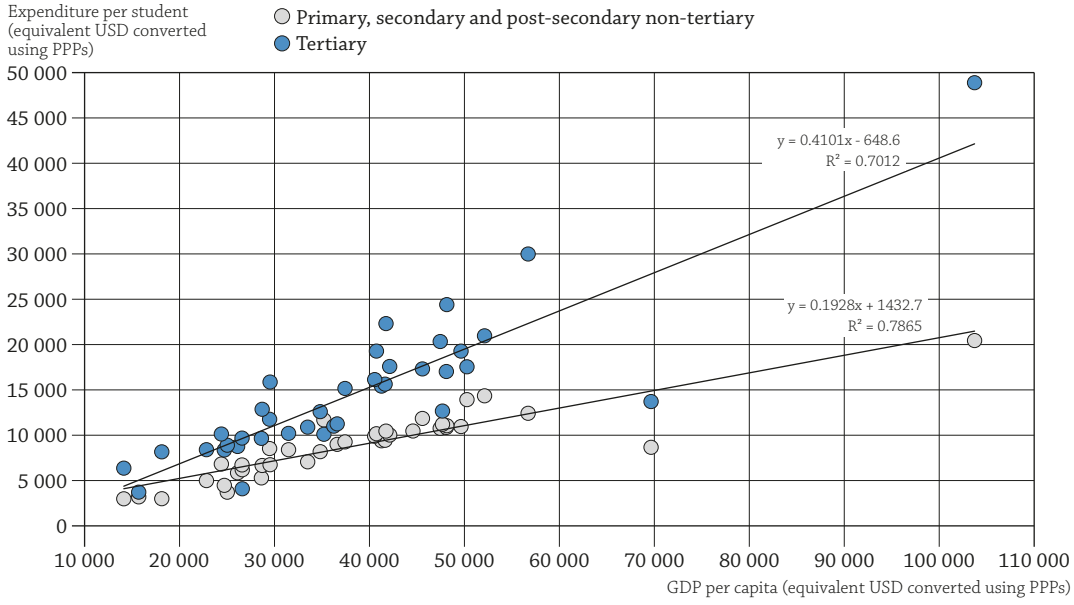
In OECD countries, overall expenditure per student on educational institutions from primary to tertiary levels averages 26% of per capita GDP, broken down into 22% at primary level, 25% at lower secondary level, 26% at upper secondary level, 22% at post-secondary non-tertiary level and 39% at tertiary level (Table C1.4, available on line and Figure C1.3). Countries with low levels of expenditure per student may nonetheless invest relatively higher amounts as a share of per capita GDP. For example, although Latvia's expenditure per student at all educational levels and per capita GDP are both below the OECD average, it spends per student an above-average share of its per capita GDP on 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 among countries with similar levels of per capita GDP, and especially in those in which 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 and secondary education. Austria spends 23% of per capita GDP on primary institutions (above the OECD average of 22%) and 31% on secondary institutions (above the OECD average of 25%), while the Netherlands spends less with 17% at primary level and 26% at secondary level (Table C1.4, available on line and Figure C1.3).

At tertiary level, there is more cross-country variation in spending and in the relationship between countries' relative wealth and their level of tertiary expenditure. Spending by tertiary institutions in Brazil, the Slovak Republic, Sweden, the United Kingdom and the United States represents more than 50% of per capita GDP for each student (Table C1.4, available on line and Figure C1.3). The high share for Sweden, for example, is clearly explained by its extremely high expenditure on R&D, which accounts for over half of total expenditure per student at this level (Table C1.2).

Figure C1.3. Expenditure on educational institutions per student relative to GDP per capita (2015)

Annual expenditure on educational institutions per student versus GDP per capita in equivalent USD converted using PPPs, by level of education



Source: OECD/UIS/Eurostat (2018), Table C1.1 and OECD.Stat. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Changes in expenditure per student on educational institutions between 2010 and 2015

Changes in expenditure on educational institutions largely reflect changes in the size of the school-age population and in teachers' salaries, both of which tend to increase over time. Teachers' salaries, the main component of 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.

Changes in enrolment do not seem to have been the main factor behind changes in expenditure on educational institutions per non-tertiary student. Expenditure by non-tertiary educational institutions increased in most countries by an average of 4% between 2010 and 2015 (Table C1.3). Over the same period, enrolment at those levels decreased slowly, with a total decline of 1% over the five-year period. Falling enrolment together with increasing expenditure resulted in greater expenditure per student at those levels – 5% higher in 2015 than in 2010. Most countries were spending more per student in 2015 than they did in 2010, with the exception of the United States and some European countries that were hard hit by the economic crisis of 2008: Estonia, France, Ireland, Slovenia and Spain. On the other hand, expenditure per student increased significantly between 2010 and 2015 in several countries and by 20% in Chile, 24% in Korea, 30% in Latvia and 22% in the Slovak Republic. In Chile, Korea, Latvia, Poland and the Slovak Republic a decrease in enrolments of more than 5% coincided with significant increases in spending on educational institutions per student between 2010 and 2015. On the contrary, in Ireland, Slovenia and Spain the increase in enrolments was accompanied by a reduction in spending on educational institutions.

Expenditure at tertiary level increased much more quickly than at lower levels of education, rising on average by 12% between 2010 and 2015. This results, in part, from growth in enrolment of 3% over the same period. OECD countries recorded on average an increase of 11% in the expenditure per student over this five-year period. Of the 26 OECD and partner countries with available data, Chile, Finland, France, Germany, Ireland, Israel, Mexico 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 countries such as Estonia

and the Slovak Republic, for example, increases in expenditure per student were mainly due to an increase in total expenditure and a decrease in the number of students at tertiary level. However, as is the case in Australia, Belgium, the Netherlands and Norway, large increases in the number of tertiary students do not necessarily lead to a decrease in expenditure per student (Table C1.3).

Definitions

Ancillary services are services provided on 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 expenditures that are directly related to instruction in educational institutions, including teachers' salaries, construction and maintenance of school buildings, teaching materials, books and administration of schools.

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 currency 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).

Expenditure per student on educational institutions relative to per capita GDP is calculated by dividing expenditure per student on educational institutions by the percentage of 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 a student's intensity of participation by the credits that he/she obtains for 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 among the different types of student attendance.

Data on subnational regions on how much is spent per student are adjusted using national purchasing power parities (PPPs). Future work on cost of living at subnational level is required to fully adjust expenditure per student used in this section.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[3]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the financial year 2015 (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 http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, 2011 to 2015 were updated based on a survey in 2017-18, and expenditures for 2005 to 2014 were adjusted to the methods and definitions used in the current UOE data collection.

Data on subnational regions for selected indicators have been released by the OECD, with the support from the US National Centre for Education Statistics (NCES) and are currently available for four countries: Belgium, Canada, Germany and the Russian Federation. Subnational estimates were provided by countries using national data sources.

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 C1 Tables

StatLink https://doi.org/10.1787/888933804109

	Table C1.1	Total expenditure on educational institutions per full-time equivalent student (2015)
	Table C1.2	Total expenditure on educational institutions per full-time equivalent student for core educational services, ancillary services and R&D (2015)
	Table C1.3	Change in total expenditure per student on educational institutions (2005, 2011 and 2015)
WEB	Table C1.4	Total expenditure on educational institutions per full-time equivalent student relative to GDP per capita (2015)
WEB	Table C1.5	Total expenditure on educational institutions per full-time equivalent student, by source of funds (2015)
WEB	Table C1.6	Cumulative expenditure per student on educational institutions between ages 6 and 15 (2015)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

C1

Table C1.1. Total expenditure on educational institutions per full-time equivalent student (2015)

In equivalent USD converted using PPPs for GDP, direct expenditure within educational institutions, by level of education, based on full-time equivalents

		Primary	Secondary					Post-secondary non-tertiary	Primary, secondary, and post-secondary non-tertiary	Tertiary			All tertiary (excluding R&D)	Primary to tertiary	Primary to tertiary (excluding R&D)
			Lower secondary	Upper secondary			All secondary			Short-cycle tertiary	Long-cycle tertiary	All tertiary			
				General programmes	Vocational programmes	All programmes									
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	9 546	12 466	12 826	9 328	12 028	12 303	9 343	10 766	21 290	20 122	20 344	14 159	12 829	11 497
	Austria	11 689	15 514	13 514	16 696	15 432	15 477	4 876	13 931	16 700	17 718	17 555	13 138	15 043	13 688
	Belgium	10 211	12 538	13 138[d]	13 497[d]	13 352[d]	13 070[d]	x(3, 4, 5, 6)	11 856	11 577	17 538	17 320	11 627	12 900	11 812
	Canada[1]	9 249[d]	x(1)	x(5)	x(5)	12 900	12 900	x(8)	10 468[d]	m	m	m	m	m	m
	Chile[2]	5 064	4 974	4 852	5 054	4 909	4 930	a	4 996	4 103	10 164	8 406	8 067	5 986	5 888
	Czech Republic	5 207	8 714	7 368	8 566	8 251	8 476	2 399	7 075	18 635	10 870	10 891	6 365	7 919	6 918
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	6 327	6 614	6 514	8 048	7 090	6 861	7 929	6 663	a	12 867	12 867	8 404	8 133	7 076
	Finland	9 305	14 682	8 425	8 587[d]	8 543[d]	10 482[d]	x(4, 5, 6)	10 025	a	17 591	17 591	10 391	11 518	10 098
	France	7 395	10 268	13 131	14 963	13 799	11 747	9 286	9 897	14 093	16 805	16 145	10 638	11 106	10 040
	Germany	8 619	10 680	11 423	15 943	13 652	11 791	10 736	10 863	10 149	17 036	17 036	10 018	12 139	10 689
	Greece	5 810	7 099	5 678	8 513	6 490	6 786	m	6 191	a	4 095	4 095	2 601	5 470	4 957
	Hungary	5 089	4 711	6 110	9 794	6 966	5 870	12 301	5 852	4 102	8 952	8 761	7 068	6 346	6 058
	Iceland	11 215	12 872	8 142	14 821	10 023	11 149	13 860	11 207	8 918	12 754	12 671	x(11)	11 499	x(13)
	Ireland	8 288	9 983	10 259	a	10 259	10 111	m	8 671	x(11)	x(11)	13 229	9 747	9 439	8 852
	Israel	7 971	x(3, 4, 5)	6 025[d]	15 400[d]	7 987[d]	7 987[d]	m	m	5 267	13 865	11 003	7 109	m	m
	Italy	8 426	9 258	x(5)	x(5)	8 969	9 079	m	8 831	4 120	11 285	11 257	7 352	9 308	8 539
	Japan	9 105	10 562	x(5)	x(5)	11 715[d]	11 147[d]	x(5, 6, 9, 10, 11)	10 167	13 806[d]	20 758[d]	19 289[d]	x(11)	12 120	x(13)
	Korea	11 047	11 025	x(5)	x(5)	13 247	12 202	a	11 688	5 817	11 310	10 109	8 141	11 143	10 464
	Latvia	6 672	6 723	7 049	7 233	7 123	6 930	8 235	6 824	10 693	10 046	10 137	8 208	7 595	7 146
	Luxembourg	20 892	21 124	18 580	20 587	19 808	20 413	1 588	20 451	24 769	51 625	48 907	41 905	22 430	21 943
	Mexico	2 874	2 514	4 098	4 429	4 224	3 129	a	2 998	x(11)	x(11)	8 170	6 404	3 611	x(13)
	Netherlands	8 478	12 491	10 329	14 698	13 241	12 850	12 655	10 960	10 543	19 323	19 286	12 107	12 730	11 204
	New Zealand	7 849	9 409	11 206	12 544	11 509	10 383	9 990	9 266	11 494	16 015	15 166	12 207	10 392	x(13)
	Norway	13 275	14 486	16 429	15 768	16 095	15 401	16 962	14 353	16 399	21 129	20 973	12 363	15 705	13 947
	Poland	6 757	6 985	5 775	7 346	6 655	6 806	4 424	6 725	16 373	9 678	9 687	7 647	7 400	6 935
	Portugal	7 380	9 568	x(5)	x(5)	9 469[d]	9 518[d]	x(5, 6, 11)	8 533	x(11)	x(11)	11 766[d]	7 477[d]	9 153	8 331
	Slovak Republic	6 877	6 282	6 069	7 658	7 092	6 660	7 774	6 747	8 263	15 998	15 874	9 845	8 477	7 334
	Slovenia	8 542	9 925	7 971	6 846	7 230	8 290	a	8 406	3 129	11 140	10 208	8 075	8 778	8 338
	Spain	7 320	8 765	8 716	10 408[d]	9 269[d]	9 020[d]	x(4, 5, 6)	8 189	9 088	13 487	12 605	9 328	9 130	8 432
	Sweden	10 853	11 493	7 749	16 873	11 331	11 402	5 102	11 052	6 777	25 889	24 417	11 297	13 289	11 093
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	4 134	3 491	3 175	3 919	3 528	3 511	a	3 715	x(11)	x(11)	8 901	7 018	4 652	4 312
	United Kingdom	11 630	10 249	11 660	9 440	10 798	10 569	a	11 028	8 421	27 931	26 320	20 526	13 355	12 473
	United States	11 727	12 693	x(5)	x(5)	13 474	13 084	14 294	12 424	x(11)	x(11)	30 003	26 817	16 518	15 776
	OECD average	8 631	9 941	9 119	11 037	10 196	10 010	8 927	9 401	11 022	16 518	15 656	11 202	10 520	9 772
	EU22 average	8 656	10 175	9 445	11 428	10 230	10 105	m	9 465	11 090	16 835	15 998	11 132	10 555	9 617
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	3 762	3 789	x(5)	x(5)	3 986[d]	3 872[d]	x(5, 6)	3 829	x(11)	x(11)	14 261	x(11)	4 451	x(13)
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	3 178	2 909	x(5)	x(5)	2 586[d]	2 817[d]	x(5, 6)	2 987	x(11)	x(11)	6 369	x(11)	3 683	x(13)
	Costa Rica	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
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	5 500	5 135	5 244	5 484	5 310	5 188	5 483	5 292	a	9 657	9 657	6 457	6 393	5 585
	Russian Federation	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	4 473[d]	4 249	9 554	8 369	7 527	5 409	x(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

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.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C1.2. Total expenditure on educational institutions per full-time equivalent student for core educational services, ancillary services and R&D (2015)

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	Australia	10 541	225	10 766	13 370	788	6 186	20 344	14 159	11 151	347	1 332	12 829	11 497
OECD	Austria	13 261	670	13 931	12 963	175	4 417	17 555	13 138	13 169	518	1 355	15 043	13 688
OECD	Belgium	11 452	404	11 856	10 654	973	5 693	17 320	11 627	11 299	513	1 088	12 900	11 812
OECD	Canada[1]	x(3)	x(3)	10 468	m	m	m	m	m	m	m	m	m	m
OECD	Chile[2]	x(3)	x(3)	4 996	7 961	106	339	8 406	8 067	x(12)	x(12)	98	5 986	5 888
OECD	Czech Republic	6 624	451	7 075	6 287	78	4 526	10 891	6 365	6 550	368	1 001	7 919	6 918
OECD	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Estonia	6 567	96	6 663	8 401	3	4 463	12 867	8 404	7 002	74	1 057	8 133	7 076
OECD	Finland	9 023	1 003	10 025	10 391	0	7 200	17 591	10 391	10 098	0	1 420	11 518	10 098
OECD	France	8 643	1 254	9 897	9 870	768	5 507	16 145	10 638	8 881	1 160	1 065	11 106	10 040
OECD	Germany	10 573	290	10 863	9 137	880	7 018	17 036	10 018	10 276	412	1 450	12 139	10 689
OECD	Greece	x(3)	x(3)	6 191	x(7)	x(7)	1 493	4 095	2 601	x(12)	x(12)	513	5 470	4 957
OECD	Hungary	5 193	658	5 852	6 452	615	1 694	8 761	7 068	5 407	651	288	6 346	6 058
OECD	Iceland	10 971	236	11 207	12 671	0	0	12 671	12 671	11 310	189	0	11 499	11 499
OECD	Ireland	x(3)	x(3)	8 671	9 747	a	3 483	13 229	9 747	x(12)	x(12)	586	9 439	8 852
OECD	Israel	m	m	m	7 069	40	3 894	11 003	7 109	m	m	m	m	m
OECD	Italy[3]	8 452	378	8 831	6 945	406	3 906	11 257	7 352	8 156	384	769	9 308	8 539
OECD	Japan	x(3, 7)	x(3, 7)	10 167	x(7)	x(7)	x(7)	19 289[d]	x(7)	x(12)	x(12)	x(12)	12 120	x(12)
OECD	Korea	10 751	938	11 688	8 054	86	1 968	10 109	8 141	9 820	644	679	11 143	10 464
OECD	Latvia	6 714	110	6 824	8 080	128	1 928	10 137	8 208	7 032	114	449	7 595	7 146
OECD	Luxembourg	19 571	880	20 451	40 800	1 105	7 002	48 907	41 905	21 048	896	487	22 430	21 943
OECD	Mexico	x(3)	x(3)	2 998	x(7)	x(7)	1 766	8 170	6 404	x(12)	x(12)	x(12)	3 611	x(12)
OECD	Netherlands	10 960	a	10 960	12 107	a	7 179	19 286	12 107	11 204	a	1 526	12 730	11 204
OECD	New Zealand	x(3)	x(3)	9 266	x(7)	x(7)	2 959	15 166	12 207	x(12)	x(12)	x(12)	10 392	x(12)
OECD	Norway	13 850	503	14 353	12 120	243	8 610	20 973	12 363	13 497	450	1 759	15 705	13 947
OECD	Poland	6 551	175	6 725	7 437	210	2 040	9 687	7 647	6 752	183	465	7 400	6 935
OECD	Portugal	7 974	560	8 533	6 868[d]	608[d]	4 289[d]	11 766[d]	7 477[d]	7 762	569	822	9 153	8 331
OECD	Slovak Republic	5 822	925	6 747	7 990	1 855	6 029	15 874	9 845	6 233	1 101	1 142	8 477	7 334
OECD	Slovenia	7 719	687	8 406	7 755	320	2 133	10 208	8 075	7 727	611	440	8 778	8 338
OECD	Spain	7 564	625	8 189	8 807	521	3 278	12 605	9 328	7 828	603	698	9 130	8 432
OECD	Sweden	9 888	1 165	11 052	11 297	0	13 120	24 417	11 297	10 124	970	2 196	13 289	11 093
OECD	Switzerland	m	m	m	m	m	14 282	m	m	m	m	2 679	m	m
OECD	Turkey	3 426	289	3 715	6 296	722	1 882	8 901	7 018	3 944	367	340	4 652	4 312
OECD	United Kingdom	9 871	1 157	11 028	18 429	2 096	5 794	26 320	20 526	11 173	1 300	882	13 355	12 473
OECD	United States	11 410	1 014	12 424	23 448	3 370	3 186	30 003	26 817	14 213	1 563	742	16 518	15 776
	OECD average	8 822	579	9 401	10 654	593	4 409	15 656	11 249	9 086	548	886	10 520	9 834
	EU22 average	8 843	622	9 465	10 696	579	4 723	15 998	11 132	9 082	562	911	10 555	9 617
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Brazil	x(3)	x(3)	3 829	x(7)	x(7)	x(7)	14 261	x(7)	x(12)	x(12)	x(12)	4 451	x(12)
Partners	China	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Colombia[2]	x(3)	x(3)	2 987	x(7)	x(7)	x(7)	6 369	x(7)	x(12)	x(12)	x(12)	3 683	x(12)
Partners	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	India	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Lithuania	5 041	250	5 292	5 795	662	3 200	9 657	6 457	5 232	354	807	6 393	5 585
Partners	Russian Federation	x(3)	x(3)	4 473[d]	x(7)	x(7)	842	8 369	7 527	x(12)	x(12)	x(12)	5 409	x(12)
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	South Africa	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: Data on early childhood education are available in Indicator B2. 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.
2. Year of reference 2016.
3. Data from post-secondary non-tertiary is excluded from the computations.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933804147

C1

Table C1.3. Change in total expenditure per student on educational institutions (2005, 2011 and 2015)

Index of change (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	2015	2005	2011	2015	2005	2011	2015	2005	2011	2015	2005	2011	2015	2005	2011	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	76	98	104	99	102	103	76	96	100	79	102	144	80	103	120	99	99	120
	Austria	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Belgium	88	101	105	105	100	103	84	101	102	83	102	113	90	103	113	93	99	100
	Canada[1]	83[d]	98[d]	104[d]	m	99[d]	104[d]	m	99[d]	100[d]	83	97	104	m	m	m	m	m	m
	Chile[2]	88	104	113	108	98	94	82	106	120	70	111	108	67	107	124	104	103	87
	Czech Republic	91	103	107	113	98	97	81	105	110	72	117	107	76	101	87	95	116	122
	Denmark	92	92	m	95	105	m	97	88	m	90	102	m	93	94	m	97	109	m
	Estonia	92	93	93	118	98	95	78	95	98	74	114	135	100	100	78	75	113	174
	Finland	90	101	101	100	99	99	89	102	102	86	104	94	101	101	101	85	103	92
	France	94	99	100	100	100	102	94	98	97	85	101	105	98	101	108	86	100	97
	Germany	93	100	98	106	98	93	88	101	105	80	104	111	93	105	126	86	99	88
	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	92	m	m	m	m	m	m	114	107	88	m	m	m
	Iceland	107	103	112	99	100	98	108	103	114	98	97	126	86	103	99	115	94	127
	Ireland	70	100	85	93	101	109	75	99	78	72	98	79	98	100	113	73	98	71
	Israel	76	111	135	92	102	m	83	109	m	83	111	113	84	101	122	99	110	93
	Italy	103	96	99	98	101	99	105	95	100	89	102	93	102	99	92	88	103	101
	Japan	97	100	100	104	99	96	92	101	104	92[d]	104[d]	100[d]	104[d]	100[d]	99[d]	88[d]	104[d]	101[d]
	Korea	71	103	105	108	97	84	66	106	124	m	m	m	98	101	98	m	m	m
	Latvia	100	96	118	129	96	91	78	100	130	105	116	131	119	95	84	89	123	156
	Luxembourg	m	96	98	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	91	104	115	95	101	105	96	103	109	79	96	121	86	105	130	92	92	93
	Netherlands	88	99	99	98	100	97	90	99	102	84	104	111	84	103	110	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	109	98	101	102	93	94	107	m	97	122	94	103	114	m	94	107
	Poland	82	98	105	120	98	94	68	101	111	85	93	109	106	98	87	80	95	125
	Portugal	93	94	101	m	m	m	m	m	m	88	94	88[d]	80	101	85[d]	110	93	104[d]
	Slovak Republic	74	93	108	118	97	89	63	96	122	78	111	197	81	98	94	97	113	210
	Slovenia	97	98	87	111	99	101	88	99	87	93	104	85	96	98	83	96	106	101
	Spain	84	98	95	95	101	106	88	96	89	79	98	97	90	103	111	88	95	87
	Sweden	98	100	107	110	99	106	89	101	101	86	102	108	97	103	99	89	99	109
	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	106	92	101	108	m	m	m	95	105	111	m	m	m
	United States	92	98	100	101	101	103	91	97	97	86	104	107	85	104	99	101	100	107
	OECD average	89	99	104	104	100	99	86	100	105	84	103	112	93	102	103	93	102	111
	EU22 average	90	98	101	106	100	99	85	99	102	84	104	110	95	101	98	90	104	115
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
	Colombia[2]	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
	Lithuania	m	94	87	126	95	83	m	100	105	78	119	111	102	98	92	76	121	121
	Russian Federation	77	104	110[d]	m	m	m	m	m	m	43	93	86	m	94	77	m	99	111
	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.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

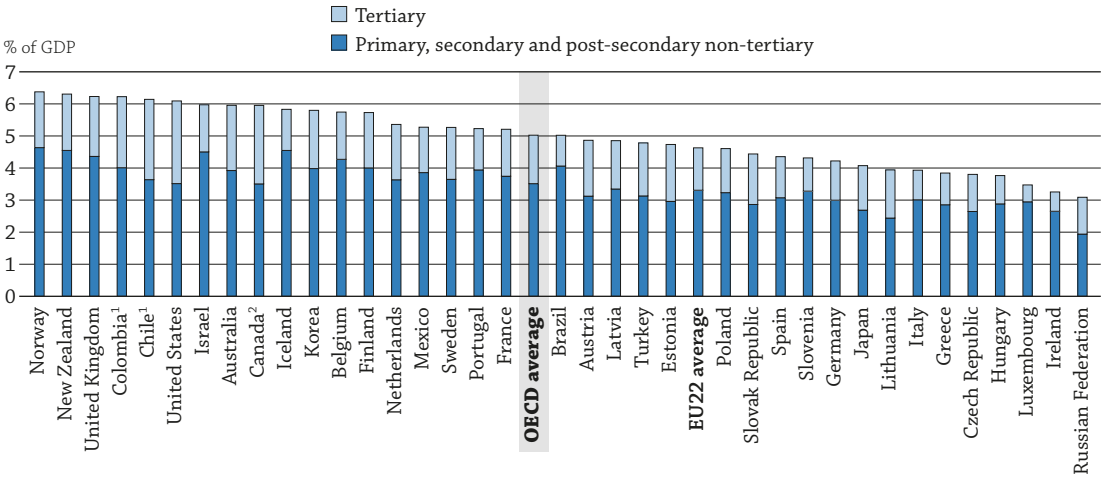
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WHAT PROPORTION OF NATIONAL WEALTH IS SPENT ON EDUCATIONAL INSTITUTIONS?

- In 2015, OECD countries spent an average of 5% of their gross domestic product (GDP) on educational institutions from primary to tertiary levels, with large variations across OECD and partner countries.
- Across OECD countries, the share of national resources devoted to educational institutions in non-tertiary education (primary, secondary and post-secondary non-tertiary levels) is 3.5% of GDP, much larger than the share devoted to tertiary education (1.5% of GDP). However, private sources play a crucial role in financing tertiary education accounting on average for around 25% of expenditure on educational institutions (0.4% of GDP).
- Between 2010 and 2015, total expenditure on educational institutions from primary to tertiary levels as a share of GDP decreased in more than two thirds of OECD and partner countries, mainly due to the slower increase of public expenditure on educational institutions compared to GDP.

Figure C2.1. Total expenditure on educational institutions as a percentage of GDP (2015)

From public, private and international sources, by level of education



1. Year of reference 2016.

2. Primary education includes data from pre-primary and lower secondary education.

Countries are ranked in descending order of total expenditure on primary to tertiary educational institutions.

Source: OECD / UIS / Eurostat (2018), Table C2.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 age 5 to age 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 concerned population has 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 highly 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 lower secondary levels (48% of all OECD educational expenditure or 2.4% of GDP), and is a function of the total number of students enrolled.
- The private sector in OECD countries directly funds 13% of total expenditure on educational institutions from primary to tertiary educational levels (before transfers to the private sector), representing 0.7% of GDP.
- Between 2010 and 2015, expenditure on educational institutions as a share of GDP remained rather stable at tertiary levels and decreased slightly at non-tertiary levels by just over 6% on average across OECD countries.

C2

Analysis

Overall investment relative to GDP

The share of national wealth devoted to educational institutions is substantial in all OECD and partner countries. In 2015, 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% in Australia, Colombia, Canada, Chile, Israel, New Zealand, Norway, the United Kingdom and the United States to 3%-4% in the Czech Republic, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg and the Russian Federation (Figure C2.1 and Table C2.1). Many factors influence the relative position of countries on this measure including number of students enrolled, duration of studies, and the effective allocation of funds. At the tertiary level, spending may be influenced by the criteria to access 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 (3.5% of GDP) is directed to non-tertiary levels, due to the high levels of enrolment at these levels. The share of resources devoted to educational institutions at non-tertiary levels is around 4.5% of GDP in Iceland, Israel, New Zealand, Norway and the United Kingdom while it accounts for slightly less than 3% of GDP in the Czech Republic, Greece, Hungary, Ireland, Japan, Lithuania, Luxembourg, the Russian Federation and the Slovak Republic.

On average across OECD countries, expenditure on educational institutions amounts to 1.5% of GDP at the primary level and 0.9% at lower secondary level. However, the share of expenditure on educational institutions is strongly influenced by the demographic composition of the country. Countries with relatively high fertility rates are more likely to spend a larger share of their wealth on primary and lower secondary education. Indeed, all the countries where investment in primary education is below 1% of GDP are Central and East European countries with low birth rates (Austria, the Czech Republic, Germany, Hungary and Lithuania) (Table C2.1). At the upper secondary level, expenditure on educational institutions makes up 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. Of the 29 countries for which data are available, 12 spend more on vocational programmes than on general programmes, with the largest differences found in Finland (0.7 percentage points) and the Netherlands (0.6 percentage points). Post-secondary non-tertiary education, which often has vocational components, is the object of considerably less expenditure across the OECD, representing about 0.1% of GDP on average.

Tertiary education accounts for 1.5% of GDP on average. At this level, there is great variation among OECD countries in the pathways available to students, the duration of programmes, the organisation of teaching and the expenditure devoted to research and development (R&D), resulting in significant differences in expenditure. In 2015, Canada, Chile and the United States were the countries that spent the largest share of GDP on tertiary educational institutions (around 2.5%). Unsurprisingly, these countries also have some of the strongest participation by private sources of educational funding (after transfers to the private sector) at this level (1.2% of GDP for Canada and 1.7% for Chile and the United States; 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 the type and nature of research activities as well as the infrastructure and facilities available. OECD countries in which most R&D is performed by tertiary educational institutions tend to report higher share of expenditure on educational institutions over GDP than countries where R&D is mostly performed in other public institutions or by the industrial sector. Excluding R&D activities decreases expenditure in tertiary educational institutions as a share of GDP by 0.4 percentage points on average across OECD, though the difference is at least 0.7 percentage points in Finland, Norway, and Sweden (Table C2.1).

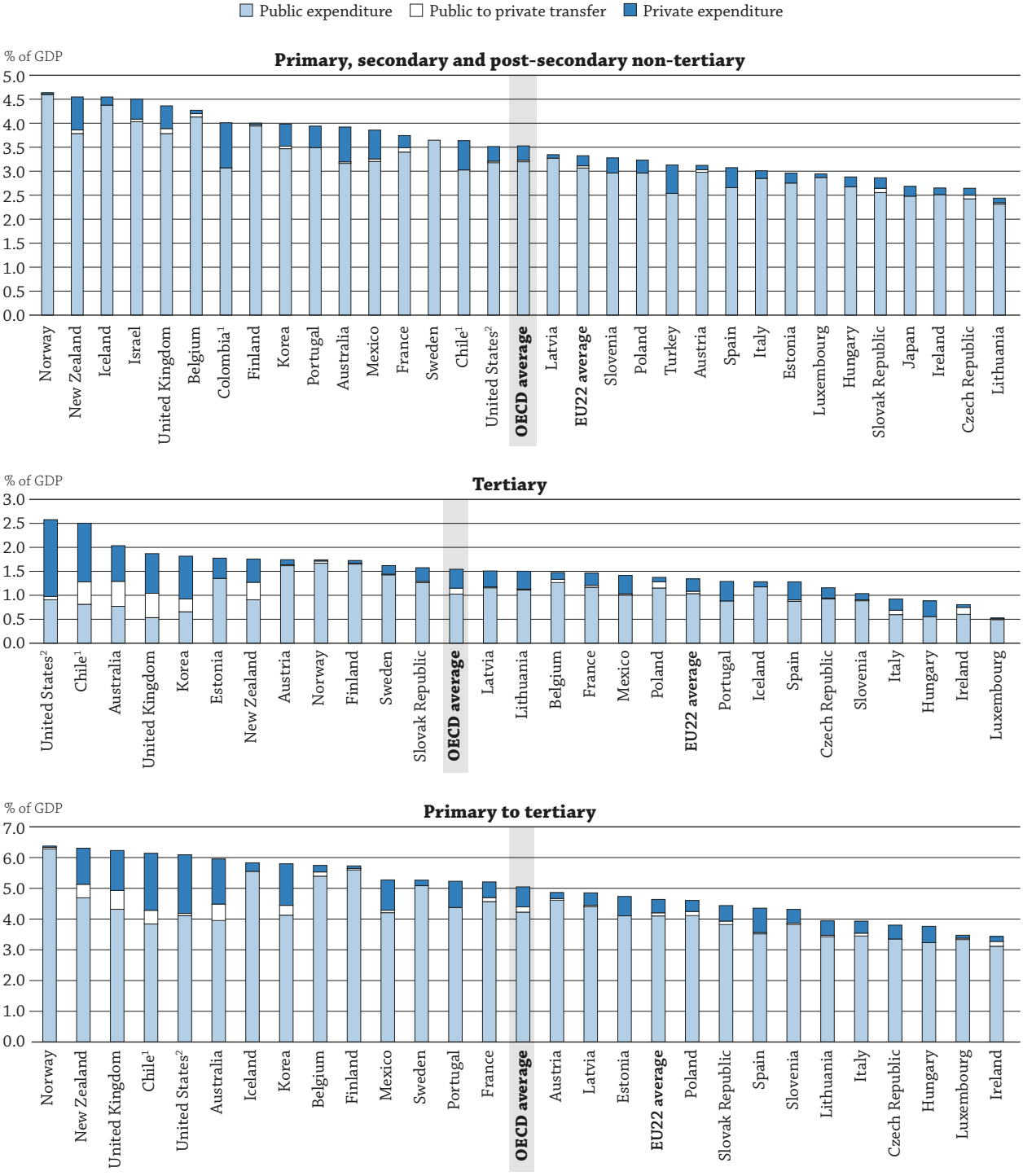
Expenditure on educational institutions, by source of funds

Government spending remains the main source of educational funding in OECD countries. On average, direct public expenditure on educational institutions from primary to tertiary educational levels (before transfers to the private sector) accounts for 4.2% of GDP. However, large differences are observed across countries with available data.

A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

Figure C2.2. Total expenditure on educational institutions as a percentage of GDP, by source of funds (2015)

From public, private and international sources, by level of education



Note: International expenditure is aggregated with public expenditure for display purposes.

1. Year of reference 2016.

2. Net student loans rather than gross, thereby underestimating public transfers.

Countries are ranked in descending order of total expenditure on educational institutions per student.

Source: OECD / UIS / Eurostat (2018), Table C2.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933804337

A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

In the Czech Republic, Greece, Hungary, Ireland, Italy, Japan, Lithuania, Luxembourg and the Russian Federation, public direct investment represents around 3% of GDP, while Nordic countries, such as Finland and Norway, and Costa Rica devote around 6% of their GDP in public direct expenditure on educational institutions (Figure C2.2).

From primary to tertiary education, public transfers to households (such as scholarships and loans to students for tuition and other fees) and subsidies to other private entities for education (e.g. to firms or labour organisations that operate apprenticeship programmes) comprise 0.2% of GDP on average across OECD countries, and they account for more than 0.4% of GDP in Australia, Chile and New Zealand and reaching 0.6% in the United Kingdom (Figure C2.2).

With tightening public budgets, many educational systems are turning more towards the private sector for additional investment. Particularly for tertiary education, rewarded by stronger premiums in the labour market, financial mechanisms are being used to leverage the participation of learners and third-party payers. The private sector, net of public transfers, is the direct source of 13% of total expenditure on educational institutions from primary to tertiary levels, accounting for 0.7% of GDP. Countries nevertheless differ considerably in the degree of direct private payments to educational institutions ranging from 0.1% or less of national GDP in Finland, Luxembourg and Norway, to 1.5%-2% in Australia, Chile and the United States (Figure C2.2).

At non-tertiary levels of education, direct private investment is low and accounts for 0.3% of GDP on average across OECD countries, but is at least 0.7% of GDP in Australia, Colombia and New Zealand which have the largest relative shares of private funds invested in non-tertiary education. At the tertiary level, however, direct private investment play a more crucial role, accounting on average for around 25% of expenditure on educational institutions, or 0.4% of GDP before even public to private transfers are accounted for. In some countries, private sources contribute to a large share of investment in tertiary education. Chile and the United States stand out for spending the largest percentage of GDP on tertiary educational institutions (at least 2.5% of GDP). This is partly driven by having the highest shares of private sources, even before accounting for public transfers to private entities (1.2% in Chile and 1.6% in the United States). In Australia and the United Kingdom, public transfers support about 25% of total expenditure for tertiary educational institutions, and around 20% in Chile, Ireland and New Zealand (Table C2.2 and Figure C2.2).

Changes in educational expenditure between 2010 and 2015

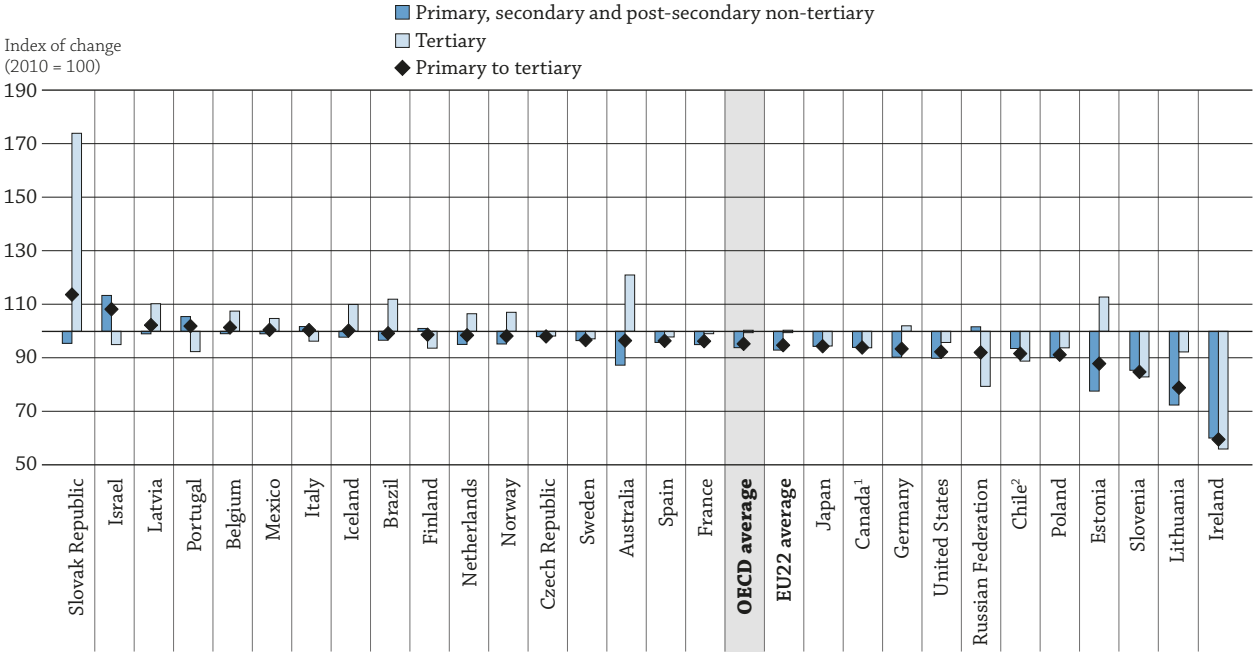
The effects of the global economic crisis that began in 2008 are currently reflected in the adjustments of public budgets and, therefore, in the expenditure on educational institutions across all levels of education. Public expenditure on educational institutions started to increase back in 2010 but at a slower pace than GDP, as a result of the time needed to adjust public budgets (Table C2.4, available on line). However, across OECD countries, total average expenditure on educational institutions at all levels as a percentage of GDP decreased by 4.1% between 2010 and 2015 (Table C2.3). Among the 28 countries with available data for this period, 20 of them experienced a reduction of the total expenditure on educational institutions as a share of GDP. Estonia, Ireland, Lithuania and Slovenia were among the countries with the largest negative adjustments, while the Slovak Republic was one of the major exceptions, with an increase of 14% (Figure C2.3).

Spending on the various levels of education evolved quite differently between 2010 and 2015. While expenditure on educational institutions relative to GDP remained rather stable at tertiary level, it decreased slightly at non-tertiary level (by just over 6%). However, this average masks significant changes in some countries. In Australia, Estonia, Ireland, Lithuania, Luxembourg, Slovenia and the United States, for example, expenditure on non-tertiary education as a share of GDP decreased by at least 10% over the five-year period. The reduction observed in Ireland (40%) can be mainly explained by a revision in its 2015 GDP data. Over the same period, Israel experienced one of the highest increases in the share of expenditure on these educational levels (13%).

At the tertiary level, stable investments are observed between 2010 and 2015 on average across OECD countries. Indeed, about a third of countries with available data increased their investments in tertiary education between 2010 and 2015, although their spending at non-tertiary levels has declined. Some clear examples are Australia and the Slovak Republic who increased their share of GDP invested on tertiary educational institutions by 21% and 74% but decreased their investments in non-tertiary educational institutions by at least 4% during this period. The increase in total tertiary spending as a share of GDP in the Slovak Republic, the largest across OECD and partner countries, is mainly driven by a substantial increase in both public and private investment on education.

Figure C2.3. Change in total expenditure on educational institutions as a percentage of GDP between 2010 and 2015

From public, private and international sources, by level of education, reference year 2010=100



1. Primary education includes data from pre-primary and lower secondary education.

2. Year of reference 2016.

Countries are ranked in descending order of the change in total expenditure on educational institutions as a percentage of GDP for primary to tertiary educational levels.

Source: OECD / UIS / Eurostat (2018), Table C2.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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).

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 the flow of transfers. **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.

Public subsidies to households and other private entities for educational institutions include public and international transfers, such as scholarships and other financial aid to students, plus certain subsidies to other private entities. Therefore, they are composed of government transfers and certain other payments to households,

insofar as these translate into payments to educational institutions for educational services (for example, fellowships, financial aid or student loans for tuition). They also include government transfers and some other payments (mainly subsidies) to other private entities, including subsidies to firms or labour organisations that operate apprenticeship programmes and interest subsidies to private financial institutions that provide student loans, etc.

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

Data appearing in earlier editions of this publication may not always be comparable to data shown in the 2018 edition due to changes in definitions and coverage.

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, either initially or as final payers, are classified as either governmental (public) sources, non-governmental (private) sources or international sources, such as international agencies and other foreign sources. 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.

It should be noted that 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 under public funding.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[1]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the financial year 2015 (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 http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, 2011 to 2015 were updated based on a survey in 2017-18, and expenditure for 2005 to 2014 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

StatLink https://doi.org/10.1787/888933804242

	Table C2.1	Total expenditure on educational institutions as a percentage of GDP (2015)
	Table C2.2	Total expenditure on educational institutions as a percentage of GDP, by source of funds (2015)
	Table C2.3	Change in total expenditure on educational institutions as a percentage of GDP (2005 to 2015)
WEB	Table C2.4	Change in public expenditure on educational institutions (final source of funds) as a percentage of GDP (2005 to 2015)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

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Table C2.1. Total expenditure on educational institutions as a percentage of GDP (2015)

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	Australia	1.8	1.3	0.6	0.1	0.7	2.0	0.1	3.9	0.4	1.6	2.0	1.4	6.0	5.3
	Austria	0.9	1.2	0.3	0.6	1.0	2.2	0.0	3.1	0.3	1.5	1.7	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	1.4	1.5	1.0	5.7	5.3
	Canada[1]	2.1[d]	x(1)	x(5)	x(5)	1.4	1.4	m	3.5[d]	0.9	1.5	2.4	1.8	6.0	x(13)
	Chile[2]	1.8	0.6	0.9	0.4	1.2	1.8	a	3.6	0.4	2.1	2.5	2.4	6.1	6.0
	Czech Republic	0.8	0.9	0.2	0.7	0.9	1.8	0.0	2.6	0.0	1.2	1.2	0.7	3.8	3.3
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	1.4	0.7	0.4	0.3	0.8	1.4	0.2	3.0	a	1.8	1.8	1.2	4.7	4.1
	Finland	1.4	1.1	0.4	1.0[d]	1.4[d]	2.6[d]	x(4, 5, 6)	4.0	a	1.7	1.7	1.0	5.7	5.0
	France	1.2	1.3	0.8	0.5	1.3	2.5	0.0	3.7	0.3	1.2	1.5	1.0	5.2	4.7
	Germany	0.6	1.2	0.4	0.5	0.9	2.2	0.2	3.0	0.0	1.2	1.2	0.7	4.2	3.7
	Greece	1.3	0.8	0.5	0.3	0.8	1.5	m	2.9	a	1.0	1.0	0.6	3.8	3.5
	Hungary	0.8	0.7	0.7	0.4	1.1	1.8	0.3	2.9	0.0	0.9	0.9	0.7	3.8	3.6
	Iceland	2.2	1.0	0.7	0.5	1.2	2.3	0.1	4.5	0.0	1.3	1.3	x(11)	5.8	x(13)
	Ireland	1.4	0.6	0.5	a	0.5	1.1	m	2.7	x(11)	x(11)	0.8	0.6	3.5	3.3
	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	1.5	0.9	6.0	5.5
	Italy	1.1	0.7	x(5)	x(5)	1.1	1.9	0.1	3.0	0.0	0.9	0.9	0.6	3.9	3.6
	Japan	1.2	0.7	x(5)	x(5)	0.8[d]	1.5[d]	x(5, 6, 9, 10, 11, 12)	2.7	0.2[d]	1.2[d]	1.4[d]	x(11)	4.1	x(13)
	Korea	1.7	1.0	x(5)	x(5)	1.3	2.3	a	4.0	0.2	1.6	1.8	1.5	5.8	5.4
	Latvia	1.6	0.8	0.5	0.4	0.9	1.6	0.1	3.3	0.2	1.3	1.5	1.2	4.9	4.6
	Luxembourg	1.3	0.8	0.3	0.6	0.9	1.7	0.0	2.9	0.0	0.5	0.5	0.5	3.5	3.4
	Mexico	1.9	1.0	0.6	0.4	0.9	2.0	a	3.9	x(11)	x(11)	1.4	1.1	5.3	x(13)
	Netherlands	1.2	1.2	0.3	0.9	1.2	2.4	0.0	3.6	0.0	1.7	1.7	1.1	5.4	4.7
	New Zealand	1.7	1.3	1.0	0.3	1.4	2.7	0.2	4.5	0.2	1.5	1.8	1.4	6.3	x(13)
	Norway	2.1	1.0	0.7	0.7	1.5	2.5	0.0	4.6	0.0	1.7	1.7	1.0	6.4	5.7
	Poland	1.6	0.8	0.3	0.5	0.8	1.6	0.1	3.2	0.0	1.4	1.4	1.1	4.6	4.3
	Portugal	1.6	1.2	x(5)	x(5)	1.2[d]	2.4[d]	x(5, 6, 10, 11, 12)	3.9	a	1.3[d]	1.3[d]	0.8[d]	5.2	4.8
	Slovak Republic	1.0	0.9	0.3	0.6	0.9	1.9	0.0	2.9	0.0	1.6	1.6	1.0	4.4	3.8
	Slovenia	1.5	0.8	0.3	0.6	0.9	1.7	a	3.3	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	1.3	0.9	4.4	4.0
	Sweden	1.8	0.8	0.4	0.6	1.0	1.9	0.0	3.6	0.0	1.6	1.6	0.7	5.3	4.4
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	1.1	0.9	0.5	0.6	1.1	2.0	a	3.1	x(11)	x(11)	1.7	1.3	4.8	4.4
	United Kingdom	2.0	1.0	0.9	0.5	1.4	2.4	a	4.4	0.0	1.8	1.9	1.5	6.2	5.8
	United States	1.6	0.9	x(5)	x(5)	1.0	1.8	0.0	3.5	x(11)	x(11)	2.6	2.3	6.1	5.8
	OECD average	1.5	0.9	0.6	0.5	1.1	2.0	0.1	3.5	0.2	1.4	1.5	1.1	5.0	4.5
	EU22 average	1.3	0.9	0.5	0.6	1.0	2.0	0.1	3.3	0.1	1.3	1.3	0.9	4.6	4.2
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	1.6	1.4	x(5)	x(5)	1.1[d]	2.5[d]	x(5, 6)	4.1	x(11)	x(11)	1.0	x(11)	5.0	x(13)
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	2.1	1.4	x(5)	x(5)	0.5[d]	2.0[d]	x(5, 6)	4.0	x(11)	x(11)	2.2	x(11)	6.2	x(13)
	Costa Rica	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
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	0.7	1.1	0.4	0.1	0.5	1.6	0.1	2.4	a	1.5	1.5	1.0	3.9	3.4
	Russian Federation	x(3,4,5,6)	x(3,4,5,6)	1.8[d]	0.2[d]	1.9[d]	1.9[d]	x(3, 4, 5, 6)	1.9[d]	0.1	1.0	1.1	1.0	3.1	x(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

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.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C2.2. Total expenditure on educational institutions as a percentage of GDP, by source of funds (2015)

Direct expenditure within educational institutions, by level of education

		Primary, secondary and post-secondary non-tertiary						Tertiary						Primary to tertiary					
		Initial funds (before transfers between government and private sectors)			Final funds (after transfers between government and private sectors)			Initial funds (before transfers between government and private sectors)			Final funds (after transfers between government and private sectors)			Initial funds (before transfers between government and private sectors)			Final funds (after transfers between government and private sectors)		
		Government	Private	International	Government	Private	International	Government	Private	International	Government	Private	International	Government	Private	International	Government	Private	International
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	3.2	0.7	0.0	3.2	0.7	0.0	1.3	0.7	m	0.8	1.3	m	4.5	1.5	m	4.0	2.0	m
	Austria	3.0	0.1	a	3.0	0.1	a	1.6	0.1	a	1.6	0.1	a	4.7	0.2	a	4.6	0.3	a
	Belgium	4.2	0.1	0.0	4.1	0.1	0.0	1.3	0.1	0.0	1.2	0.2	0.0	5.5	0.2	0.0	5.4	0.3	0.0
	Canada[1]	m	m	m	3.2[d]	0.3[d]	m	m	m	m	1.2	1.2	0.0	m	m	m	4.4	1.6	m
	Chile[2]	m	0.6	m	3.0	0.6	m	m	1.2	m	0.8	1.7	m	m	1.9	m	3.8	2.3	m
	Czech Republic	2.4	0.2	0.0	2.4	0.2	0.0	0.8	0.2	0.2	0.8	0.2	0.2	3.2	0.5	0.2	3.2	0.5	0.2
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	2.3	0.2	0.4	2.7	0.2	0.0	1.2	0.4	0.1	1.3	0.4	0.1	3.5	0.6	0.6	4.0	0.6	0.1
	Finland	4.0	0.0	x(1)	4.0	0.0	x(4)	1.6	0.1	x(7)	1.6	0.1	0.1	5.6	0.1	x(13)	5.6	0.1	x(16)
	France	3.5	0.3	0.0	3.4	0.3	0.0	1.2	0.3	0.0	1.1	0.3	0.0	4.7	0.5	0.0	4.5	0.6	0.0
	Germany	m	m	m	2.6	0.4	0.0	m	m	m	1.0	0.2	0.0	m	m	m	3.6	0.6	0.0
	Greece	m	m	0.1	2.7	0.2	0.0	m	m	0.3	0.7	0.1	0.1	m	m	0.4	3.4	0.3	0.1
	Hungary	2.7	0.2	0.0	2.7	0.2	0.0	0.6	0.3	0.0	0.6	0.3	0.0	3.2	0.5	0.0	3.2	0.5	0.0
	Iceland	4.4	0.2	0.0	4.4	0.2	0.0	1.1	0.1	0.0	1.1	0.1	0.0	5.5	0.3	0.0	5.5	0.3	0.0
	Ireland	2.5	0.1	0.0	2.5	0.1	a	0.7	0.1	0.0	0.6	0.2	a	3.2	0.2	0.0	3.1	0.4	a
	Israel	4.1	0.4	0.0	4.0	0.5	0.0	m	m	0.0	0.9	0.6	0.0	m	m	0.0	4.9	1.1	0.0
	Italy	2.8	0.2	0.1	2.8	0.2	0.1	0.7	0.2	0.0	0.6	0.3	0.0	3.4	0.4	0.1	3.3	0.5	0.1
	Japan	m	m	0.0	2.5	0.2	0.0	m	m	0.0	0.4	0.9	0.0	m	m	0.0	2.9	1.1	0.0
	Korea	m	0.5	m	3.5	0.5	m	m	0.9	m	0.7	1.2	m	m	1.4	m	4.1	1.7	m
	Latvia	3.0	0.1	0.3	3.3	0.1	0.0	1.0	0.3	0.2	1.1	0.3	0.1	3.9	0.4	0.5	4.3	0.4	0.1
	Luxembourg	2.8	0.1	0.1	2.8	0.1	0.1	0.5	0.0	0.0	0.5	0.0	0.0	3.3	0.1	0.1	3.3	0.1	0.1
	Mexico	3.2	0.6	0.0	3.2	0.7	0.0	1.0	0.4	0.0	1.0	0.4	0.0	4.3	1.0	0.0	4.2	1.1	0.0
	Netherlands	m	m	0.0	3.2	0.5	0.0	m	m	0.1	1.2	0.5	0.1	m	m	0.1	4.3	1.0	0.1
	New Zealand	3.9	0.7	0.0	3.8	0.8	0.0	1.3	0.5	0.0	0.9	0.9	0.0	5.1	1.2	0.0	4.7	1.6	0.0
	Norway	4.6	0.0	0.0	4.6	0.0	0.0	1.7	0.0	0.0	1.7	0.1	0.0	6.3	0.0	0.0	6.3	0.1	0.0
	Poland	2.9	0.3	0.1	2.9	0.3	0.0	1.2	0.1	0.1	1.1	0.2	0.1	4.1	0.4	0.1	4.0	0.5	0.1
	Portugal	3.4	0.4	0.1	3.4	0.4	0.1	0.7	0.4	0.1	0.7	0.4	0.1	4.1	0.9	0.2	4.1	0.9	0.2
	Slovak Republic	2.4	0.2	0.2	2.6	0.3	0.0	0.8	0.3	0.5	1.2	0.3	0.0	3.2	0.5	0.7	3.8	0.6	0.0
	Slovenia	2.9	0.3	0.0	3.0	0.3	0.0	0.8	0.1	0.1	0.9	0.1	0.0	3.8	0.4	0.1	3.8	0.5	0.0
	Spain	2.7	0.4	0.0	2.7	0.4	0.0	0.9	0.4	0.0	0.8	0.4	0.0	3.5	0.8	0.0	3.5	0.8	0.0
	Sweden	3.6	a	m	3.6	a	a	1.4	0.2	0.1	1.4	0.2	0.1	5.0	0.2	0.1	5.0	0.2	0.1
	Switzerland	3.2	m	m	3.2	m	a	1.3	m	m	1.3	m	a	4.5	m	m	4.5	m	a
	Turkey	2.5	0.6	0.0	2.5	0.6	0.0	m	m	0.0	1.2	0.4	0.0	m	m	0.0	3.8	1.0	0.0
	United Kingdom	3.9	0.5	0.0	3.8	0.6	0.0	1.0	0.8	0.1	0.5	1.3	0.1	4.9	1.3	0.1	4.2	1.9	0.1
	United States[3]	3.2	0.3	m	3.2	0.3	a	1.0	1.6	m	0.9	1.7	a	4.2	1.9	m	4.1	2.0	a
	OECD average	3.2	0.3	0.1	3.2	0.3	0.0	1.1	0.4	0.1	1.0	0.5	0.0	4.3	0.7	0.1	4.2	0.8	0.1
	EU22 average	3.1	0.2	0.1	3.0	0.3	0.0	1.0	0.2	0.1	1.0	0.3	0.1	4.0	0.5	0.2	4.0	0.5	0.1
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	4.1	m	m	m	m	m	1.0	m	m	m	m	m	5.0	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	3.1	0.9	0.0	3.1	0.9	0.0	m	m	0.0	0.8	1.4	0.0	m	m	0.0	3.9	2.4	0.0
	Costa Rica	m	m	m	4.7	m	m	m	m	m	1.6	m	m	m	m	m	6.3	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
	Lithuania	2.3	0.1	0.1	2.3	0.1	0.0	0.8	0.4	0.3	1.1	0.4	0.0	3.1	0.5	0.4	3.4	0.5	0.1
	Russian Federation	m	m	m	1.8[d]	0.1[d]	0.0[d]	m	m	m	0.7	0.4	0.0	m	m	m	2.6	0.5	0.0
	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: 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 data from pre-primary and lower secondary education.
2. Year of reference 2016.
3. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C2.3. Change in total expenditure on educational institutions as a percentage of GDP (2005 to 2015)

Index of change (GDP deflator 2010 = 100, constant prices), direct expenditure within educational institutions, by level of education

		Primary, secondary, and post-secondary non-tertiary			Tertiary			Primary to tertiary		
		Change in expenditure as a share of GDP (2010 = 100)			Change in expenditure as a share of GDP (2010 = 100)			Change in expenditure as a share of GDP (2010 = 100)		
		2005	2011	2015	2005	2011	2015	2005	2011	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Australia	86.4	93.3	87.4	90.6	97.2	121.0	87.5	94.3	96.5
	Austria	m	m	m	m	m	m	m	m	m
	Belgium	94.9	99.2	99.5	89.2	100.5	107.5	93.5	99.5	101.4
	Canada[1]	87.6[d]	95.5[d]	94.0[d]	88.4	95.0	93.9	88.0[d]	95.3[d]	93.9[d]
	Chile[2]	106.3	98.2	93.6	84.2	104.2	88.9	97.4	100.6	91.7
	Czech Republic	102.4	100.7	98.1	81.0	115.3	98.2	95.9	105.2	98.1
	Denmark	93.4	91.2	m	90.7	101.0	m	92.6	93.9	m
	Estonia	90.3	86.2	77.7	72.7	105.6	112.8	85.1	91.9	87.9
	Finland	93.4	98.7	101.1	89.9	101.1	93.7	92.3	99.5	98.7
	France	98.2	96.7	95.0	88.0	99.0	99.7	95.4	97.3	96.3
	Germany	98.8	96.1	90.3	85.5	100.7	102.1	95.3	97.3	93.5
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	m	m	m	m	m	m	m	m	m
	Iceland	112.5	101.1	97.8	103.3	95.3	110.0	110.6	99.9	100.3
	Ireland	72.8	97.1	59.6	74.7	95.2	55.8	73.3	96.6	58.6
	Israel	94.3	105.5	113.4	102.7	105.5	95.0	96.7	105.5	108.2
	Italy	101.8	95.5	101.8	88.1	100.9	96.3	98.4	96.8	100.4
	Japan	96.4	99.8	94.4	91.4[d]	103.2[d]	94.5[d]	94.7	101.0	94.4
	Korea	86.8	98.9	90.4	m	m	m	m	m	m
	Latvia	97.6	90.1	99.1	102.8	109.2	110.3	99.1	95.6	102.3
	Luxembourg	m	93.2	84.7	m	m	m	m	m	m
	Mexico	98.2	99.9	99.1	85.0	93.0	104.8	94.8	98.1	100.5
	Netherlands	93.7	97.7	95.1	89.8	101.8	106.6	92.6	98.9	98.5
	New Zealand	m	m	m	m	m	m	m	m	m
	Norway	100.6	97.3	95.3	m	99.1	107.1	m	97.7	98.2
	Poland	103.5	93.7	90.2	107.3	88.3	93.8	104.6	92.1	91.3
	Portugal	95.6	95.3	105.5	91.0[d]	95.5[d]	92.4[d]	94.4	95.4	101.9
	Slovak Republic	93.7	90.6	95.5	98.8	107.6	173.9	94.9	94.5	113.7
	Slovenia	105.6	97.3	85.5	101.1	103.5	83.0	104.5	98.8	84.8
	Spain	88.4	98.6	95.9	83.2	98.6	97.9	86.9	98.6	96.4
	Sweden	105.8	97.6	96.5	92.7	99.3	97.2	101.8	98.1	96.7
	Switzerland	m	m	m	m	m	m	m	m	m
	Turkey	m	m	m	m	m	m	m	m	m
	United Kingdom	m	m	m	m	m	m	m	m	m
	United States	96.4	96.8	89.9	90.1	102.0	95.8	93.8	98.9	92.3
	OECD average	96.1	96.5	93.6	90.5	100.7	101.3	94.6	97.7	95.9
	EU22 average	95.9	95.3	92.4	89.8	101.4	101.3	94.2	97.1	95.0
Partners	Argentina	m	m	m	m	m	m	m	m	m
	Brazil	76.1	99.6	96.7	87.4	108.8	112.0	78.0	101.1	99.3
	China	m	m	m	m	m	m	m	m	m
	Colombia[2]	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m
	Lithuania	m	88.9	72.5	82.5	112.0	92.3	m	96.4	78.9
	Russian Federation	91.5	99.6	101.7	51.0	89.3	79.4	74.1	95.2	92.1
	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: 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 data from pre-primary and lower secondary education.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

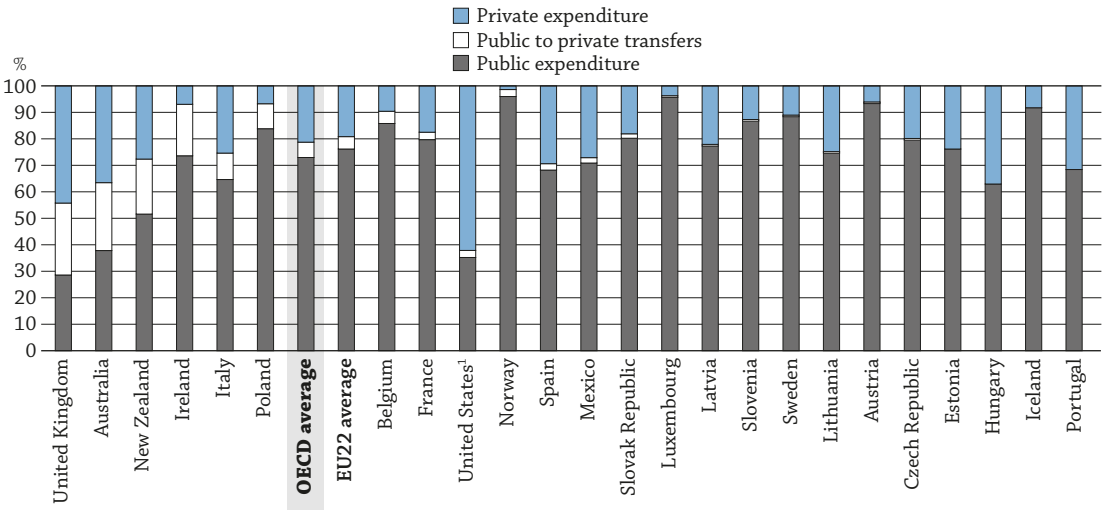
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HOW MUCH PUBLIC AND PRIVATE INVESTMENT ON EDUCATIONAL INSTITUTIONS IS THERE?

- On average, across OECD countries, educational institutions are mainly publicly funded, with government funds accounting for 90% at primary, secondary and post-secondary non-tertiary and 66% for tertiary education.
- The share of private investment on tertiary educational institutions varies significantly across countries, mainly as a function of the tuition fees charged by tertiary institutions. Countries such as Colombia, Chile, Japan, the United Kingdom and the United States account for the largest shares (around 70%).
- Public transfers to the private sector play an important role in the financing of tertiary education representing 5% of total funds across OECD countries. Australia, New Zealand and the United Kingdom are the countries with the highest public-to-private transfers (between 20% and 35% of the total funds devoted to tertiary educational institutions).

Figure C3.1. Distribution of transfers and public and private expenditure on educational institutions (2015)

Tertiary educational levels



Note: International expenditure is aggregated with public expenditure for display purposes.
1. Net student loans rather than gross, thereby underestimating public transfers.

Countries and economies are ranked in descending order of the proportion of public-to-private transfers.

Source: OECD / UIS / Eurostat (2018), Table C3.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933804451

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, increasingly more importance is accorded to the question of whether governments or the individuals themselves should support these efforts to acquire more 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, the role of private sources of funding is becoming increasingly prominent at some educational levels.

Public sources dominate much of the funding of non-tertiary levels, which are usually compulsory in most countries. Across OECD countries, the balance between public and private financing varies at pre-primary (see Indicator B2) and tertiary levels of education, as 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 should not discourage potential students from entering tertiary education. Others believe that countries should significantly increase public support to students, while still others support efforts to increase the amount of funding to tertiary education provided by private enterprises.

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 expenditures by private entities other than households. 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 (70% on average across OECD countries).
- Between 2010 and 2015, the share of private sources of expenditure on educational institutions from primary to tertiary increased by 11%, while the share of public sources decreased by 1%, on average across OECD countries.
- The share of private expenditure on educational institutions varies across non-tertiary education levels. At the primary and secondary levels, around 8% of expenditure on educational institutions comes from private sources. This share reaches 13% at upper secondary education.

Analysis

Public versus private expenditure on educational institutions

Educational institutions in OECD countries are mainly publicly funded, 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 all funds for primary to tertiary educational institutions come directly from public sources (Table C3.1). In OECD countries, private funding on educational institutions represents on average 16% of all expenditure. Around half of the countries with data available report a share of private funding above the OECD average. In Finland, Luxembourg, Norway and Sweden, private funds constitute 3% or less of all educational expenditure. In contrast, private funds constitute around one-third of all educational expenditure in Australia, Chile, Colombia, Korea, the United Kingdom and the United States. International sources represent on average 1% of the expenditure on educational institutions, reaching around 4% in the Czech Republic, Greece and Portugal. In around 30% of all OECD and partner countries with data available, international sources exceed the OECD average,

Public versus private expenditure on non-tertiary educational institutions

Public funding dominates non-tertiary education in all countries. Around 9% of funding for these levels of education comes from private sources, and the share of private funding exceeds 20% in Colombia (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 (OECD, 2018[1]). At the primary level, on average, 7% of expenditure on educational institutions comes from private sources. In Finland, Norway and Sweden, all educational funding for this level is public, while in Chile (17%) and Colombia (24%) a large share of funding comes from private sources – the highest of all countries for which data are available (OECD, 2018[1]).

At the lower secondary level, private funding corresponds to 8% of total educational expenditure on average. In 23 of the 32 OECD countries for which data are available, public expenditure accounts for over 90% of the total. However, Australia and Colombia source just over 20% of expenditure from private sources at this level (OECD, 2018[1]).

Upper secondary education relies more on private funding than the primary and lower secondary levels, reaching an average of 13% across OECD countries. Private sources play a slightly stronger role in vocational programmes (contributing 14% of expenditure) than in general programmes (12%). In Germany, the Netherlands and New Zealand, vocational upper secondary education receives at least 25 percentage points more private funding than general education tracks. On the other hand, in Chile, Turkey and the United Kingdom the share of private funding in general programmes exceeds that of vocational programmes by 15 or more percentage points (OECD, 2018[1]).

The level of public funding in post-secondary non-tertiary education stands at only 75% on average. Unlike the three lower levels presented above, in post-secondary non-tertiary education, Israel, New Zealand, Poland and the United States rely more on private than public sources of funding (OECD, 2018[1]).

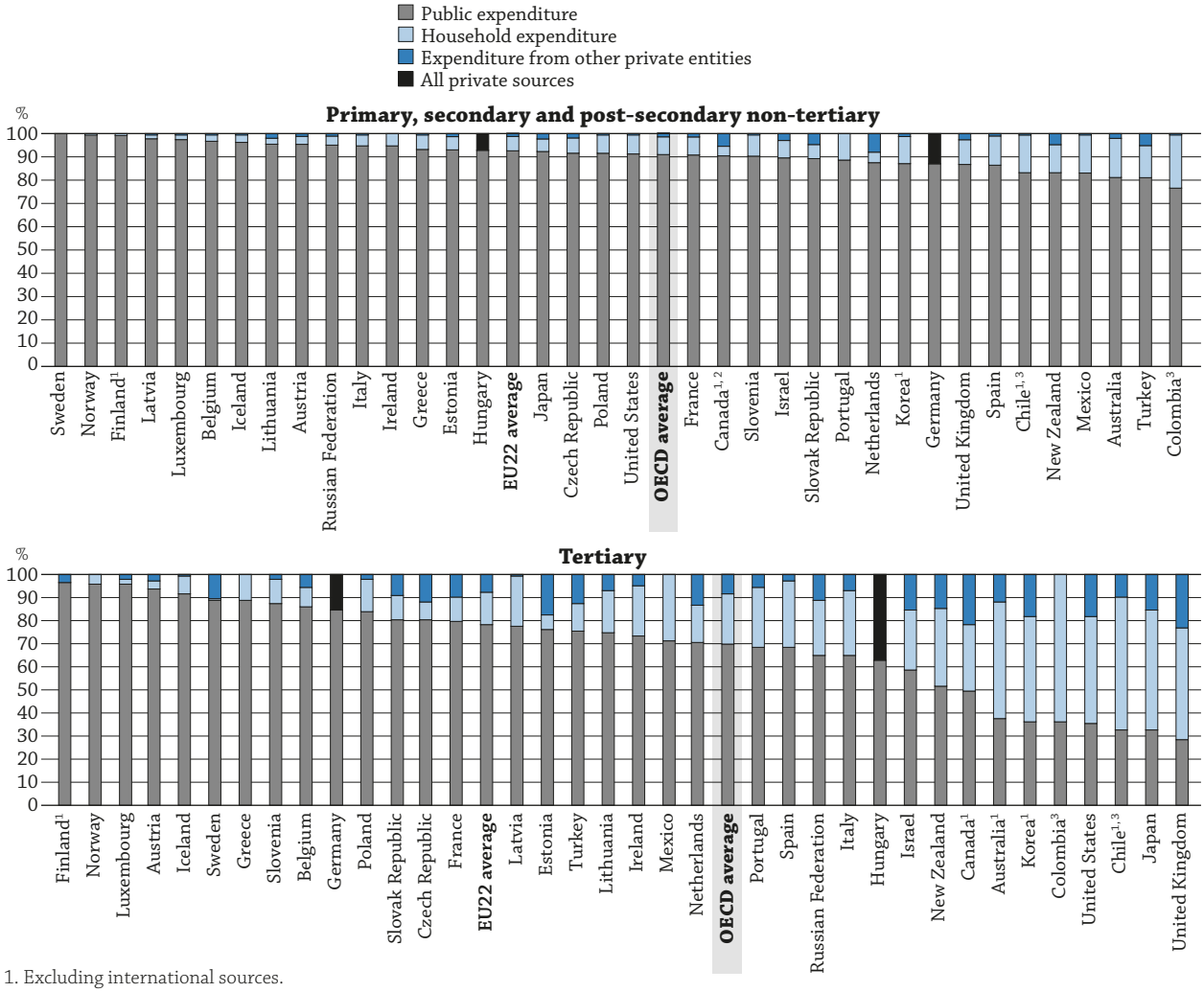
Public versus private expenditure on tertiary educational institutions

The high private returns to tertiary education (see Indicator A5) have led a number of countries to expect a higher financial contribution from the private sector to finance tertiary education, provided that financial support mechanisms are in place to support students from various economic backgrounds (see Indicator C5). In all countries, the proportion of private expenditure on education is far higher for tertiary education (an average of nearly 31% of total expenditure at this level) than it is at lower levels of education (Table C3.1 and Figure C3.2).

The proportion of expenditure on tertiary institutions covered by individuals, businesses and other private sources (including subsidised private payments such as tuition fee loans) ranges from less than 10% in Austria, Finland, Iceland, Luxembourg and Norway (where tuition fees charged by tertiary institutions are low or negligible) to around 70% in Chile, Japan, the United Kingdom and the United States. The share of private funding is related to the level of tuition fees charged by tertiary institutions (Figure C3.2 and Table C3.1, and see Indicator C5). On average across OECD countries, household expenditure accounts for 70% of private expenditure. 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, and the share of household expenditure is either zero or very low (Figure C3.2).

Figure C3.2. Distribution of public and private expenditure on educational institutions (2015)

Final source of funds, by level of education



1. Excluding international sources.
2. Primary education includes data from pre-primary and lower secondary education.
3. Year of reference 2016.

Note: International expenditure is aggregated with public expenditure for display purposes.
Countries are ranked in descending order of the proportion of public and international expenditure on educational institutions.
Source: OECD / UIS / Eurostat (2018), Table C3.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Changes in the share of public and private expenditure on educational institutions

Educational institutions from primary to tertiary education are still predominantly publicly funded, although there is a substantial and growing degree of private funding devoted to cover expenses from educational institutions (Table C3.3). Between 2010 and 2015, the share of private spending on primary to tertiary educational institutions increased by 11% on average across OECD countries, while the share of public sources decreased by about 1%. Increases in the share of private funding were observed in 62% of countries, with Estonia (77%) and Spain (56%) showing the largest increases. On the contrary, Chile and Latvia experienced the largest decreases in the share of private spending supported by increases from the public sector.

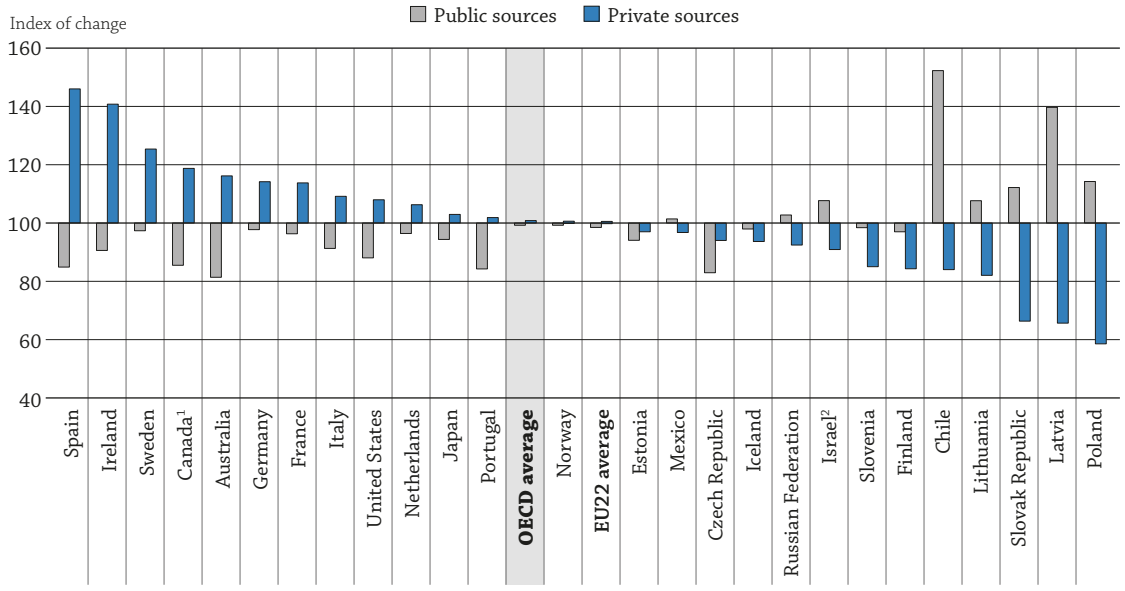
In many OECD countries, greater student enrolment in non-tertiary education (see Indicator B1) reflects strong individual and social demand. Increases in enrolment have been accompanied by increased investment mainly from private sources and changes in the proportions of public and private expenditure. The increase in the share of funding from private sources between 2010 and 2015 was stronger (30%) than for public sources (5%). These figures, however,

are strongly influenced by outliers like Estonia, Israel and Spain, where the share of private funding for non-tertiary education increased by more than 50% between 2010 and 2015. Also large increases were observed during the same period in the share of public funds, notably in Turkey and the United Kingdom (between 25% and 50%).

Although the share of public funding on tertiary institutions increased in some countries, others have fallen behind their 2010 levels. However, these reductions have been compensated by an increase of the private funding. This is the case for example for Australia, Canada and Spain, where the share of public funds decreased by 10 to 20% in 2015 compared to 2010 but the share of private funds increased by 15% to 50% (Table C3.3 and Figure C3.3).

Figure C3.3. Change in relative share of public and private expenditure on tertiary educational institutions (between 2010 and 2015)

Final source of funds, 2010 = 100



1. Primary education includes pre-primary programmes.

2. Private expenditure on government-dependent private institutions is included under public institutions.

Countries are ranked in descending order of the change in the share of private expenditure on tertiary educational institutions between 2010 and 2015.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933804489

Public transfers to the private sector

The financial resources devoted to covering expenses from educational institutions combine contributions from governments, international institutions, private institutions and individual students and their families. A large share of government spending goes directly to educational institutions, but governments also transfer funds to educational institutions through various other allocation mechanisms (through 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 attributable for 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. Since aid for student living costs can also serve as a substitute for labour income, public transfers may enhance educational attainment by enabling students to study full time.

Public transfers to the private sector play an important role in the financing of tertiary education (Table C3.2 and Figure C3.1). In countries where tertiary education is expanding, and particularly in those in which students are charged tuition fees, public-to-private transfers of funds are often seen as a means to expand 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.

On average across OECD countries, 5% of the total funds are transfers from the public sector to the private sector to cover expenditures on tertiary educational institutions. In 2015, in 3 of the 24 countries with available data, between 20% and 30% of the total funds devoted to tertiary educational institutions were transferred to households or private entities from the government or international sources. Conversely, public transfers were below 1% in countries such as Austria, the Czech Republic, Estonia, Hungary, Iceland and Portugal. Those countries with the highest transfers are also those with the highest tuition fees. However, some countries have high private spending without a large support from the government (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 the flow of transfers. **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, and business and labour associations).

Public subsidies include public and international transfers such as scholarships and other financial aid to students plus certain subsidies to other private entities.

Methodology

Data appearing in earlier editions of this publication may not always be comparable to data shown in the 2018 edition due to changes in definitions and coverage.

All entities that provide funds for education, either initially or as final payers, are classified as either governmental (public) sources, non-governmental (private) sources or international sources such as international agencies and other foreign sources. Figures presented here grouped together public and international expenditures for display purposes. As the share of international expenditures is relatively small compared to other sources, its integration into the public sources does not impact 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.

It should be noted that 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 under public funding.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[3]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the financial year 2015 (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 http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, 2011 to 2015 were updated based on a survey in 2017-18, and expenditures for 2005 to 2014 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), *Education at a Glance Database*, https://stats.oecd.org/ (accessed on 06 July 2018). [1]

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. [3]

OECD (2017), "Who really bears the cost of education? : How the burden of education expenditure shifts from the public to the private sector", *Education Indicators in Focus*, No. 56, OECD Publishing, Paris, http://dx.doi.org/10.1787/4c4f545b-en. [2]

Indicator C3 Tables

StatLink https://doi.org/10.1787/888933804375

Table C3.1	**Relative proportions of disaggregated public, private and international expenditure on educational institutions (2015)**
Table C3.2	**Distribution of public, private and international sources of funds for educational institutions before and after transfers (2015)**
Table C3.3	**Trends in the relative proportion of public expenditure on educational institutions and index of change in the relative share of public, private and international expenditure from primary to tertiary levels (2005 to 2015)**

Cut-off date for the data: 18 July 2018. 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.

C3

Table C3.1. Relative proportions of disaggregated public, private and international expenditure on educational institutions (2015)

Distribution of public, private and international sources of funds for educational institutions after tranfers from public sources (final source of funds), 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	Australia	81	17	2	19	0	38	50	12	62	x(6)	66	28	6	34	x(11)
	Austria	95	3	1	5	a	94	3	3	6	a	95	3	2	5	a
	Belgium	97	3	0	3	0	83	9	6	14	3	93	5	2	6	1
	Canada[1, 2]	90[d]	4[d]	5[d]	10[d]	m	49	28	22	51	0	74[d]	14[d]	12[d]	26[d]	m
	Chile[1, 3]	83	16	1	17	m	32	57	10	68	m	63	33	4	37	m
	Czech Republic	92	7	2	8	0	65	8	12	20	15	84	7	5	12	4
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	93	6	1	7	0	71	6	17	24	5	85	6	7	13	2
	Finland	99	1	0	1	x(1)	93	0	3	3	4	98	1	1	2	x(11)
	France	91	8	1	9	0	78	11	10	20	2	87	9	4	12	1
	Germany	87	x(4)	x(4)	13	0	83	x(9)	x(9)	15	2	86	x(14)	x(14)	14	1
	Greece	93	7	0	7	0	73	x(10)	x(10)	12	15	88	x(14)	x(14)	8	4
	Hungary	93	x(4)	x(4)	7	0	63	x(10)	x(10)	37	0	86	x(14)	x(14)	14	0
	Iceland	96	3	0	4	0	89	8	1	8	2	95	4	0	5	1
	Ireland	95	5	a	5	a	74	22	5	26	a	90	9	1	10	a
	Israel	90	7	3	10	0	58	26	16	42	0	82	12	6	18	0
	Italy	92	5	0	5	2	62	28	7	35	3	85	11	2	12	2
	Japan	92	5	2	8	0	32[d]	52[d]	16[d]	68[d]	0[d]	72	21	7	28	0
	Korea[1]	87	12	1	13	a	36	45	18	64	a	71	22	7	29	a
	Latvia	97	2	0	2	1	73	21	1	23	5	90	8	0	9	2
	Luxembourg	95	2	0	3	3	92	2	2	4	3	94	2	0	3	3
	Mexico	83	17	0	17	0	71	29	0	29	0	80	20	0	20	0
	Netherlands	87	5	8	12	0	68	16	13	29	3	81	8	10	18	1
	New Zealand	83	12	5	17	0	52	34	15	48	0	74	18	8	26	0
	Norway	99	1	0	1	0	96	4	0	4	0	99	1	0	1	0
	Poland	91	8	0	8	1	79	14	2	16	5	87	10	1	11	2
	Portugal	86	11	0	11	3	58[d]	26[d]	6[d]	32[d]	10[d]	79	15	1	16	4
	Slovak Republic	89	6	5	11	0	79	10	9	20	1	85	8	6	14	1
	Slovenia	90	9	0	10	0	83	11	2	13	4	88	10	1	10	1
	Spain	86	13	1	14	0	66	29	3	32	2	81	17	2	19	1
	Sweden	100	a	a	a	a	85	1	10	11	4	95	0	3	3	1
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	81	14	5	19	0	75	12	12	25	0	79	13	8	21	0
	United Kingdom	87	11	3	13	0	25	48	23	71	4	68	22	9	31	1
	United States	91	9	0	9	a	35	46	18	65	a	68	25	8	32	a
	OECD average	90	8	2	9	0	66	22	9	31	3	83	12	4	16	1
	EU22 average	92	6	1	8	1	73	15	8	22	5	87	8	3	11	2
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
	Colombia[3]	77	23	0	23	0	36	64	0	64	0	62	38	0	38	0
	Costa Rica	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	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	95	3	2	5	1	72	18	7	25	3	86	8	4	12	2
	Russian Federation	95	4	1	5	0	64	23	12	35	1	83	11	5	16	0
	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: 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. Excluding international sources.
2. Primary education includes data from pre-primary and lower secondary education.
3. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C3.2. Distribution of public, private and international sources of funds for educational institutions before and after transfers (2015)

By level of education and source of funding

		Primary, secondary and post-secondary non-tertiary						Tertiary						Primary to tertary					
		Initial funds (before transfers between public and private sectors)			Final funds (after transfers between public and private sectors)			Initial funds (before transfers between public and private sectors)			Final funds (after transfers between public and private sectors)			Initial funds (before transfers between public and private sectors)			Final funds (after transfers between public and private sectors)		
		Public	Private	International	Public	Private	International	Public	Private	International	Public	Private	International	Public	Private	International	Public	Private	International
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Australia	81	19	0	81	19	0	63	37	x(7)	38	62	x(10)	75	25	x(13)	66	34	x(16)
	Austria	97	3	a	95	5	a	94	6	a	94	6	a	96	4	a	95	5	a
	Belgium	98	2	0	97	3	0	87	10	3	83	14	3	95	4	1	93	6	1
	Canada[1]	m	m	m	90[d]	10[d]	m	m	m	m	49	51	0	m	m	m	74	26	m
	Chile[2]	m	m	m	83	17	m	m	m	m	32	68	m	m	m	m	63	37	m
	Czech Republic	92	8	0	92	8	0	65	20	15	65	20	15	84	12	4	84	12	4
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	78	7	15	93	7	0	69	24	7	71	24	5	75	13	12	85	13	2
	Finland	m	m	x(1)	99	1	x(4)	m	m	x(7)	93	3	4	m	m	x(13)	98	2	x(16)
	France	93	7	0	91	9	0	81	18	2	78	20	2	90	10	1	87	12	1
	Germany	m	m	m	87	13	0	m	m	m	83	15	2	m	m	m	86	14	1
	Greece	m	m	m	93	7	0	m	m	m	73	12	15	m	m	m	88	8	4
	Hungary	m	m	m	93	7	0	63	37	0	63	37	0	86	14	0	86	14	0
	Iceland	96	4	0	96	4	0	89	8	2	89	8	2	95	5	1	95	5	1
	Ireland	95	5	a	95	5	a	90	7	4	74	26	a	93	6	1	90	10	a
	Israel	m	m	m	90	10	0	m	m	m	58	42	0	m	m	m	82	18	0
	Italy	92	5	2	92	5	2	72	25	3	62	35	3	88	10	2	85	12	2
	Japan	m	m	m	92	8	0	m	m	m	32[d]	68[d]	0[d]	m	m	m	72	28	0
	Korea	m	m	m	87	13	a	m	m	m	36	64	a	m	m	m	71	29	a
	Latvia	89	2	8	97	2	1	63	22	15	73	23	5	81	8	10	90	9	2
	Luxembourg	95	3	3	95	3	3	93	4	3	92	4	3	95	3	3	94	3	3
	Mexico	84	16	0	83	17	0	73	27	0	71	29	0	81	19	0	80	20	0
	Netherlands	m	m	m	87	12	0	m	m	m	68	29	3	m	m	m	81	18	1
	New Zealand	85	15	0	83	17	0	72	28	0	52	48	0	81	19	0	74	26	0
	Norway	100	0	0	99	1	0	99	1	0	96	4	0	100	0	0	99	1	0
	Poland	90	8	2	91	8	1	88	7	5	79	16	5	89	8	3	87	11	2
	Portugal	86	11	3	86	11	3	57[d]	32[d]	11[d]	58[d]	32[d]	10[d]	79	16	5	79	16	4
	Slovak Republic	85	8	7	89	11	0	48	18	34	79	20	1	72	11	17	85	14	1
	Slovenia	90	10	1	90	10	0	78	13	9	83	13	4	87	10	3	88	10	1
	Spain	86	14	0	86	14	0	69	29	2	66	32	2	81	18	1	81	19	1
	Sweden	100	a	a	100	a	a	85	1	4	95	3	1	95	3	1	95	3	1
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	m	m	m	81	19	0	m	m	m	75	25	0	m	m	m	79	21	0
	United Kingdom	89	11	0	87	13	0	52	44	4	25	71	4	78	21	1	68	31	1
	United States[3]	91	9	a	91	9	a	38	62	a	35	65	a	69	31	a	68	32	a
	OECD average	91	8	2	90	9	0	73	21	6	66	31	3	85	12	3	83	16	1
	EU22 average	91	7	3	92	8	1	74	19	8	73	22	5	86	10	4	87	11	2
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
	Colombia	77	23	0	77	23	0	m	m	m	36	64	0	m	m	m	62	38	0
	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
	Lithuania	93	4	3	95	5	1	52	25	23	72	25	3	78	12	10	86	12	2
	Russian Federation	m	m	m	95	5	0	m	m	m	64	35	1	m	m	m	83	16	0
	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: 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 data from pre-primary and lower secondary education.

2. Year of reference 2016.

3. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 relative proportion of public expenditure on educational institutions and index of change in relative share of public, private and international expenditure from primary to tertiary levels (2005 to 2015)

Index of change of public, private and international sources of funds for educational institutions (final source of funds), by year

		Primary to tertiary											
		Share of public expenditure on educational institutions (%)			Index of change in relative share of expenditure on educational institutions (2010 = 100)								
					Public sources			Private sources			International sources		
		2005	2011	2015	2005	2011	2015	2005	2011	2015	2005	2011	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia	73	73	66	98	98	89	106	105	131	x(4)	x(5)	x(6)
	Austria	m	m	95	m	m	m	m	m	m	m	m	m
	Belgium	93	94	93	99	100	99	m	m	m	89	120	121
	Canada[1]	75[d]	76[d]	74[d]	99[d]	100[d]	96[d]	104[d]	101[d]	112[d]	m	m	m
	Chile	50	55	63	90	98	115	113	103	81	m	m	m
	Czech Republic	88	88	84	101	100	96	97	97	94	m	m	m
	Denmark	98	96	m	101	100	m	78	115	m	m	m	m
	Estonia	92	93	85	99	101	92	109	90	177	m	m	m
	Finland	98	98	98	100	100	100	97	100	89	m	m	m
	France	89	88	87	101	99	99	94	104	110	72	117	143
	Germany	86	87	86	99	100	99	106	99	105	66	89	111
	Greece	94	m	88	m	m	m	m	m	m	m	m	m
	Hungary	91	m	86	m	m	m	m	m	m	m	m	m
	Iceland	95	95	95	100	100	99	101	100	99	m	m	m
	Ireland	94	92	90	101	100	97	83	103	134	m	m	m
	Israel[2]	82	78	82	100	96	100	98	119	99	m	m	m
	Italy	91	89	85	102	99	95	85	109	122	m	m	m
	Japan	72	73	72	98	99	98	106	102	104	m	m	m
	Korea	m	m	71	m	m	m	m	m	m	m	m	m
	Latvia	83	84	90	99	101	108	126	110	72	44	52	39
	Luxembourg	m	m	94	m	m	m	m	m	m	m	m	m
	Mexico	80	79	80	100	99	100	99	103	98	m	m	m
	Netherlands	83	81	81	101	99	99	97	103	103	62	105	138
	New Zealand	m	m	74	m	m	m	m	m	m	m	m	m
	Norway	m	99	99	m	100	100	m	104	147	m	m	m
	Poland	91	89	87	104	102	100	72	89	86	m	m	m
	Portugal	m	m	79	m	m	m	m	m	m	m	m	m
	Slovak Republic	84	86	85	100	102	102	99	90	87	m	m	m
	Slovenia	88	90	88	98	100	99	114	101	102	m	m	m
	Spain	89	87	81	101	99	92	89	106	156	m	m	m
	Sweden	96	96	95	100	100	99	115	112	124	80	103	101
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	m	82	79	m	m	m	m	m	m	m	m	m
	United Kingdom	m	m	68	m	m	m	m	m	m	m	m	m
	United States	72	69	68	102	98	95	96	105	112	a	a	a
	OECD average	86	85	83	100	100	99	99	103	111	m	m	m
	EU22 average	90	90	87	100	100	98	97	102	111	m	m	m
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
	Colombia	m	m	64	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
	Lithuania	m	87	86	m	100	99	m	99	107	m	104	127
	Russian Federation	m	83	83	m	101	102	m	97	89	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: 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. Private expenditure on government-dependent private institutions is included under public institutions.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

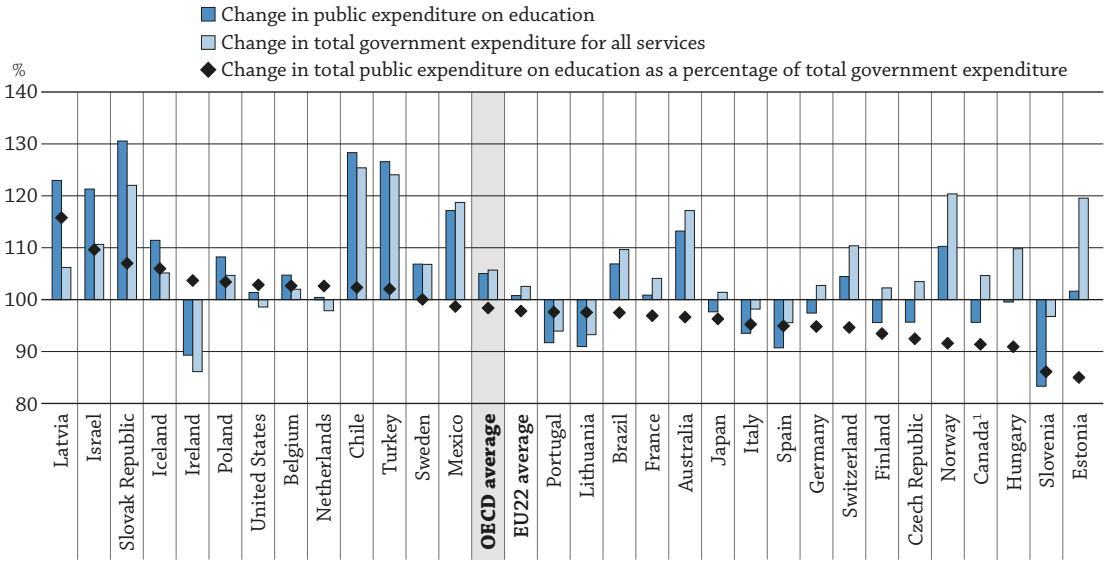
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WHAT IS THE TOTAL PUBLIC SPENDING ON EDUCATION?

- Total public spending on primary to tertiary education as a percentage of total government expenditure averages 11% across OECD countries, and it ranges from around 6% to around 17%.
- Between 2011 and 2015, the average share of total government expenditure devoted to public spending on primary to tertiary education remained relatively stable across OECD countries, at around 11%. In half of OECD countries, the share decreased, while in others the share increased by more than 10% over the same period.
- In non-tertiary education (primary, secondary and post-secondary non-tertiary levels), spending is decentralised, with 58% of final funds managed by regional and local governments. In tertiary education, on average, 85% of final public funds (after transfers between levels of government) come from the central government.

Figure C4.1. Change in total public expenditure on education as a share of total government expenditure between 2011 and 2015

Primary to tertiary education (2011 = 100, constant prices)



1. Primary education includes pre-primary.

Countries are ranked in descending order of the change in total public expenditure on primary to tertiary education as a percentage of total government expenditure.

Source: OECD / UIS / Eurostat (2018), Table C4.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 necessary 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. Budget cuts can represent better 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

- In 2015, public transfers and payments to the non-educational private sector for primary to tertiary education represented 1% of total government expenditure and accounted for 9% of public expenditure on education, with the remaining 91% corresponding to direct expenditure on educational institutions.
- 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 education at lower levels.
- The proportion of government expenditure devoted to primary to tertiary education decreased between 2005 and 2015 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, Brazil and Israel, where the increase was just over 2.5 percentage points.
- On average across OECD and partner countries, the funds transferred from central to regional and local levels of government at non-tertiary levels of education are larger than at tertiary level. On average across OECD countries, the 56% of public funds for non-tertiary education provided by the central government drop to 42% after transfers between levels of government are accounted for. As a result, the share of local funds rises from 24% to 39%.

C4

Analysis

Overall level of public resources invested in education

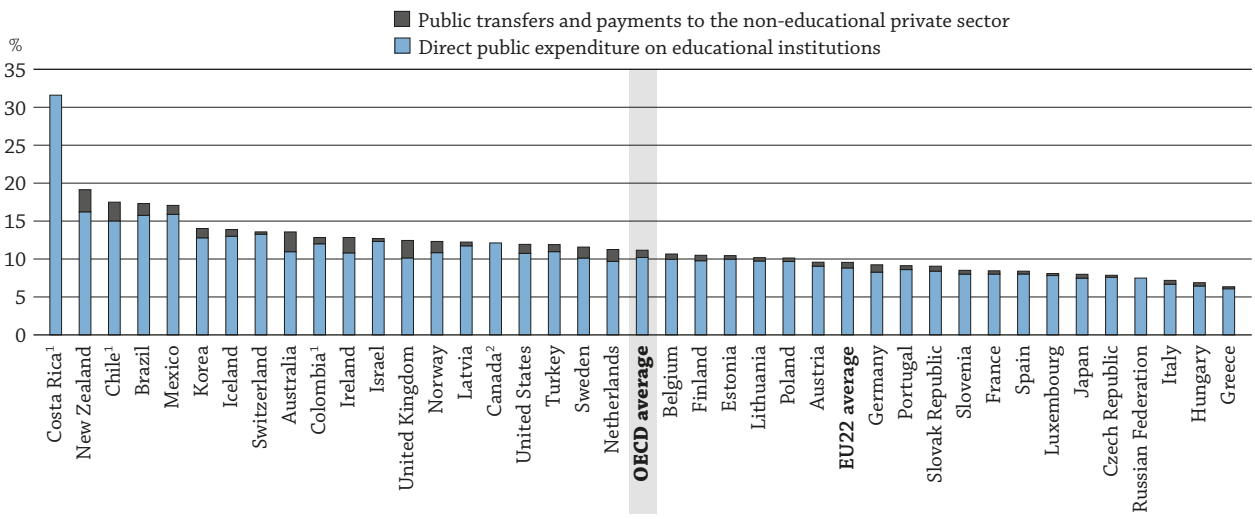
Countries differ in the share of total public expenditure devoted to education. In 2015, total public expenditure on primary to tertiary education as a percentage of total government expenditure for all services averaged 11% in OECD countries. However this share varies across OECD and partner countries, ranging from around 6% in Greece and Hungary to at least 17% in Chile, Mexico and New Zealand, and around 30% in Costa Rica (Table C4.1 and Figure C4.2).

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 8.1% of total government expenditure) was devoted to non-tertiary education. 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 (Table C4.1), and the fact that in many OECD countries, the funding structure for tertiary education is largely private.

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 Hungary, Israel, Luxembourg and Portugal to around 35% in Austria, Estonia, the Slovak Republic and Turkey (Table C4.1).

Figure C4.2. Composition of total public expenditure on education as a percentage of total government expenditure (2015)

Primary to tertiary education



1. Year of reference 2016.

2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of total public expenditure on primary to tertiary education as a percentage of total government expenditure.

Source: OECD / UIS / Eurostat (2018), Table C4.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Total public expenditure on education includes direct expenditure on institutions (such as 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 C4.2). In 2015, these public expenditures represented 1% of total government expenditure and accounted for 9% of public expenditure on education, with the remaining 91% corresponding to direct expenditure on educational institutions.

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, Chile, Ireland, New Zealand and the United Kingdom, and less than 0.3% in the Czech Republic, Greece and Luxembourg.

The relative size of public budgets must be taken into account when considering public spending on education as a share of total government expenditure. Total public expenditure on education as a share of gross domestic product (GDP) presents quite a different picture. In 2015, total public expenditure on primary to tertiary education as a share of GDP was 4.5% on average across OECD countries. Across OECD and partner countries, it ranged from 3.3% or below in the Czech Republic, Japan and the Russian Federation to around 7% in Norway.

The share of total government expenditure as a proportion of GDP varies greatly among countries (Table C4.1). In 2015, almost one-third of countries with available data reported that total government expenditure on all services was more than 50% of GDP, including Finland (57%) and Norway (58%) with the highest shares. As noted above, 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 (3.7% compared to the OECD average of 4.5%). This can be explained by the relatively low level of total government expenditure compared to GDP in Ireland (29%).

Changes in total public expenditure on education as a percentage of total government expenditure, 2005-15

OECD spending patterns remained relatively stable between 2005 and 2015 (Table C4.3), at around 11% on primary to tertiary education. However, over this period, the share of total government expenditure on primary to tertiary education within total government expenditure decreased by 0.5 percentage points on average across OECD countries and in more than 70% of countries with available data, for both 2005 and 2015. The decrease was especially substantial (3.0 percentage points) in Mexico and Slovenia, while Brazil, Chile and Israel experienced the largest increases (just over 2.5 percentage points).

Total expenditure dropped slightly between 2005 and 2011, mainly due to the 2008 financial crisis. During this period, total public expenditure on primary to tertiary education as a percentage of total public expenditure decreased in two-thirds of OECD countries (20 of 30 countries with available data for this period), and by 0.4 percentage points on average. Countries such as Mexico, Iceland and Lithuania were severely hit during this period and the share of total public expenditure on primary to tertiary education as a percentage of total public expenditure fell by just over 2 percentage points. Exceptions to that trend included Brazil, Chile and Israel, which showed increases just over 2 percentage points (Table C6.3).

A similar tendency has been observed in the years following the crisis, between 2011 and 2015, likely due in part to countries facing pressure to pursue fiscal consolidation (Table C6.3 and Figure C4.1). Despite the fact that public expenditure on primary to tertiary education increased over that period in a large number of countries, high increases were also observed in total government expenditure. Over this four-year period, only about 40% of countries with available data increased their share of public expenditure on education within total government expenditure, with Israel and Latvia showing the greatest increase (around 1 percentage point) whereas 80% of them increased total government expenditure for all goods and services. However, in 18 OECD and partner countries the increase in public expenditure on education was lower than the increase in government spending overall. Notable cases are Estonia, Norway and Slovenia, where the relative increase in total government expenditure was between 10 and 20 percentage points higher than the increase in public expenditure on education. In 6 out of these 18 countries, public expenditure on education actually declined between 2011 and 2015, while total government expenditure rose (Table C4.3 and Figure C4.1).

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 both at the level of government where the funds originate and the level of government at which they are finally spent. At the initial sources of education funding, decisions are made on the volume of resources allocated and any restrictions on how that money can be spent. 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).

In some countries, education funding is centralised, while in others it can be decentralised, with funds transfers 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 the ability to raise education funds. Wide variability in education standards and resources can also lead to inequality of educational opportunity and insufficient attention 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 public at large 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[1]).

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 2015, on average across OECD countries, 56% of the public funds for non-tertiary education came from the central government before transfers to the various levels of government, compared to 86% of the funds for tertiary education (Table C4.2).

The division of responsibility for funding in non-tertiary levels of education varies greatly among countries (Table C4.2 and Figure C4.3):

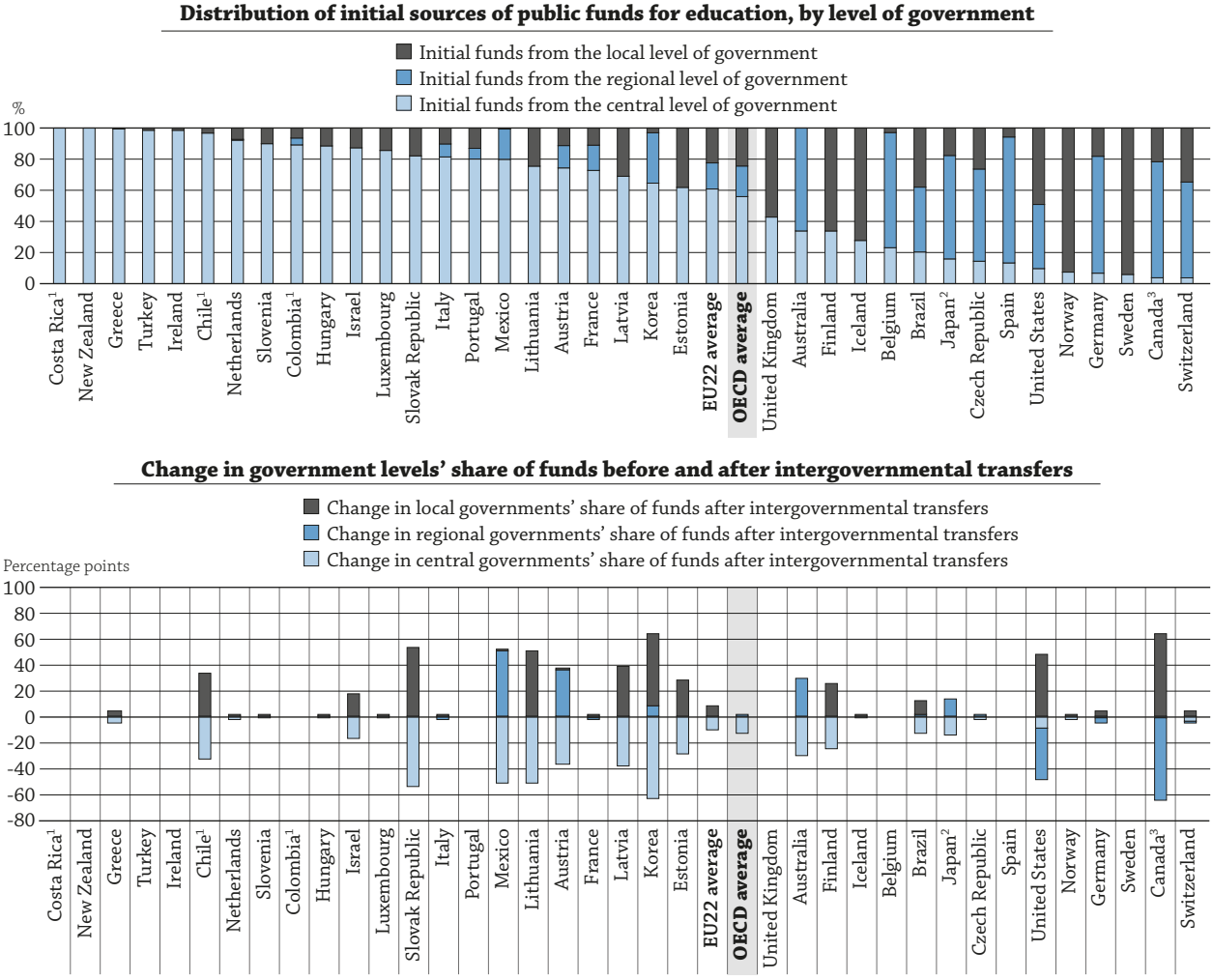
- On average, central and regional governments are the main initial and final sources of funds in non-tertiary education. However, the central government is the only main initial source of funds and the only final purchaser of educational services in Costa Rica and New Zealand. In countries such as Chile, Colombia, France, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Portugal, Slovenia and Turkey, the central government is still the source of the majority of initial funds and the main final purchaser of educational goods and services. In contrast, in Canada, Germany, Norway, Poland, Sweden, Switzerland and the United States, the central government generates and spends less than 10% of education funds.
- In Austria, Estonia, Korea, Lithuania, Mexico and the Slovak Republic, the central government is the main initial source of funds, but regional and local authorities are the main final purchasers of educational services.
- Regional governments are both the main initial source and the main final spender of education funds in Australia, Belgium, the Czech Republic, Germany, Spain and Switzerland. In Brazil and Canada, regional governments are the predominant source of initial funds, but local authorities are the main final purchasers of educational services.
- In Finland, Norway, the United Kingdom and the United States, local authorities are both the main initial source of funds as well as the main final purchasers of educational services.

On average across OECD countries, more funds are transferred from central to regional and local levels of government in non-tertiary education than in tertiary education. This extends the scope for decentralisation at non-tertiary levels of education. On average across OECD countries, the 56% of public funds for non-tertiary education provided by the central government drop to 42% after transfers to other levels of government are accounted for, while the share of local funds rises as a result from 24% to 39%. There is great variation between countries in the source of funds after transfers from central to lower levels of government. In Korea, Lithuania, Mexico 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, Finland and Latvia, the difference is between 25 and 40 percentage points. In Canada and the United States, the share of regional funding decreases 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 among levels of government (Table C4.2). Across the OECD on average, 86% of funds before transfers are managed by the central government and this barely changes when intergovernmental transfers are taken into account. In most OECD and partner countries with data available, the central government provides directly for more than 60% of public funds in tertiary education and in 15 countries, the 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 very 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 Ireland and the United States, where around 10% of the funds are generated and spent by local governments.

Figure C4.3. Distribution of initial sources of public funds for education and change in government levels' share of funds after intergovernmental transfers (2015)

Primary, secondary and post-secondary non-tertiary education



1. Year of reference 2016.

2. Central transfers to regional governments include local initial funds, and regional final funds also include local final funds.

3. 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 (2018), Table C4.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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, contrary to previous indicators C1, C2 and C3 that focused only on spending in educational institutions. Public expenditure on education includes expenditure by all public entities, including the ministry of education 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 are 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), non-market institutions 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[2]).

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[3]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the financial year 2015 (unless otherwise specified) and are based on the UOE data collection on education statistics administered by the OECD in 2017 (for details see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, 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

StatLink https://doi.org/10.1787/888933804508

Table C4.1	Total public expenditure on education as a percentage of total government expenditure (2015)
Table C4.2	Share of sources of total public funds devoted to education (2015)
Table C4.3	Trends in total public expenditure on education as a percentage of total government expenditure (initial sources of funds, 2005, 2011 and 2015)

Cut-off date for the data: 18 July 2018. 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.

C4

Table C4.1. Total public expenditure on education as a percentage of total government expenditure (2015)

Direct public expenditure on educational institutions plus public transfers and payments to the non-educational private sector, as a percentage of total government expenditure, by level of education

		Primary	Secondary					Post-secondary non-tertiary	Primary, secondary and post-secondary non-tertiary	Tertiary				Primary to tertiary (including R&D)		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)	Total	Of which: public transfers and payments to the non-educational private sector	
				General programmes	Vocational programmes	All programmes										
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	4.6	2.8	1.3	0.4	1.7	4.4	0.3	9.3	1.1	3.1	4.2	2.6	13.5	2.6	12.0
	Austria	1.8	2.3	0.6	1.3	1.9	4.3	0.0	6.1	0.6	2.9	3.5	2.6	9.6	0.5	8.7
	Belgium	2.9	1.6	1.3[d]	2.1[d]	3.4[d]	5.1[d]	x(3, 4, 5, 6)	7.9	0.1	2.6	2.7	2.0	10.6	0.7	10.0
	Canada[1]	5.2[d]	x(1)	x(5)	x(5)	3.6	x(13)	0.0	8.8[d]	x(11)	x(11)	3.4	2.2	12.1[d]	x(13)	x(13)
	Chile[2]	5.9	2.1	2.7	1.3	4.0	6.1	a	12.1	0.6	4.7	5.4	5.0	17.5	2.5	17.1
	Czech Republic	1.8	2.1	0.5	1.5	2.0	4.1	0.0	6.0	0.0	1.8	1.9	1.1	7.8	0.2	7.1
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	3.1	1.6	1.0	0.8	1.8	3.4	0.5	6.9	a	3.5	3.5	2.3	10.4	0.5	9.2
	Finland	2.5	2.0	0.7	2.0[d]	2.7[d]	4.7[d]	x(4, 5, 6)	7.2	a	3.3	3.3	2.3	10.5	0.7	9.4
	France	2.0	2.2	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	2.7	1.0	0.9	1.9	4.6	0.4	6.4	0.0	2.8	2.8	1.9	9.2	1.0	8.3
	Greece	2.3	1.4	0.8	0.5	1.3	2.7	0.0	5.0	a	1.4	1.4	1.0	6.3	0.0	6.0
	Hungary	1.5	1.3	1.4	0.7	2.1	3.5	0.6	5.6	0.0	1.3	1.3	1.0	6.9	0.4	6.6
	Iceland	5.2	2.4	1.6	1.1	2.7	5.1	0.1	10.4	0.1	3.4	3.4	m	13.9	0.9	m
	Ireland	4.8	2.2	2.2	a	2.2	4.4	m	9.8	x(11)	x(11)	3.1	2.3	12.8	2.0	12.1
	Israel	5.7	x(3, 4, 5)	2.9[d]	1.7[d]	4.5[d]	4.5	0.0	10.3	0.5	1.9	2.4	m	12.7	0.4	m
	Italy	2.0	1.4	x(5)	x(5)	2.1	3.5	0.2	5.7	0.0	1.5	1.5	0.9	7.2	0.5	6.6
	Japan	2.9	1.7	x(5)	x(5)	1.7[d]	3.4[d]	x(5, 6, 9, 10, 11)	6.3	0.2[d]	1.5[d]	1.7[d]	m	8.0	0.5	m
	Korea	4.9	2.9	x(5)	x(5)	3.2	6.2	a	11.1	0.3	2.6	2.9	2.1	14.0	1.2	13.2
	Latvia	4.3	2.0	1.5	1.0	2.5	4.5	0.2	9.0	0.5	2.7	3.2	2.4	12.2	0.5	11.5
	Luxembourg	3.0	1.8	0.7	1.3	2.0	3.8	0.0	6.8	0.1	1.2	1.2	1.1	8.1	0.2	7.9
	Mexico	6.4	3.4	1.8	1.2	3.0	6.4	a	12.8	x(11)	x(11)	4.2	3.1	17.0	1.2	15.9
	Netherlands	2.7	2.6	0.6	1.6	2.3	4.9	0.0	7.6	0.0	3.6	3.6	2.5	11.2	1.6	10.1
	New Zealand	5.3	3.9	3.0	0.9	3.9	7.8	0.5	13.6	0.6	4.9	5.5	4.8	19.1	2.9	18.4
	Norway	3.7	1.7	1.4	1.4	2.8	4.5	0.1	8.3	0.1	3.9	4.0	2.9	12.3	1.5	11.2
	Poland	3.6	1.7	0.7	1.2	1.9	3.6	0.0	7.2	0.0	2.9	2.9	2.5	10.1	0.5	9.6
	Portugal	2.9	2.3	x(5)	x(5)	2.1[d]	4.3[d]	x(5, 6, 10, 11, 12)	7.3	a	1.9[d]	1.9[d]	1.1[d]	9.1	0.5	8.4
	Slovak Republic	2.0	1.9	0.6	1.4	2.0	3.9	0.1	6.0	0.0	3.0	3.1	1.8	9.0	0.7	7.8
	Slovenia	2.9	1.6	x(5)	x(5)	2.0	3.5	a	6.5	x(11)	x(11)	2.0	1.7	8.5	0.5	8.2
	Spain	2.6	1.7	1.1	0.7[d]	1.9[d]	3.6[d]	x(4, 5, 6)	6.2	0.4	1.8	2.2	1.5	8.4	0.4	7.7
	Sweden	3.6	1.7	1.0	1.4	2.5	4.1	0.1	7.8	0.2	3.6	3.8	2.5	11.6	1.4	10.2
	Switzerland	4.3	2.7	1.1[d]	1.6[d]	2.6[d]	5.3[d]	x(3, 4, 5, 6)	9.6	x(11)	x(11)	3.9	2.3	13.6	0.3	11.9
	Turkey	2.9	2.3	0.9	1.5	2.4	4.7	a	7.6	x(11)	x(11)	4.3	3.4	11.9	0.9	11.0
	United Kingdom	4.4	2.0	1.7	1.2	2.9	4.9	a	9.3	0.0	3.1	3.2	2.5	12.4	2.3	11.8
	United States	4.0	2.1	x(5)	x(5)	2.2	4.4	0.0	8.4	x(11)	x(11)	3.5	3.1	11.9	1.2	11.5
	OECD average	3.5	2.1	1.3	1.2	2.5	4.5	0.2	8.1	0.3	2.7	3.0	2.3	11.1	1.0	10.2
	EU22 average	2.8	1.9	1.0	1.2	2.2	4.1	0.2	7.0	0.2	2.5	2.6	1.8	9.5	0.7	8.8
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	5.0	4.5	x(5)	x(5)	3.6[d]	8.1[d]	m	13.1	m	m	4.2	m	17.3	1.6	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	5.6	4.1	x(5)	x(5)	1.4	5.4	x(11)	x(13)	x(11)	x(11)	3.6[d]	m	14.6	1.2	m
	Costa Rica[2]	12.1	7.5	2.5	1.4	3.8	11.3	a	23.4	x(11)	x(11)	8.1	m	31.5	a	m
	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
	Lithuania	2.0	3.1	1.0	0.4	1.4	4.4	0.4	6.8	a	3.4	3.4	2.6	10.2	0.4	9.4
	Russian Federation	x(3, 5, 6)	x(3, 5, 6)	5.0[d]	0.4[d]	5.3[d]	5.3[d]	x(4, 5, 6)	5.3	0.3	1.8	2.1	2.0	7.5	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: 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 Tables C1.2 and C2.2.

1. Primary education includes pre-primary programmes.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C4.2. Share of sources of total public funds devoted to education (2015)

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	Australia	34	66[d]	x(2)	4	96[d]	x(5)	93	7[d]	x(8)	90	10[d]	x(11)	52	48[d]	x(14)	31	69[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	83	1	14	85	1	21	76	3	21	77	3
	Canada[1]	4[d]	75[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	64	a	36	100	a	0	100	a	0	98	a	2	75	a	25
	Czech Republic	14	59	26	13	61	26	96	2	2	96	2	2	34	46	21	32	47	21
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	62	a	38	33	a	67	100	a	0	100	a	0	75	a	25	56	a	44
	Finland	34	a	66	9	a	91	100	a	0	100	a	0	55	a	45	38	a	62
	France	73	16	11	72	16	12	85	10	5	85	10	5	76	15	9	76	14	10
	Germany	7	75	18	6	72	22	28	70	2	18	79	2	13	74	13	10	74	16
	Greece	100	a	0	95	a	5	100	a	0	100	a	0	100	a	0	96	a	4
	Hungary	89	a	11	88	a	12	100	a	0	100	a	0	91	a	9	91	a	9
	Iceland	28	a	72	27	a	73	100	a	a	100	a	a	46	a	54	45	a	55
	Ireland	99	a	1	99	a	1	87	a	13	87	a	13	96	a	4	96	a	4
	Israel	87	a	13	70	a	30	98	a	2	97	a	3	89	a	11	75	a	25
	Italy	81	8	10	81	7	12	87	12	0	86	14	0	83	9	8	82	8	9
	Japan[3]	16	66	18	2	80	18	92[d]	8[d]	0[d]	92[d]	8[d]	0[d]	32	54	14	21	65	14
	Korea	65	32	3	1	40	58	97	2	1	97	2	1	71	26	3	21	32	46
	Latvia	69	a	31	31	a	69	100	a	0	100	a	0	77	a	23	49	a	51
	Luxembourg	86	a	14	85	a	15	100	a	0	100	a	0	88	a	12	87	a	13
	Mexico	80	20	0	29	71	0	79	21	0	77	23	0	80	20	0	41	59	0
	Netherlands	93	0	7	90	0	10	100	0	a	100	0	a	95	0	5	94	0	6
	New Zealand	100	a	a	100	a	a	100	a	a	100	a	a	100	a	a	100	a	a
	Norway	7	a	93	5	a	95	98	a	2	98	a	2	37	a	63	36	a	64
	Poland	m	m	m	4	2	95	m	m	m	100	0	0	m	m	m	31	1	67
	Portugal	80	7	13	80	7	13	100[d]	0[d]	0[d]	100[d]	0[d]	0[d]	84	5	10	84	5	10
	Slovak Republic	82	a	18	29	a	71	100	a	0	100	a	0	88	a	12	53	a	47
	Slovenia	90	a	10	90	a	10	99	a	1	99	a	1	92	a	8	92	a	8
	Spain	13	81	6	13	81	6	19	80	1	19	80	1	15	81	5	15	81	5
	Sweden	6	a	94	6	a	94	98	2	0	98	2	0	37	1	63	37	1	63
	Switzerland	4	62	35	1	61	39	33	67	0	17	83	0	12	63	25	5	67	27
	Turkey	99	a	1	99	a	1	100	a	0	100	a	0	99	a	1	99	a	1
	United Kingdom	43	a	57	43	a	57	100	a	0	100	a	0	57	a	43	57	a	43
	United States	10	41	49	1	2	97	50	39	11	50	39	11	22	40	38	15	13	72
	OECD average	56	20	24	42	19	39	86	12	2	85	13	2	65	17	18	55	18	27
	EU22 average	61	17	22	49	37	34	86	13	1	86	25	1	68	16	16	60	31	24
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	20	42	38	8	44	48	80	20	1	79	20	1	35	36	29	25	38	36
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	89	4	6	89	4	6	97	3	0	97	3	0	91	4	5	91	4	5
	Costa Rica[2]	100	a	a	100	a	a	100	a	a	100	a	a	100	a	a	100	a	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
	Lithuania	75	a	25	24	a	76	99	a	1	99	a	1	83	a	17	49	a	51
	Russian Federation	m	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	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: Some levels of education are included with others. Refer to "x" code in Table C4.1 for details.

1. Primary education includes pre-primary programmes.

2. Year of reference 2016.

3. Central transfers to regional governments include local initial funds, and Regional final funds also include local final funds.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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C4

Table C4.3. Trends in total public expenditure on education as a percentage of total government expenditure (initial sources of funds, 2005, 2011 and 2015)

Direct public expenditure on educational institutions plus public subsidies to households and other private entities, as a percentage of total government expenditure, by level of education, by year

		Primary, secondary and post-secondary non-tertiary			Tertiary			Primary to tertiary					
		Public expenditure as a percentage of total government expenditure			Public expenditure as a percentage of total government expenditure			Public expenditure as a percentage of total government expenditure			Index of change between 2011 and 2015		
											Total public expenditure on education	Total government expenditure	Total public expenditure on education as a percentage of total government expenditure
		2005	2011	2015	2005	2011	2015	2005	2011	2015			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia	10.6	10.6	9.3	3.1	3.4	4.2	13.7	14.0	13.5	113.2	117.2	96.6
	Austria	m	m	6.1	m	m	3.5	m	m	9.6	m	102.8	m
	Belgium	7.7	7.8	7.9	2.5	2.6	2.7	10.2	10.4	10.6	104.7	102.0	102.7
	Canada[1]	m	8.7	8.8[d]	m	4.6	3.4	m	13.3	12.1[d]	95.6[d]	104.6	91.4[d]
	Chile	11.2	11.6	10.8	2.0	3.9	5.0	13.3	15.4	15.8	128.3	125.4	102.3
	Czech Republic	m	m	6.0	m	m	1.9	8.1	8.5	7.8	95.7	103.5	92.5
	Denmark	m	m	m	m	m	m	14.1	12.4	m	m	101.4	m
	Estonia	m	m	6.9	m	m	3.5	13.1	12.3	10.4	101.6	119.6	85.0
	Finland	7.7	7.4	7.2	3.9	3.8	3.3	11.6	11.2	10.5	95.6	102.3	93.5
	France	m	6.5	6.2	2.2	2.2	2.2	9.1	8.7	8.4	100.9	104.1	96.9
	Germany	6.5	6.8	6.4	2.4	3.0	2.8	8.9	9.7	9.2	97.4	102.7	94.8
	Greece	m	m	5.0	m	m	1.4	8.7	m	6.3	m	89.6	m
	Hungary	6.8	5.4	5.6	2.0	2.2	1.3	8.9	7.6	6.9	99.8	109.8	90.9
	Iceland	m	m	10.4	m	m	3.4	15.6	13.1	13.9	111.4	105.1	106.0
	Ireland	m	m	9.8	m	m	3.1	13.6	12.4	12.8	89.3	86.1	103.7
	Israel	7.8	9.3	10.3	2.1	2.2	2.4	9.9	11.6	12.7	121.3	110.6	109.6
	Italy	m	m	5.7	m	m	1.5	8.1	7.5	7.2	93.5	98.2	95.2
	Japan	m	m	6.3	m	m	1.7[d]	8.6	8.3	8.0	97.6	101.4	96.3
	Korea	10.2	11.5	11.1	m	m	2.9	m	m	14.0	m	111.6	m
	Latvia	9.8	8.0	9.0	2.4	2.6	3.2	12.2	10.5	12.2	123.0	106.2	115.8
	Luxembourg	m	m	6.8	m	m	1.2	m	m	8.1	m	110.0	m
	Mexico	16.2	13.6	12.8	4.1	3.7	4.2	20.3	17.3	17.0	117.2	118.7	98.7
	Netherlands	8.0	7.5	7.6	3.3	3.4	3.6	11.3	10.9	11.2	100.4	97.9	102.6
	New Zealand	m	m	13.6	m	m	5.5	m	m	19.1	m	101.0	m
	Norway	m	m	8.3	m	m	4.0	15.0	13.4	12.3	110.3	120.4	91.6
	Poland	8.4	7.3	7.2	2.6	2.5	2.9	11.0	9.8	10.1	108.2	104.7	103.4
	Portugal	m	m	7.3	m	m	1.9[d]	9.7	9.3	9.1	91.7	93.9	97.6
	Slovak Republic	m	m	6.0	m	m	3.1	8.2	8.4	9.0	130.6	122.0	107.0
	Slovenia	m	m	6.5	m	m	2.0	11.5	9.9	8.5	83.3	96.8	86.1
	Spain	m	m	6.2	m	m	2.2	9.4	8.8	8.4	90.7	95.6	94.9
	Sweden	8.1	7.8	7.8	3.4	3.8	3.8	11.5	11.5	11.6	106.8	106.8	100.0
	Switzerland	10.4	9.9	9.6	4.1	4.5	3.9	14.5	14.3	13.6	104.5	110.4	94.6
	Turkey	m	7.2	7.6	m	4.5	4.3	m	11.6	11.9	126.6	124.1	102.0
	United Kingdom	m	m	9.3	m	m	3.2	m	m	12.4	m	100.2	m
	United States	9.2	8.2	8.4	3.5	3.4	3.5	12.7	11.6	11.9	101.4	98.6	102.8
	OECD average	m	m	8.0	m	m	3.0	11.5	11.2	11.1	105.0	105.9	98.4
	EU22 average	m	m	7.0	m	m	2.6	10.5	10.0	9.5	100.8	102.6	97.8
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	121.0	m
	Brazil	11.7	14.3	13.1	3.0	3.4	4.2	14.7	17.7	17.3	106.9	109.6	97.5
	China	m	m	m	m	m	m	m	m	m	m	158.7	m
	Colombia	m	m	9.9	m	m	2.9[d]	m	m	12.8	m	127.1	m
	Costa Rica	m	m	15.2	m	m	4.8	m	m	20.0	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	130.0	m
	Indonesia	m	m	14.4	m	m	3.3	m	m	17.6	m	120.9	m
	Lithuania	9.6	7.0	6.8	3.0	3.4	3.4	12.6	10.4	10.2	91.0	93.3	97.5
	Russian Federation	m	m	5.3	m	m	2.1	m	m	7.5	m	100.8	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	143.0	m
	South Africa	m	m	m	m	m	m	m	m	m	m	114.9	m
	G20 average	m	m	m	m	m	m	m	m	m	m	113.8	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 educaitonal institutions. Therefore, the data presented here (before transfers) exceed those from public spending on institutions found in Tables C1.2 and C2.2. Some levels of education are included with others. Refer to "x" code in Table C4.1 for details.

1. Primary education includes pre-primary programmes.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

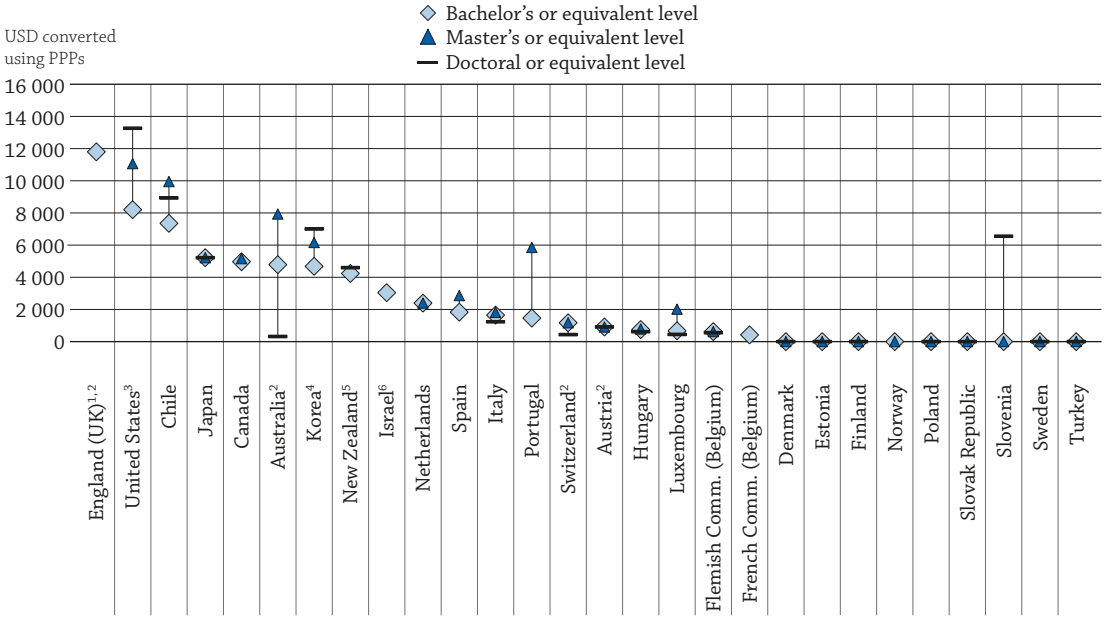
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HOW MUCH DO TERTIARY STUDENTS PAY AND WHAT PUBLIC SUPPORT DO THEY RECEIVE?

- In about one-third of the OECD countries with available data, public educational institutions do not charge any tuition fees for full-time national students enrolled in bachelor's or equivalent programmes. In a similar number of countries, tuition fees are moderate, at below USD 2 400 per year. In the remaining countries, tuition fees range from USD 3 000 to over USD 8 000 per year.
- Even if the earnings advantage for completing a master's programme or a doctorate is higher than that for attaining tertiary education at bachelor's level, public institutions in the majority of OECD countries with available data charge similar tuition fees regardless of the level of the programme. The additional charges that master's and doctoral students face are limited to the additional years of education and the delayed entry into the labour market.
- In about half of the countries with available data, foreign students are charged higher tuition fees than national students enrolled in the same programme in public institutions. On average, the difference in fees for foreign students in public institutions is over USD 7 500 per year in Australia, Canada, New Zealand and Sweden.

Figure C5.1. Tuition fees charged by public tertiary educational institutions to national students, by level of education (2015/16)

Average annual tuition fees charged to full-time national students, in equivalent USD converted using PPPs for GDP



Note: This figure does not take into account grants, subsidies or loans that partially or fully offset the student's tuition fees. Tuition fees should be interpreted with caution as they do not cover all educational institutions, but they can be considered as good proxies and show the difference among countries in tuition fees charged at different educational levels for the majority of students.

1. Government-dependent institutions. Figures are based on ISCED 5 and 6 programmes combined.
2. Year of reference 2014/15.
3. Year of reference 2011/12.
4. Year of reference 2016.
5. Estimates include universities only and are based on ISCED 5 and 6 programmes combined (excluding second programmes at ISCED 6).
6. Year of reference 2013/14.

Countries and economies are ranked in descending order of their tuition fees charged at bachelor's or equivalent level.

Source: OECD (2018), Table C5.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

With participation in upper secondary education close to universal in most OECD countries, national policies are increasingly focusing on the expansion of tertiary education. Meeting the demand while maintaining high quality creates pressure on budgets and pushes countries to increase their current level of spending or the efficiency of their expenditure on education. 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. All countries would like students to be able to afford to enter and graduate from tertiary education, but some countries prefer to invest the resources they dedicate to this goal in lower tuition fees, while others decide to offer student loans and grants to cover tuition fees and/or living costs.

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: 1) salaries of teachers and researchers (especially for institutions competing to hire the best in a global academic market); 2) development of digital learning and non-teaching services (e.g. employment services and relations with companies); 3) changes in demand for tertiary education; 4) investments to support internationalisation; and 5) the amount and type of research activities undertaken by faculty and staff. Tertiary educational 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 of the costs is covered by student tuition fees or from public sources.

Hence, policy decisions on tuition fees can affect the cost to students of tertiary education, as well as the amount of resources available to tertiary institutions. Some countries, therefore, prefer to let tertiary educational institutions charge higher tuition fees and to provide financial support to students in other ways, particularly through grants and public loans. In a number of countries, loans and grants are extended to cover also students' living costs during their studies. Public loans are often available to students at better conditions than they could find on the private market, typically with lower interest rates and/or conditions under which the loan is remitted or forgiven.

Public support to students and their families enables governments 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 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. The trade-offs between different ways to fund tertiary education have been widely discussed in the literature, from different points of view (Barr, 2004[1]) (Borck and Wimbersky, 2014[2]). 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 or family allowances, may provide less support for low-income students than means-tested subsidies, as tax reductions or family allowances are not targeted specifically to low-income students. However, such measures may still help to reduce financial disparities between households with and without children in education.

Other findings

- Financial mechanisms to support students enrolled in tertiary education such as grants, scholarships and loans are more developed in countries that charge either relatively high tuition fees or no tuition fees at all.
- Across OECD countries, those with a larger proportion of tertiary students benefitting from public loans also tend to be those in which the average annual amount of individual student loans is largest. In these countries, students borrow an annual amount that ranges on average from USD 2 000 to over USD 15 000 and receive financial support during their studies in the form of interest rate subsidies.

C5

Analysis

Differentiation of tuition fees across tertiary educational levels

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. Most national entrants into tertiary programmes enrol at bachelor's or equivalent level in OECD countries (see Indicator B4). They pay no tuition fees in public institutions in about one-third of the countries, including Denmark, Estonia, Finland, Norway, Poland, the Slovak Republic, Slovenia, Sweden and Turkey (Figure C5.1). In a similar number of countries, tuition fees are moderate, with an average cost for students below USD 2 400. In the remaining countries, tuition fees range from USD 3 000 to over USD 8 000 per year. They exceed USD 10 000 in England (United Kingdom), where the majority of students enrol in government private institutions.

Higher tertiary education after a bachelor's degree leads to better labour outcomes. Graduates with a master's, doctorate or equivalent degree have better employment opportunities, and those who attain a tertiary education at master's level have higher earnings prospects (see Indicator A4). However, even if the earnings advantage for completing a master's programme or a doctorate is higher, tuition fees in public institutions for full-time national students in master's and doctoral programmes are similar to those for bachelor's programmes in the majority of OECD countries (Table C5.1). The additional charges that master's and doctoral students face are limited to the additional years of education and the delayed entry into the labour market.

Tuition is also free of charge at master's and doctoral levels in the countries with no tuition fees at bachelor's level, except for Slovenia, where doctoral students are charged about USD 6 550 on average. In another group of countries, similar (or lower) tuition fees are charged on average across the different levels of tertiary education, as in Austria, Canada, the Flemish Community of Belgium, Hungary, Italy, Japan, Luxembourg, the Netherlands and Switzerland (Table C5.1).

Even if the earnings advantage for completing a master's programme or a doctorate is higher than that for attaining tertiary education at bachelor's level, public institutions in the majority of OECD countries with available data charge similar tuition fees regardless of the level of the programme. Tuition fees for master's programmes in public institutions are about 30% higher than for bachelor's programmes in Chile, Korea and the United States, while in Australia and Spain they are over 50% higher. In these countries, the difference in fees between master's and bachelor's programmes ranges from USD 1 000 to USD 3 100 (Table C5.1). These higher fees may limit participation at this level: in Chile, Korea, Spain and the United States tertiary entry rates in master's programmes are much lower than the OECD average (see Indicator B4). In a few countries (e.g. Australia, Hungary, Italy and Switzerland), public institutions charge lower fees for doctoral programmes than for bachelor's and master's programmes. In Australia, for example, annual average tuition fees in public institutions for doctoral programmes are about 15 times lower than for bachelor's programmes (about USD 320 compared to USD 4 785). In fact, very few national doctoral students pay any fee in Australia (less than 5% of doctoral students in public institutions). By contrast, public institutions in Chile, Korea, New Zealand, Slovenia and the United States charge higher tuition fees for doctoral programmes than for bachelor's and master's programmes.

Tuition fees for short-cycle tertiary programmes in public institutions are generally much lower. In most cases, they amount to half or less of the tuition fees in bachelor's programmes (Table C5.1). For example, in Chile and the United States, average annual tuition fees for a short-cycle tertiary programme are at least USD 4 000 less than for a bachelor's programme, while the difference ranges from USD 1 400 to USD 2 000 in Japan, Korea and Spain (in Spain tuition in short-cycle tertiary programmes is free of charge for the majority of students). The lower tuition fees in Chile, Korea and the United States can be explained by the lower earnings advantage of attaining a short-cycle tertiary qualification rather than continuing with a bachelor's or higher level programme. Tuition fees for short-cycle tertiary programmes are at the same level as bachelor's and master's programmes in the Netherlands, as well as in those countries where higher education is generally free at all levels (Denmark, Estonia, Norway, Poland, Slovenia, Sweden and Turkey).

Differentiation of tuition fees by type of institution

Ensuring an affordable education for everyone is a goal that may clash with educational institutions' need for financial resources. The way OECD countries and their education systems deal with policies on tuition fees leads to different levels of tuition fees according to the type of institution. Relying less on public funds than public institutions, independent private institutions are less affected by government regulations and may be more pressed by competition in terms of quality of services provided 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.

The difference in fees between public and private institutions is significant in several countries (Table C5.1). For national students in Australia, Japan and Korea, average tuition fees in bachelor's programmes are above USD 8 000 in independent private institutions, compared to between USD 4 500 and USD 5 300 in public institutions. In the United States, one-third of students enrol in independent private institutions, where the average annual tuition fees for a bachelor's or equivalent programme are almost two-and-a-half times higher than in public institutions, exceeding USD 20 000. In Italy, tuition fees in independent private institutions are about three times as high as in public institutions, while they are twice as high in Hungary and Israel. The tuition fees in government-dependent private institutions in the French Community of Belgium are moderate, but they are higher than in public institutions. The average annual tuition fees in independent private institutions are about USD 6 300 in Norway, about USD 2 200 in Poland, and close to USD 2 800 in the Slovak Republic, while public institutions in these three countries do not charge tuition fees at all.

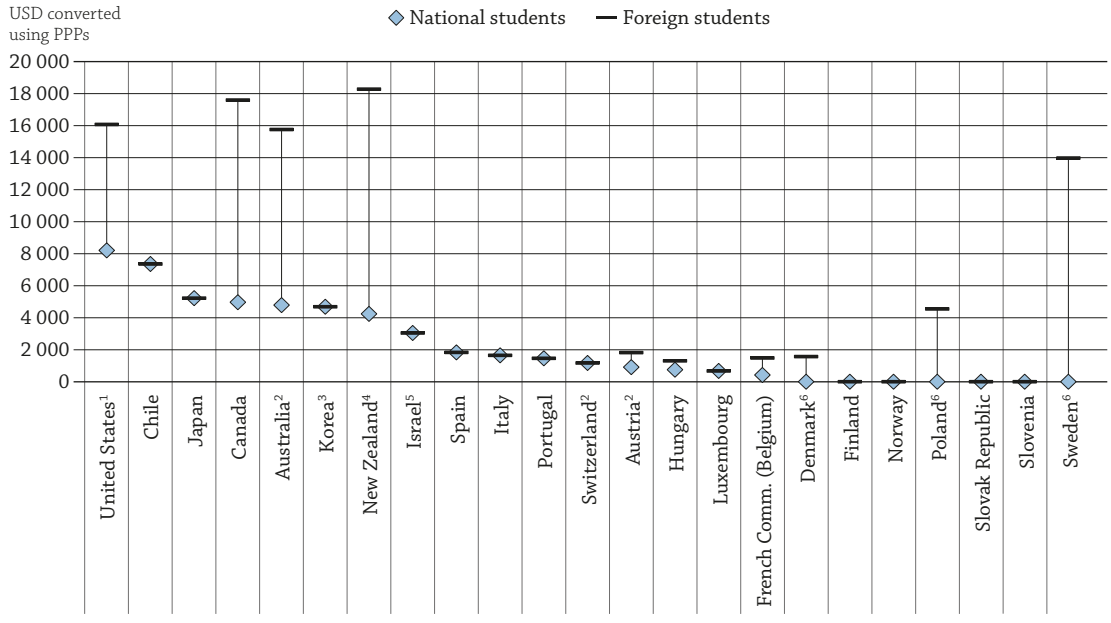
In some countries the difference in fees between public and private institutions for national students at bachelor's or equivalent level is much smaller. Public and private institutions do not charge tuition fees in Finland, Slovenia and Sweden, while government-dependent private institutions charge similar tuition fees on average in the Flemish Community of Belgium and Switzerland. However, the share of students enrolled in private institutions is relatively low in some of these countries (less than 20% in Slovenia, Sweden and Switzerland). Tuition fees are capped in public and government-dependent private institutions in Austria and in government-dependent private institutions in Norway, whereas in independent private institutions they are at the discretion of each institution.

Tuition fees for foreign students

National policies on tuition fees and financial aid to students generally cover all students studying in the country's educational institutions, including non-national students (see *Definitions* section at the end of this indicator).

Figure C5.2. Annual average tuition fees charged by public tertiary educational institutions to national and foreign students at bachelor's or equivalent level (2015/16)

Average annual tuition fees charged to full-time students, in equivalent USD converted using PPPs for GDP



1. Year of reference 2011/12.
2. Year of reference 2014/15.
3. Year of reference 2016.
4. Estimates include universities only and exclude second programmes at ISCED 6, such as postgraduate certificates and diplomas.
5. Year of reference 2013/14.
6. Tuition fees for foreign students refer to students from outside the European Economic Area or the European Union (see Table C5.1).

Countries and economies are ranked in descending order of tuition fees charged to national students.

Source: OECD (2018), Table C5.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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However, tuition fees may be higher for internationally mobile students, and differences between national and non-national students in fees or financial support can have an impact on the international flows of students, as can other factors, such as public support from their home countries (OECD, 2017[3]). 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 non-national 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, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, Portugal, Spain and Switzerland, as well as in other countries that charge no tuition fees to national or foreign students (Finland, Norway, the Slovak Republic and Slovenia) (Table C5.1). By contrast, in about half of the countries with available data, national and foreign students enrolled in the same programme in public institutions are charged different tuition fees. However, European Union (EU) and European Economic Area (EEA) countries charge the same tuition fees to nationals and students from other EU and EEA countries. The difference in fees for foreign students in public institutions is, on average, over USD 7 500 per year in Australia, Canada, New Zealand and the United States (Table C5.1). In the United States, all foreign and national students who study outside their state also 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 doctorate or equivalent programmes). In Poland and Sweden, tuition is free for national students and those from the European Union, while non-EU students pay over USD 4 500 at bachelor's level.

Distribution of financial support to students

A robust financial support system and the type of aid on which this is based are important factors in ensuring good outcomes for students in higher education (OECD, 2008[4]). 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 and scholarships. OECD governments support students' living or educational costs through different combinations of these two types of support.

On the one hand, advocates of student loans argue that they allow for scaling up of the number of students that can benefit from the available resources (OECD, 2014[5]). If the amount spent on scholarships and grants were used 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[5]). A high share of graduates with debt could be a problem if employment prospects are not sufficient to guarantee student loan repayments.

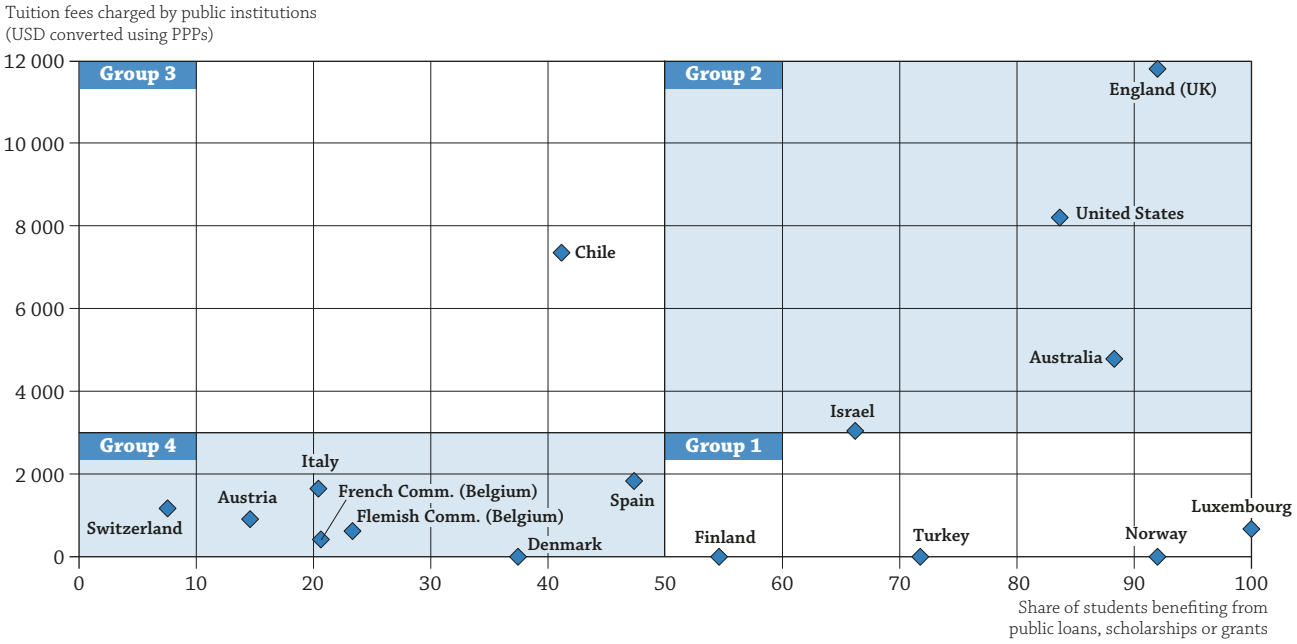
In Australia, England (United Kingdom), Norway and the United States, at least 80% of students in bachelor's or equivalent-level programmes benefit from public loans or scholarships/grants. With the exception of Norway, where tuition is free in public institutions and public support covers students' living costs, these countries also have some of the highest tuition fees among OECD countries. In Austria, the Flemish and French Communities of Belgium, Italy and Switzerland, tuition fees are moderate, and public financial support only targets a limited number of students. Those who benefit from public financial aid usually receive such support in the form of scholarships and grants. In Finland and Turkey, public institutions do not charge tuition fees, and most students benefit from scholarships/grants (Finland) or loans (Turkey) (Table C5.5, available on line).

Country approaches to funding tertiary education

OECD countries have different and evolving approaches to providing financial support to students enrolled in tertiary education. Reforms related to the level of tuition fees and the availability of scholarships, grants and loans are highly debated in national education policy, often 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.

Despite the policy changes over time within individual countries and differences across countries, national financing systems for higher education can be grouped and classified according to a number of common characteristics. Countries 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 aid system for tertiary education (OECD, 2015[6]):

Figure C5.3. Tuition fees charged by public institutions related to the share of students benefiting from public loans, scholarships or grants, at bachelor's or equivalent level (2015/16)



Note: The share of students receiving financial support for Denmark includes only students benefiting from loans, while the value for Luxembourg includes all students eligible for support. For other specific country notes, please refer to figures reported in Table C5.1 and Table C5.5, available on line.

Source: OECD (2018), Table C5.1 and Table C5.5, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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- **Group 1** includes Finland, Norway, Luxembourg and Turkey (Figure C5.3), where students are charged low or no tuition fees and the majority of students benefit from public financial support when enrolled in higher education. In these countries, the majority of students benefit from public grants, scholarships and/or loans. Turkey has recently moved to Group 1, as no tuition fees have been charged since 2012/13. Finland, however, has recently decided to introduce tuition fees for students coming from outside the EEA, which may discourage them from entering tertiary education in the country.
- **Group 2** includes Australia, Canada, England (United Kingdom), New Zealand and the United States (Figure C5.3 and Figure B5.1 in [OECD, 2014[5]]). In these countries, annual tuition fees charged by public and private institutions for bachelor's programmes are relatively high, exceeding USD 4 000. In Australia, England (United Kingdom) and the United States, at least 80% of tertiary students receive support in the form of public loans or scholarships/grants (Figure C5.3). New Zealand is gradually moving towards Group 1, progressively eliminating fees for national students entering tertiary education for the first-time from 2018 onwards. By 2024, three years of tertiary education will be free to all national first-time students. Since 1995, England (United Kingdom) moved to this group of countries, as tuition fees and financial support to students increased significantly. The Netherlands are gradually moving towards this group from Group 1, as tuition fees have increased while the student-support system has developed (see Figure B5.1 in [OECD, 2014[5]]). Israel lies between Group 1 and Group 2, as participation in tertiary education is based on relatively high student support (two-thirds of students benefit from grants, scholarships or loans), with tuition fees reaching around USD 3 000 in public institutions at bachelor's level.

- **Group 3** includes Chile (Figure C5.3), Japan and Korea (OECD, 2015[6]), where most students pay high tuition fees for bachelor's programmes in public institutions, but student-support systems are somewhat less developed than in the groups listed above. Tuition fees range from around USD 4 700 in Korea to around USD 5 200 in Japan and over USD 7 300 in Chile. However, Japan has recently implemented 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).
- **Group 4** includes most other European countries for which data are available: Austria, Belgium, France, Italy, Spain and Switzerland (OECD, 2015[6]). Financial support to students is somewhat limited, targeting a minority of students, and tuition in public institutions is not free of charge, although it is not as high as in Australia, England (United Kingdom) and the United States (OECD, 2015[6]).

In the last decade, tuition fees for bachelor's or equivalent programmes increased by 8% in Japan and by 13% to 17% in Australia, Italy and the Netherlands (Table C5.2). Tuition fees also increased in Canada, New Zealand and the United States by 20% to 23% and in England (United Kingdom) to a much larger extent. By contrast, tuition fees at this level of education decreased in real terms in Austria, Latvia and Luxembourg.

Amount of public loans and debt at graduation

Across OECD countries with available data, countries with a larger proportion of tertiary students benefitting from public loans also tend to be those in which the average annual amount of individual student loans is largest. These include countries in which tuition fees are relatively high (Group 2), such as Australia, Canada, England (United Kingdom) and the United States, as well as countries where tuition is free of charge (Group 1), such as Norway and Sweden, where the majority of students take student loans mostly to cover their living expenses. In these countries, students annually borrow on average an amount ranging from USD 4 200 (Australia) to over USD 15 000 (England [United Kingdom] at bachelor's level and the United States at master's level). The majority of these countries have however introduced income-contingent (or hybrid) loan systems, which are considered more equitable and efficient in terms of use of resources and ensure that students do not have to face unsustainable amounts of debt. With this type of loan, only graduates/students with earnings above a certain threshold are required to pay back their student loans: for example in England (United Kingdom) up to 45% of loans are not expected to be repaid (Table C5.3).

By contrast, among countries where only a smaller proportion of students benefit from a loan, in Finland (29%, government-guaranteed private loans), the French Community of Belgium (less than 1%) and Latvia (9%) the average annual gross amount borrowed by students is lower and ranges from about USD 1 500 to over USD 3 700. However, there are also countries in which less than half of the students takes a loan, such as Chile (4%), Japan (45%), Mexico (2%), the Netherlands (33%) and Switzerland (1%), where the average annual amount available per student exceeds USD 5 000 (Table C5.3).

As a result of taking loans, at least 50% of students are in debt at graduation in Finland (at bachelor's level only), Mexico (at master's and doctoral levels only), the Netherlands, New Zealand, Sweden (at bachelor's and master's levels) and the United Kingdom (OECD, 2015[6]). 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. Countries whose tertiary institutions charge high tuition fees are also those whose students have the highest levels of debt at graduation from public loans or loans guaranteed by the state. In countries with a relatively small proportion of students taking public loans, the debt burden also tends to be lighter. For example, in Finland, where about 29% of students benefit from government-guaranteed private loans, the average debt at graduation exceeds USD 9 000, while in Japan, Mexico (for master's and doctoral students only), Norway, Sweden and the United States, where at least 40% of students benefit from public loans, debt at graduation can exceed USD 20 000 at bachelor's level (Table C5.3).

Financial support through interest rates

Students often benefit from special conditions on their public loans or private loans guaranteed by the government, for example in interest rates, repayment system or remission/forgiveness mechanisms (Table C5.3). Governments often introduce these special conditions to reduce the cost of loans for students and, in case of income-contingent loans, to protect students from the uncertainty of the labour market after graduating. By doing so, governments take on a considerable part of the cost themselves and bear the risk of lending to students, who can then access capital at a cost lower than market conditions.

As the structure of interest rates offered to students, for both public and private loans, differs to some extent across countries, the cross-country comparison of interest rates offered on public loans must be treated with caution. Governments use a variety of strategies to reduce the financial burden on students, including reduced interest rates before and/or after the end of studies. Some countries charge no nominal interest rate at all on loans, while others link the interest rate to indices lower than market rates, such as the cost of government borrowing or an inflation index (Table C5.3).

In about half of the OECD countries with available data, there is no nominal interest rate on a public loan during the studies, but after this period, graduates may incur an interest charge related to the cost of government borrowing or even higher. For example, graduates are charged an interest rate after their studies in the French Community of Belgium, Canada, Chile, Japan, New Zealand (if they reside overseas), Norway, Poland and the Slovak Republic, although interest rates are usually still relatively low.

In Australia, Denmark, England (United Kingdom), Estonia, Korea, New Zealand (if graduates are still residing in the country), Sweden and the United States, the interest rate charged on student loans after the period of studies does not exceed or is lower than the rate charged during the studies.

Repayment of loans

The current reporting of public and household expenditure on tertiary education (see Indicator C3) only takes into account the gross amount of loans, without regard to the repayment of public loans extended to students by previous governments. The repayment period varies among countries, ranging from 10 years or less in Australia, Canada, Denmark, Finland, the French Community of Belgium, Luxembourg, New Zealand, the Slovak Republic and Turkey to 20 years or more in England (United Kingdom), Norway, Sweden and the United States (for income-based repayments).

Repayment systems that are dependent on the level of graduates' income exist in almost half of the countries with data available, while the other countries have traditional mortgage-style repayment systems. The income threshold for loan repayments exceeds USD 30 000 in Australia and England (United Kingdom) and is between USD 13 000 and USD 22 000 in Korea, the Netherlands and New Zealand (Table C5.3).

In addition to repayment, conditions for remission and forgiveness of student loans exist in nearly all countries with student loan systems. Among countries with available information, the proportion of students benefitting from remission and/or forgiveness varies from 5% or less in Australia, Estonia, Finland, Japan, Latvia, New Zealand, Norway and Sweden to over 10% in England (United Kingdom), the Netherlands and Poland. This translates into significant proportions of loans that are not repaid and additional cost for the public sector that extends or guarantees the loans.

The conditions to benefit from such mechanisms vary between countries. Death, disability or poor financial situation of the graduate who took the loan are common conditions for remission or forgiveness. Conditions for remission or forgiveness can also be linked to the labour market situation or to students' results. For example, in the United States, teachers and individuals in public service may apply for loan forgiveness. In Australia, graduates of specific fields (and employed in a related occupation) and graduates who take up related occupations or work in specified locations benefit from remission through a reduction of their repayments (Table C5.3).

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 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. 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 expenditures on education.

OECD indicators take the full amount of scholarships 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[7]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the school year 2015/16 and are based on a special survey administered by the OECD in 2017 (for details see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-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

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	Table C5.1	Estimated annual average tuition fees charged by tertiary educational institutions (2015/16)
	Table C5.2	Estimated change in the tuition fees charged by tertiary educational institutions (2005/06 to 2015/16) and recent tuition-fee reforms
	Table C5.3	Public loans to students, repayment and remission in tertiary education (2015/16)
WEB	Table C5.4	Average tuition fees charged by tertiary public and private institutions by field of study (2015/16)
WEB	Table C5.5	Distribution of financial support to students (2015/16)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

C5

Table C5.1. [1/2] Estimated annual average tuition fees charged by tertiary educational institutions (2015/16)

In equivalent USD converted using PPPs, by type of institutions and degree structure, based on full-time students

		Percentage of full-time national students (tertiary education) enrolled in:			Annual average tuition fees for full-time national students charged by institutions								
					Public institutions			Private institutions					
								Government-dependent private institutions			Independent private institutions		
		Public institutions	Government-dependent private institutions	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	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent
		(1)	(2)	(3)	(5)	(6)	(7)	(9)	(10)	(11)	(13)	(14)	(15)
OECD	**Countries**												
	Australia[1]	94	2	4	4 785	7 933	319	5 526	6 222	3 394	10 289	7 800	993
	Austria[1]	m	m	m	910	910	910	910	910	a	m	m	m
	Canada	m	m	m	4 965	5 158	m	m	m	m	m	m	m
	Chile	15	12	72	7 351	9 950	8 929	8 437	12 116	9 237	6 487	10 597	8 510
	Denmark[2]	m	m	m	0	0	0	m	m	m	m	m	m
	Estonia	m	m	m	0	0	0	0	0	0	m	m	m
	Finland	53	47	a	0	0	0	0	0	a	a	a	a
	Hungary	90	6	4	751	783	619	586	1 175	659	1 896	541	1 237
	Israel[3]	15	65	20	3 043	m	m	3 041	m	m	6 675	m	m
	Italy[1]	90	a	10	1 647	1 817	1 234	a	a	a	5 771	6 368	2 268
	Japan	26	a	74	5 218	5 216	5 216	a	a	a	8 411	6 943	5 762
	Korea[4]	m	m	m	4 712	6 215	6 970	a	a	a	8 419	11 426	12 175
	Latvia	7	70	24	a	a	a	1 906 to 24 912[d]	1961 to 29 894	3 388 to 18 136	1 435 to 15 346[d]	2 152 to 16 940	3 786 to 7 971
	Luxembourg	m	m	m	449 to 896	449 to 3 586	448	a	a	a	m	m	a
	Mexico[1]	70	a	30	m	m	m	a	a	a	4 711[d]	x(13)	x(13)
	Netherlands	m	m	m	2 395	2 395	a	a	a	a	m	m	a
	New Zealand[5]	m	m	m	4 236[d]	m	4 598	m	m	a	m	m	a
	Norway	84	6	10	0	0	a	2 928[d]	x(9)	a	6 288[d]	x(13)	a
	Poland[6]	93	a	7	0	0	0	a	a	a	2 175	658	m
	Portugal	m	m	m	1 116 to 1 808	1 116 to 10 587	m	a	a	a	m	m	m
	Slovak Republic	95	0	5	0	0	0	a	a	a	2 827	3 503	9 175
	Slovenia	94	5	1	0	0	6 553[d]	0	0	x(7)	0	0	x(7)
	Spain	82	x(3)	18[d]	1 832	2 860	m	m	m	m	m	m	m
	Sweden[2]	87	13	a	0	0	0	0	0	0	a	a	a
	Switzerland[1]	83	7	10	1 170[d]	1 170	437	1 170[d]	1 170	437	m	m	m
	Turkey	m	a	m	0	0	0	a	a	a	m	m	m
	United States[7]	67	a	33	8 202	11 064	13 264	a	a	a	21 189	17 084	22 929
	Economies												
	Flemish Comm. (Belgium)	m	m	m	132 to 1 112	132 to 1 112	556	132 to 1 112	132 to 1 112	556	m	m	a
	French Comm. (Belgium)[1]	40	60	a	419[d]	x(5)	x(5)	557[d]	x(9)	x(9)	a	a	a
	England (UK)	m	m	m	a	a	a	11 797	m	m	m	m	m

Note: Tuition fees should be interpreted with caution as they do not cover all educational institutions. However, the data reported can be considered as good proxies and show the difference among countries in tuition fees charged by main educational institutions and for the majority of students.

Data on short-cycle tertiary programmes are available on line (see *StatLink* below).

1. Year of reference 2014/15.
2. Tuition fees for foreign students refer to students from outside the European Economic Area.
3. Year of reference 2013/14.
4. Year of reference 2016.
5. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
6. Tuition fees for foreign students refer to students from countries outside the European Union.
7. Year of reference 2011/12.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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C5

Table C5.1. [2/2] Estimated annual average tuition fees charged by tertiary educational institutions (2015/16)

In equivalent USD converted using PPPs, by type of institutions and degree structure, based on full-time students

	Annual average tuition fees for full-time foreign students charged by institutions								
	Public institutions			Private institutions					
				Government-dependent private institutions			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	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent
	(17)	(18)	(19)	(21)	(22)	(23)	(25)	(26)	(27)
OECD **Countries**									
Australia[1]	15 750	14 492	14 841	12 094	8 277	15 334	9 945	10 987	13 369
Austria[1]	1 819	1 819	1 819	1 819	1 819	1 819	m	m	m
Canada	17 588	12 875	m	m	m	m	m	m	m
Chile	No differentiation for foreign students.								
Denmark[2]	1092 to 2047								
Estonia	Differentiation of tuition fees based on the language of the programmes: tuition fees may be charged in programmes taught in languages other than Estonian.								
Finland	No differentiation for foreign students.								
Hungary	1 304	5 352	1 347	465	641	639	3 658	2 731	1 200
Israel[3]	No differentiation for foreign students.								
Italy[1]	No differentiation for foreign students.								
Japan	No differentiation for foreign students.								
Korea[4]	No differentiation for foreign students.								
Latvia	No differentiation for foreign students.								
Luxembourg	No differentiation for foreign students.								
Mexico[1]	No differentiation for foreign students.								
Netherlands	m	m	a	a	a	a	m	m	a
New Zealand[5]	18 269[d]	m	4 598	m	[m]	a	m	m	a
Norway	No differentiation for foreign students.								
Poland[6]	4 545	2 419	0	a	a	a	3 082	2 583	m
Portugal	No differentiation for foreign students.								
Slovak Republic	No differentiation for foreign students.								
Slovenia	0	0	6 553[d]	0	0	x(19)	0	0	x(19)
Spain	No differentiation for foreign students.								
Sweden[2]	13 968	14 415	0	13 968	14 415	0	a	a	a
Switzerland[1]	No differentiation for foreign students.								
Turkey	m	m	m	a	a	a	m	m	m
United States[7]	16 066	16 489	20 168	a	a	a	29 234	24 095	30 205
Economies									
Flemish Comm. (Belgium)	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 students (e.g. refugees, asylum seekers).								
French Comm. (Belgium)[1]	1 483	1 979	m	x(17)	x(18)	m	a	a	a
England (UK)	a	a	a	m	m	m	m	m	m

Note: Tuition fees should be interpreted with caution as they do not cover all educational institutions. However, the data reported can be considered as good proxies and show the difference among countries in tuition fees charged by main educational institutions and for the majority of students.

Data on short-cycle tertiary programmes are available on line (see *StatLink* below).

1. Year of reference 2014/15.
2. Tuition fees for foreign students refer to students from outside the European Economic Area.
3. Year of reference 2013/14.
4. Year of reference 2016.
5. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
6. Tuition fees for foreign students refer to students from countries outside the European Union.
7. Year of reference 2011/12.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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C5

Table C5.2. [1/2] Estimated change in the tuition fees charged by tertiary educational institutions (2005/06 to 2015/16) and recent tuition-fee reforms

Index of change (2005/06 = 100)

		Index of change in the amount of tuition fees for students in tertiary programmes between 2005/06 and 2015/16 (public and private institutions, constant prices, 2005/06 = 100)			
		Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent
		(1)	(2)	(3)	(4)
OECD	**Countries**				
	Australia[1, 2]	m	117	116	127
	Austria[1]	m	83	83	83
	Canada	m	123	88	m
	Estonia	m	m	m	m
	Finland	a	a	a	a
	Hungary	m	m	m	m
	Italy	m	113	m	122
	Japan	107	108	105	103
	Korea	m	m	m	m
	Latvia	65	65	65	65
	Luxembourg	75	75	m	75
	Netherlands	115	115	115	a
	New Zealand	x(2)	121	m	m
	Sweden	a	a	a	a
	Turkey	a	a	a	a
	United States[3]	103	120	98	112
	Economies				
	Flemish Comm. (Belgium)	m	m	m	m
	French Comm. (Belgium)	m	m	m	m
	England (UK)	x(2)	415	m	m

Note: This table lists countries for which the calculation of the index of change in tuition fees was possible and/or those countries with information on tertiary education policy reforms since 2010. The data in Columns 1-5 can be considered as good proxies of the tuition fees trends, although they are based on the weighted average of the main tertiary programmes and do not cover all educational institutions.

1. Year of reference 2014/15.
2. Index of change calculated for public institutions only.
3. Year of reference 2003/04 instead of 2005/06 and year of reference 2011/12 instead of 2015/16.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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C5

Table C5.2. [2/2] Estimated change in the tuition fees charged by tertiary educational institutions (2005/06 to 2015/16) and recent tuition-fee reforms

Index of change (2005/06 = 100)

	Reforms implemented since 2010 on tertiary education		
	On levels of tuition fees	Of which, at least some were combined with a change in the level of public subsidies available to students	Comments
	(5)	(6)	(7)
OECD Countries			
Australia[1, 2]	yes	yes	Since the introduction of the demand-driven funding system, which came into full effect in 2012, the Australian Government has provided a subsidy for every eligible domestic student enrolled in a bachelor's level course (excluding medicine) at a public university. This policy has significantly increased the number of students accessing a Commonwealth subsidised place.
Austria[1]	no	no	
Canada	yes	yes	Each jurisdiction sets its own tuition cap for colleges and universities with the exception of a few that do not have an imposed cap.
Estonia	yes	yes	A new needs-based student support system was introduced in 2013/14. Students from less privileged families can apply for study allowance (~ EUR 75-220 per month) when studying full-time and if the period of study has not exceeded the standard period of the curriculum. In addition and starting from 2015, a needs-based special allowance was introduced if the application for the allowance had been declined and the economic situation of the family changed since. Students are still able to apply for special study loans from banks. The doctoral allowance for PhD students has not been changed.
Finland	no	no	In 2010-14, there was a tuition fee trial period when it was possible for higher education institutions to charge fees to foreign students coming from outside EU or the European Economic Area and studying in university and polytechnic programmes at master's level taught in a foreign language. Of the students charged tuition fees, almost all received grants covering tuition fees either in full or partially. Some grants also included a portion to cover some of the cost of living. Higher education institutions awarded grants primarily based on academic achievement. From academic year 2017/18, tuition fees have been introduced for students coming from outside the European Union and European Economic Area to study in Finland.
Hungary	yes	yes	Students are either fully financed through a state scholarship, partially financed through a state scholarship (50% of the cost of the studies) or pay the full cost of studies. In the academic year 2012/13, the government reduced the number of fully financed places by 27% and increased, more moderately, the number of places partially financed by the state. This reduction has mainly affected fields of study such as law and economics. In the academic year 2012/13, a new student loan programme was launched for students who pay the full cost of their studies.
Italy	yes	yes	An increase of fees has been possible since 2011/12 for students who have been in the tertiary system for longer than the regular number of years and since 2013 for doctoral students receiving a scholarship.
Japan	no	no	
Korea	yes	yes	National scholarships have been offered since 2012 by combining and expanding the existing scholarships for low-income students. The annual budget for government-funded scholarships such as the national scholarships has increased every year and reached almost eight times the 2011 value in 2016.
Latvia	no	no	
Luxembourg	no	no	
Netherlands	no	no	
New Zealand	yes	no	The 2011 policy reform limits how much an institution may increase their fees and course costs. The level is set by the government each year and from 2011-15 it has been 4%. It was set at 3% for 2016 and 2% for 2017. In 2012, there were policy changes aimed at controlling how institutions set compulsory student levies for non-tuition related services. From 2018 fee-free tertiary education is progressively being introduced to national students entering tertiary study for the first-time. By 2024, three years of tertiary education will be free to all national first-time students.
Sweden	yes	yes	In 2011, tuition fees for non EEA-students were introduced as well as two different scholarship programmes for paying students.
Turkey	yes	no	As of the academic year 2012/13, students in first education (regular morning programmes) and open education programmes are not charged tuition fees over the course of the theoretical duration of the programmes. Tuition fees are paid only by students in public institutions who are enrolled in evening programmes and those who have not graduated from a programme within the theoretical duration.
United States[3]	no	no	
Economies			
Flemish Comm. (Belgium)	yes	no	Since 1/1/2015, adult education tuition fees at short-cycle tertiary level increased to EUR 1.50 per teaching period and the maximum per year increased to EUR 600. From bachelor's to doctorate and equivalent programmes the annual tuition fees for a full-time student increased from EUR 620 to EUR 890.
French Comm. (Belgium)	yes	no	28 972 students (17% of students eligible for financial support) no longer pay tuition fees (2014/15) and 3 892 students with a low-income background (2.3% of those eligible) benefit from reduced tuition fees.
England (UK)	yes	yes	

Note: This table lists countries for which the calculation of the index of change in tuition fees was possible and/or those countries with information on tertiary education policy reforms since 2010. The data in Columns 1-5 can be considered as good proxies of the tuition fees trends, although they are based on the weighted average of the main tertiary programmes and do not cover all educational institutions.

1. Year of reference 2014/15.

2. Index of change calculated for public institutions only.

3. Year of reference 2003/04 instead of 2005/06 and year of reference 2011/12 instead of 2015/16.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933804679

Table C5.3. [1/2] Public loans to students, repayment and remission in tertiary education (2015/16)

	Public loans			
	Share of tertiary students who benefit from a student loan	Average annual gross amount of loan (in USD) available to each student	Interest rate subsidies	
			Interest rate during studies	Interest rate after studies
	(1)	(2)	(3)	(4)
OECD Countries				
Australia[1, 2]	84%	ISCED 5: 4 771; ISCED 6: 4 181; ISCED 7: 5 385; ISCED 8: 6 171	2.6%	2.6%
Canada[3, 4]	60%	ISCED 5: 4 399; ISCED 6: 4 458; ISCED 7: 6 094; ISCED 8: 6 685	No nominal interest rate	5.2%
Chile	4%	ISCED 5: 3 760; ISCED 6: 6 143; ISCED 7: 9 416; ISCED 8: 9 268	No nominal interest rate	0.02%
Denmark	38%	4 946 (ISCED 5-7 only)	0.04%	0.01%
Estonia	m	3 561 (ISCED 6-8 only)	5.0%	5.0%
Finland[5]	29%	3 718 (ISCED 6-8 only)	No nominal interest rate	Interest rate agreed with private bank
Germany[6, 7]	21%	m	No nominal interest rate	m
Japan[8]	45%	ISCED 5: 5 937; ISCED 6: 6 074; ISCED 7: 8 527; ISCED 8: 12 580	No nominal interest rate	0% to 3%
Korea[7, 9, 10]	m	4 882	2.5% to 2.7%	2.5% to 2.7%
Latvia	9%	2 531	EURIBOR +2.5%	0% to 5%
Luxembourg	a	a	m	EURIBOR +0.5% (-2% paid by the student)
Mexico[1]	2%	19 826	m	m
Netherlands	33%	7 115 (ISCED 5-7 only)	0.1%	0.9%
New Zealand	m	ISCED 5: 5 314; ISCED 6: 6 424; ISCED 7: 6 663; ISCED 8: 5 702	No nominal interest rate	No nominal interest rate if New Zealand-based, 5.3% otherwise
Norway	100%	ISCED 5: 8 849; ISCED 6: 8 952; ISCED 7: 8 519	No nominal interest rate	1.9%
Poland	15%	3 972	No nominal interest rate	0.9%
Slovak Republic	1%	4 795	No nominal interest rate	2.1%
Sweden[11]	100%	ISCED 5: 7 616; ISCED 6-7: 6 665; ISCED 8: 4 697	0.6%	0.6%
Switzerland	1%	ISCED 5-6: 4 849; ISCED 7: 7 360; ISCED 8: 5 216	m	m
Turkey	44%	ISCED 5-6: 3 991; ISCED 7: 7 982; ISCED 8: 11 974	m	m
United States[12, 13]	55%	ISCED 5: 2 106; ISCED 6: 4 330; ISCED 7: 16 363; ISCED 8: 5 984	4.3% to 6.8%	4.3% to 6.8%
Economies				
French Comm. (Belgium)	0%	1 549	No nominal interest rate	4.0%
England (UK)[14]	m	14 997 (ISCED 5 and 6 only)	3.9%	0.9% to 3.9%

Note: Additional data on loan repayments, remission and forgiveness are available on line only (see *StatLink* below).

1. Reference year 2014/15.
2. Excluding short-cycle tertiary programmes.
3. Only includes information on the federal portion of student financial assistance, which represents 60% of student loans provided in the provinces participating in the Canada Student Loans Program (CSLP). Figures also exclude the province of Quebec.
4. Reference year 2013/14.
5. Information refers to government-guaranteed private loans.
6. The percentage of students who benefit from a student loan refers to the share of students who are eligible.
7. Reference year 2016.
8. Includes interest-free loan amounts only.
9. The data only include government-funded student loans provided by the Korea Student Aid Foundation such as Income Contingent Student Loans, General Installment Student Loans, Student Loans for Undergraduates from Rural Areas. Student loans provided by other government ministries have been excluded. Overlapped beneficiaries have been excluded in each semester.
10. Eligibility rule: Income Contingent Student Loans, if 35 years old or younger, 8th income decile or below, took 12 credits or more and gained 70 points or higher (maximum 100 points). General Installment Student Loans, if 55 years old or younger, regardless of his or her income level, undergraduate and graduate students, took 12 credits or more, and gained 70 points or higher (maximum 100 points).
11. Includes loans granted only to citizens from countries in the EU / EEA / Switzerland.
12. Column 3 refers to the 2009 average debt for bachelor's graduates of 2007/08. Column 8 refers to the average annualised salary in 2009 for 2007/08 graduates.
13. Reference year 2011/12.
14. Includes national and EU domiciled students.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C5.3. [2/2] Public loans to students, repayment and remission in tertiary education (2015/16)

	Public loans		
	Share of graduates with debt	Average amount of debt at graduation (in USD)	Annual growth rate (%) of number of nationals benefiting from a student loan (2005/06-2015/16)
	(5)	(6)	(7)
Countries			
Australia[1, 2]	m	m	ISCED 5: 12.4%; ISCED 6: 5.3%; ISCED 7: 10.9%; ISCED 8: 0.6%
Canada[3, 4]	m	ISCED 5: 7 762; ISCED 6-8: 12 856	m
Chile	m	m	m
Denmark	m	m	m
Estonia	a	a	ISCED 6: -19.4%; ISCED 7: -14.8%; ISCED 8: -16.8%
Finland[5]	ISCED 6: 50.3%; ISCED 7: 47.0%	ISCED 6: 9 033 ISCED 7: 10 520	3.5% (ISCED 6-8 only)
Germany[6, 7]	m	m	1.9% (ISCED 5-7 only)
Japan[8]	m	ISCED 5: 20 868; ISCED 6: 32 172; ISCED 7: 18 408; ISCED 8: 41 305	ISCED 5: 4.7%; ISCED 6: 4.2%; ISCED 7: -1.1%; ISCED 8: -7.3%
Korea[7, 9, 10]	m	m	m
Latvia	0,0	m	-0.1
Luxembourg	a	a	a
Mexico[1]	100% (ISCED 7-8 only)	ISCED 7: 39 653; ISCED 8: 49 566	ISCED 7: 13.9%; ISCED 8: 10.0%
Netherlands	66.7% (ISCED 5-7 only)	18 413 (ISCED 5-7 only)	6.0% (ISCED 5-7 only)
New Zealand	ISCED 5: 64%; ISCED 6: 78%; ISCED 7: 62%; ISCED 8: 54%	ISCED 5: 12 342; ISCED 6: 22 671; ISCED 7: 28 208; ISCED 8: 24 043	ISCED 5: -1.9%; ISCED 6: 3.9%; ISCED 7: 5.6%; ISCED 8: 4.7%
Norway	m	ISCED 6: 26 257; ISCED 7: 36 638	ISCED 6: 1.5%; ISCED 7: 2.1%
Poland	5%	10 105	-4.5% (ISCED 6-8 only)
Slovak Republic	1%(ISCED 6-8 only)	5 944	-7.3% (ISCED 6-8 only)
Sweden[11]	ISCED 5: 30%; ISCED 6: 77%; ISCED 7: 64%; ISCED 8: 38%	ISCED 5: 12 646; ISCED 6: 21 432; ISCED 7: 24 374; ISCED 8: 19 042	ISCED 5: 2.5%; ISCED 6-7: 0.1%; ISCED 8: -18.2%
Switzerland	m	m	-0.1
Turkey	m	m	ISCED 6: 7.0%; ISCED 7: 11.8%; ISCED 8: 6.3%
United States[12, 13]	m	24 900	m
Economies			
French Comm. (Belgium)	m	m	-30.5%
England (UK)[14]	m	m	4.6% (ISCED 5-6 only)

Note: Additional data on loan repayments, remission and forgiveness are available on line only (see *StatLink* below).

1. Reference year 2014/15.
2. Excluding short-cycle tertiary programmes.
3. Only includes information on the federal portion of student financial assistance, which represents 60% of student loans provided in the provinces participating in the Canada Student Loans Program (CSLP). Figures also exclude the province of Quebec.
4. Reference year 2013/14.
5. Information refers to government-guaranteed private loans.
6. The percentage of students who benefit from a student loan refers to the share of students who are eligible.
7. Reference year 2016.
8. Includes interest-free loan amounts only.
9. The data only include government-funded student loans provided by the Korea Student Aid Foundation such as Income Contingent Student Loans, General Installment Student Loans, Student Loans for Undergraduates from Rural Areas. Student loans provided by other government ministries have been excluded. Overlapped beneficiaries have been excluded in each semester.
10. Eligibility rule: Income Contingent Student Loans, if 35 years old or younger, 8th income decile or below, took 12 credits or more and gained 70 points or higher (maximum 100 points). General Installment Student Loans, if 55 years old or younger, regardless of his or her income level, undergraduate and graduate students, took 12 credits or more, and gained 70 points or higher (maximum 100 points).
11. Includes loans granted only to citizens from countries in the EU / EEA / Switzerland.
12. Column 3 refers to the 2009 average debt for bachelor's graduates of 2007/08. Column 8 refers to the average annualised salary in 2009 for 2007/08 graduates.
13. Reference year 2011/12.
14. Includes national and EU domiciled students.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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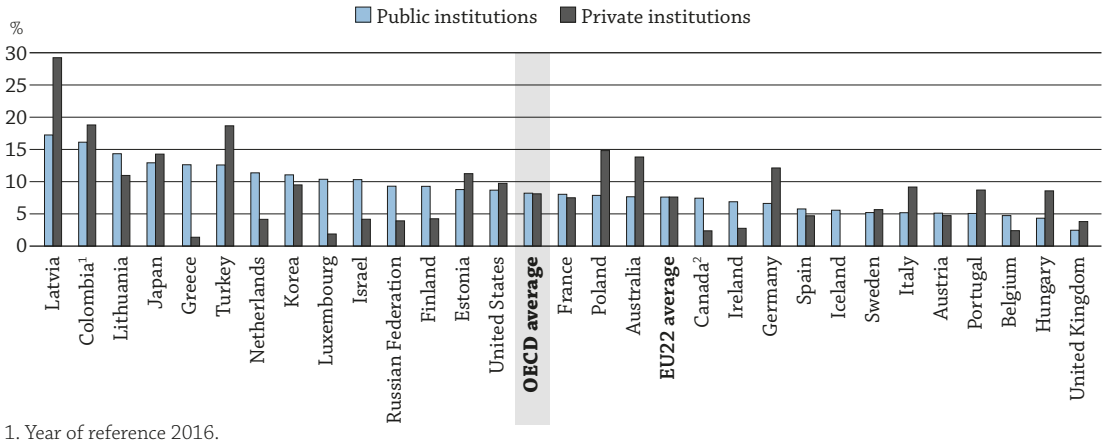
ON WHAT RESOURCES AND SERVICES IS EDUCATION FUNDING SPENT?

INDICATOR C6

- From primary to tertiary education, 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, staff compensation comprises the largest share of current expenditure in non-tertiary education (78%) and tertiary education (68%).
- OECD countries allocate on average 8% of their total education spending to capital expenditure. The share is higher in tertiary education (12%) than in non-tertiary education (7%). Shares vary considerably across countries, as well as between public and private educational institutions within the same country.

Figure C6.1. Share of capital expenditure as a percentage of total expenditure in public and private institutions (2015)

Primary to tertiary education



1. Year of reference 2016.

2. Primary education includes pre-primary programmes and post-secondary non-tertiary figures are treated as negligible.

Countries are ranked in descending order of the share of capital expenditure in public institutions.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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. 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 construction of new buildings. The indicator also presents details on how current expenditure is allocated, looking particularly at staff salaries and other related aspects. Current expenditure is mainly affected by teachers' salaries (see Indicator D3), but also by the age distribution of teachers and the size of the non-teaching staff employed in education. Educational institutions do not only offer instruction. They also provide other services, such as meals, transport, housing and/or research activities. All these expenditures are captured in this indicator.

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 with the remainder going to other staff. In tertiary education, about one-third of staff compensation goes to other staff, almost doubling its share in non-tertiary education.
- In non-tertiary education, the share of total expenditure allocated to current expenditures by public institutions (93%) is larger than that of private institutions (91%). Conversely, at tertiary levels, private institutions (92%) spend a larger share of total expenditure on current expenditures than public institutions (87%).
- The share of other staff expenditure varies in non-tertiary institutions, from a high of around 20% or more in Belgium, the Czech Republic, Estonia, France, Iceland, Lithuania and the United States to less than 10% in Austria, Colombia, Greece and Luxembourg.

C6

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 at the end of this indicator). 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 2015, 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 79% in Latvia to 97% in Belgium 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 (88%). At primary and secondary levels, shares vary from 83% in Latvia to 99% in Greece. At the post-secondary non-tertiary level, shares vary from 83% in Latvia to 100% in Luxembourg. At the tertiary level, allocations vary from 52% in Greece to 96% in Finland and Sweden. The share of current expenditure does not differ by more than 5 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 Finland, Ireland, Israel, Norway and Sweden.

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 (this has been particularly pronounced at the tertiary level). As presented in Table C6.1, the share of capital expenditure is generally higher in tertiary institutions, where the OECD average is 12%, than in non-tertiary institutions, where the OECD average is 7%. Capital expenditure on tertiary education reaches highs of 39% in Colombia, 48% in Greece and 31% in Latvia. In non-tertiary education, Japan, Latvia and Norway allocate the highest shares of education budgets to capital expenditure across countries with available data.

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 salaries of education personnel and the costs of maintenance of education facilities can affect not only the amounts allocated, but also the shares allotted to each category.

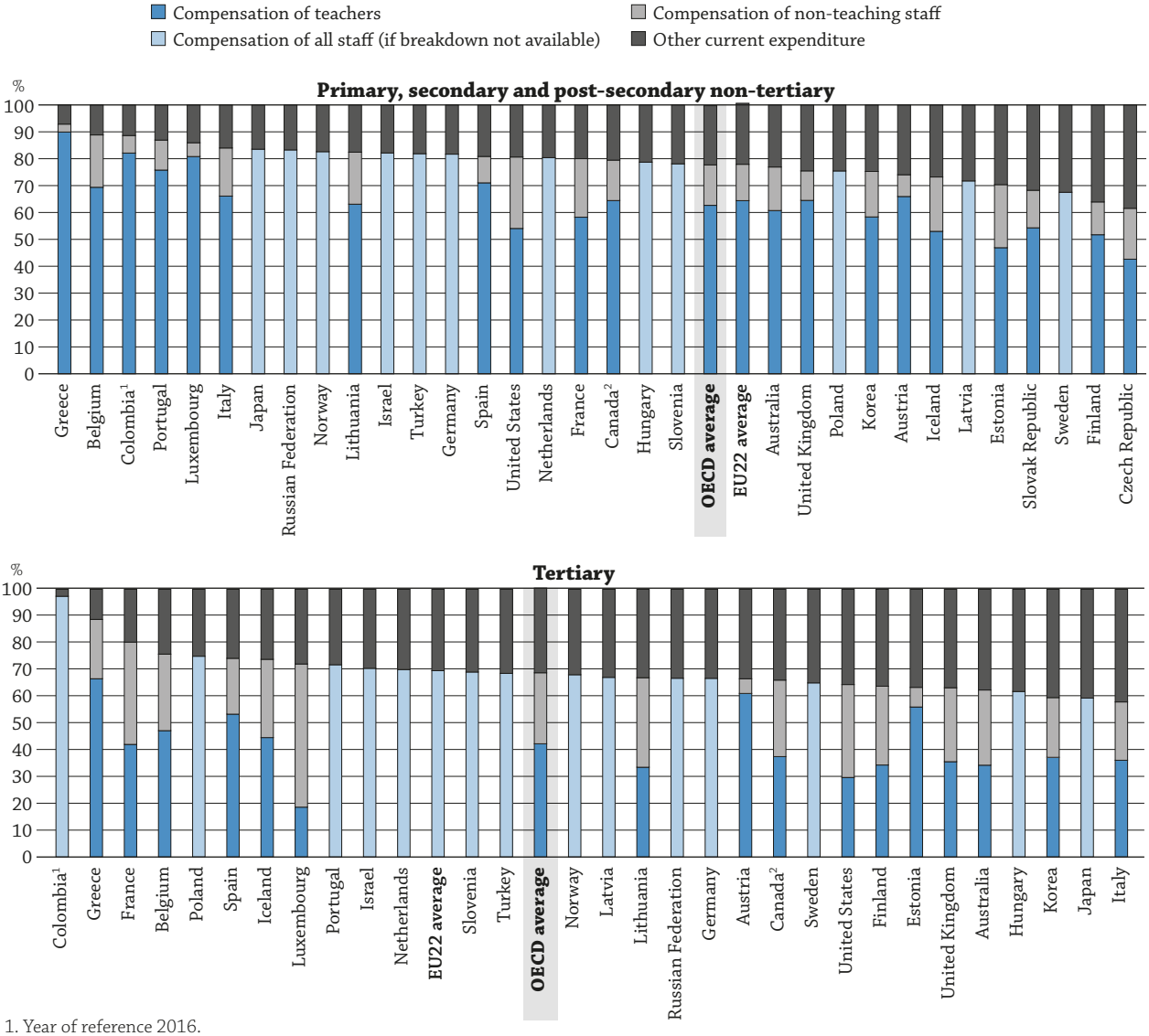
The salaries of teachers and other staff employed in education comprise the largest share of current expenditure in non-tertiary and tertiary education. However, salaries represent a larger share in non-tertiary education (78%) than at the tertiary level (68%), a difference of 10 percentage points. OECD countries spend on average 63% of the total amount of current expenditure on teacher compensation and 15% on paying other staff in non-tertiary education, leaving 22% for other current expenditure For tertiary education, 42% of current expenditures go to pay teachers, 26% to other staff, devoting 32% to other expenditures (Table C6.2 and Figure C6.2).

There is significant variation within countries in how current expenditure is allocated across 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). Finland, France and Poland allocate equal shares to staff compensation at the tertiary level and in non-tertiary education. For all other countries, tertiary education receives the lowest share of total current spending allocated to staff compensation. In Italy and Japan, the differences between tertiary and non-tertiary categories exceed 20 percentage points. When looking at all education levels together, common patterns are observed in Belgium, Colombia, Greece, Luxembourg and Portugal.

They tend to devote a larger share of current educational expenditure to staff compensation (above 82%) and less to other contracted and purchased services, such as support services (e.g. building maintenance), ancillary services (e.g. meal programmes) and rent paid for school buildings and other facilities.

Figure C6.2. Composition of current expenditure in public and private educational institutions (2015)

Primary to tertiary institutions



1. Year of reference 2016.

2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of the share of all staff compensation.

Source: OECD/UIS/Eurostat (2018), Table C6.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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 premises, which can account for a substantial share of current expenditure.

The differences among countries in the shares allocated to paying non-teaching staff likely 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 "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 (as in Finland and Sweden, see Indicator C1).

C6

Distribution of current and capital expenditure by public versus private educational institutions

Public and private institutions allocate their spending to either current or capital expenditure in a similar way, although differences are more marked in tertiary education than in non-tertiary education. Across OECD countries in non-tertiary education, the average share of current expenditure in private institutions is (91%), 2 percentage points lower than that of public institutions (93%). However, at the tertiary level, the share of current expenditure in private institutions (92%) is 5 percentage points higher than that of public institutions (87%). This difference at the tertiary level is more marked in Colombia, Greece and Lithuania. In Austria, Estonia, Hungary, Ireland, Italy and Japan, the share of current expenditure is higher in public institutions.

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 that of private institutions (72%). This gap is most pronounced in Greece, Italy, Portugal, the Russian Federation and Turkey, with differences of 20 percentage points or more between the two sectors. The pattern is reversed in the Czech Republic, Finland, the Netherlands, Poland and the Slovak Republic, 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 (68% on average across OECD countries) than do private institutions (65%).

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. It may be the case that private institutions are more likely to contract services from external providers. They may more often rent school buildings and other facilities (as opposed to functioning 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 (8%). However, the share varies to a large extent by country and between public and private institutions (Figure C6.1). Public institutions in Colombia, Latvia and Lithuania allocate the highest shares of spending to capital, reaching more than 14% of total expenditure from primary to tertiary education. Public institutions spend the lowest share on capital in Austria, Belgium, Hungary, Italy, Portugal, Sweden and the United Kingdom (below 6%). The variation across countries is even higher for private institutions, with private institutions in Colombia, Latvia, and Turkey spending more than 19% of their total expenditure on capital, and Greece and Iceland spending below 2%. The difference between public and private institutions in the share of their allocations to capital expenditure is below 4 percentage points for two-thirds of the countries with data available. Latvia has the largest differences in the share of capital expenditure, and its private institutions spend proportionally more than its public 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 administrators of schools, supervisors, counsellors, school psychologists and health personnel, librarians, 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 (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Sources

Data refer to the financial year 2015 (unless otherwise specified) and are based on the UNESCO, the OECD and Eurostat (UOE) data collection on education statistics administered by the OECD in 2017 (for details see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en). Data from Argentina, China, Colombia, 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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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

StatLink https://doi.org/10.1787/888933804774

Table C6.1	**Share of current and capital expenditure, by education level (2015)**
Table C6.2	**Current expenditure, by resource category (2015)**
Table C6.3	**Share of current expenditure, by resource category and type of institution (2015)**

Cut-off date for the data: 18 July 2018. 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.

C6

Table C6.1. Share of current and capital expenditure, by education level (2015)

Distribution of current and capital expenditure by educational institutions from public and private sources, by level of education

		Primary		Secondary				Post-secondary non-tertiary		Primary, secondary and post-secondary non-tertiary		Tertiary		Primary to tertiary	
				Lower secondary		Upper secondary									
		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)
OECD	Australia	93	7	91	9	91	9	96	4	92	8	89	11	91	9
OECD	Austria	94	6	97	3	98	2	99	1	97	3	92	8	95	5
OECD	Belgium	96	4	98	2	98[d]	2[d]	x(5)	x(6)	97	3	95	5	97	3
OECD	Canada[1]	93[d]	7[d]	x(1)	x(2)	93	7	m	m	93[d]	7[d]	93	7	93[d]	7[d]
OECD	Chile	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Czech Republic	88	12	88	12	92	8	m	m	m	m	m	m	m	m
OECD	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Estonia	94	6	93	7	86	14	89	11	92	8	88	12	90	10
OECD	Finland	88	12	88	12	92[d]	8[d]	x(5)	x(6)	89	11	96	4	91	9
OECD	France	93	7	92	8	92	8	91	9	92	8	91	9	92	8
OECD	Germany	94	6	95	5	90	10	93	7	93	7	91	9	92	8
OECD	Greece	99	1	99	1	99	1	m	m	m	m	52	48	m	m
OECD	Hungary	96	4	96	4	97	3	98	2	96	4	89	11	95	5
OECD	Iceland	94	6	95	5	97	3	96	4	95	5	95	5	95	5
OECD	Ireland	93	7	93	7	94	6	m	m	93	7	94	6	93	7
OECD	Israel	89	11	x(5)	x(6)	93[d]	7[d]	96	4	91	9	95	5	92	8
OECD	Italy	96	4	96	4	97	3	85	15	96	4	90	10	95	5
OECD	Japan	86	14	85	15	89[d]	11[d]	x(5, 11)	x(6, 12)	87	13	87[d]	13[d]	87	13
OECD	Korea	89	11	91	9	91	9	a	a	90	10	88	12	89	11
OECD	Latvia	83	17	83	17	83	17	83	17	83	17	69	31	79	21
OECD	Luxembourg	94	6	93	7	93	7	100	0	93	7	75	25	90	10
OECD	Mexico	m	m	m	m	m	m	a	a	m	m	m	m	m	m
OECD	Netherlands	89	11	89	11	91	9	94	6	90	10	89	11	89	11
OECD	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Norway	86	14	86	14	89	11	89	11	87	13	91	9	88	12
OECD	Poland	94	6	97	3	96	4	95	5	95	5	84	16	92	8
OECD	Portugal	97	3	97	3	89[d]	11[d]	x(5, 11)	x(6, 12)	95	5	93[d]	7[d]	94	6
OECD	Slovak Republic	96	4	97	3	95	5	97	3	96	4	m	m	m	m
OECD	Slovenia	92	8	92	8	94	6	a	a	93	7	90	10	92	8
OECD	Spain	97	3	97	3	97[d]	3[d]	x(5)	x(6)	97	3	88	12	94	6
OECD	Sweden	94	6	94	6	93	7	94	6	94	6	96	4	95	5
OECD	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD	Turkey	91	9	91	9	89	11	a	a	90	10	78	22	86	14
OECD	United Kingdom	97	3	98	2	98	2	a	a	98	2	94	6	97	3
OECD	United States	92	8	92	8	92	8	90	10	92	8	90	10	91	9
	OECD average	93	7	93	7	93	7	m	m	93	7	88	12	92	8
	EU22 average	94	6	94	6	93	7	m	m	94	6	87	13	92	8
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Colombia[2]	91	9	94	6	94[d]	6[d]	x(5)	x(6)	93	7	61	39	83	17
Partners	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Lithuania	94	6	94	6	93[d]	7	92	8	94	6	73	27	86	14
Partners	Russian Federation	x(5)	x(6)	x(5)	x(6)	93[d]	7[d]	x(5)	x(6)	93	7	88	12	91	9
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	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: Some levels of education are included with others. Refer to "x" code for details.

1. Primary education includes pre-primary programmes. And post-secondary non-tertiary figures are treated as negligible.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2015)

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	Australia	61	16	77	23	34	28	62	38	52	20	72	28
	Austria	66	8	74	26	61	5	67	33	64	7	71	29
	Belgium	69	19	89	11	47	29	76	24	64	22	86	14
	Canada[1]	64[d]	15[d]	79[d]	21[d]	38	29	66	34	53[d]	21[d]	74[d]	26[d]
	Chile	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	43	19	62	38	m	m	m	m	m	m	m	m
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	47	23	70	30	56	7	63	37	50	18	68	32
	Finland	52	12	64	36	34	29	64	36	46	18	64	36
	France	58	22	80	20	42	38	80	20	54	26	80	20
	Germany	x(3)	x(3)	82	18	x(7)	x(7)	67	33	x(11)	x(11)	77	23
	Greece	90	3	93	7	67	22	89	11	87	6	92	8
	Hungary	x(3)	x(3)	79	21	x(7)	x(7)	62	38	x(11)	x(11)	75	25
	Iceland	53	20	73	27	45	29	74	26	51	22	73	27
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	x(3)	x(3)	82	18	x(7)	x(7)	70	30	x(11)	x(11)	79	21
	Italy	66	18	84	16	36	22	58	42	59	19	78	22
	Japan	x(3)	x(3)	84	16	x(7)	x(7)	59[d]	41[d]	x(11)	x(11)	76	24
	Korea	58	17	75	25	37	22	60	40	51	19	70	30
	Latvia	x(3)	x(3)	72	28	x(7)	x(7)	67	33	x(11)	x(11)	70	30
	Luxembourg	81	5	86	14	19	53	72	28	73	11	84	16
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	x(3)	x(3)	80	20	x(7)	x(7)	70	30	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)	75	25	x(7)	x(7)	75	25	x(11)	x(11)	75	25
	Portugal	76	11	87	13	x(7)	x(7)	72[d]	28[d]	x(11)	x(11)	83	17
	Slovak Republic	54	14	68	32	m	m	m	m	m	m	m	m
	Slovenia	x(3)	x(3)	78	22	x(7)	x(7)	69	31	x(11)	x(11)	76	24
	Spain	71	10	81	19	53	21	74	26	66	13	79	21
	Sweden	x(3)	x(3)	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)	82	18	x(7)	x(7)	69	31	x(11)	x(11)	78	22
	United Kingdom	64	11	75	25	36	28	63	37	56	16	72	28
	United States	54	27	81	19	30	35	64	36	44	30	74	26
	OECD average	63	15	78	22	42	26	68	32	58	18	76	24
	EU22 average	64	14	77	23	m	m	70	30	m	m	76	24
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
	Colombia[2]	82	7	89	11	x(7)	x(7)	97	3	x(11)	x(11)	91	9
	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
	Lithuania	63	19	82	18	34	33	67	33	53	24	77	23
	Russian Federation	x(3)	x(3)	83	17	x(7)	x(7)	67	33	x(11)	x(11)	77	23
	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: Some levels of education are included with others. Refer to "x" code in Table C6.1 for details.

1. Primary education includes pre-primary programmes.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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C6

Table C6.3. Share of current expenditure, by resource category and type of institution (2015)

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	Australia	95	86	62	58	15	19	77	77	89	90	34	42	28	39	62	81
	Austria	97	98	66	67	8	4	74	71	92	91	61	60	6	3	67	63
	Belgium	95	98	68	71	21	18	89	89	95	95	49	46	28	29	77	75
	Canada[1]	93[d]	94[d]	65[d]	52[d]	15[d]	20[d]	80[d]	71[d]	92	100	37	38	29	24	67	62
	Chile	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	89	25	43	50	16	27	59	77	90	m	32	m	21	m	53	m
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	91	96	47	51	24	14	71	65	89	88	45	59	8	7	53	66
	Finland	89	95	52	48	12	18	64	66	96	97	32	43	31	26	62	69
	France	92	93	59	53	22	20	81	73	91	91	40	53	41	22	81	75
	Germany	95	88	x(7)	x(8)	x(7)	x(8)	83	76	91	92	x(15)	x(16)	x(15)	x(16)	67	62
	Greece	99	99	92	50	2	23	94	73	52	100	67	a	22	a	89	a
	Hungary	98	92	x(7)	x(8)	x(7)	x(8)	79	77	90	87	x(15)	x(16)	x(15)	x(16)	61	69
	Iceland	95	100	53	53	20	17	73	70	94	100	45	45	29	29	74	74
	Ireland	93	100	74	m	10	m	84	m	94	92	60	m	25	m	85	m
	Israel	90	97	x(7)	x(8)	x(7)	x(8)	85[d]	73[d]	86	95	x(15)	x(16)	x(15)	x(16)	64	71
	Italy	96	93	67	42	18	7	86	49	90	88	37	32	22	18	59	51
	Japan	87	86	x(7)	x(8)	x(7)	x(8)	85	73	89[d]	86[d]	x(15)	x(16)	x(15)	x(16)	55[d]	62[d]
	Korea	89	94	58	59	18	13	76	72	87	89	29	41	26	20	55	62
	Latvia	83	84	x(7)	x(8)	x(7)	x(8)	72	72	67	69	x(15)	x(16)	x(15)	x(16)	68	67
	Luxembourg	92	98	82	69	4	14	86	83	75	a	19	a	53	a	72	a
	Mexico	98	m	80	m	12	m	92	m	93	m	57	m	14	m	72	m
	Netherlands	89	97	x(7)	x(8)	x(7)	x(8)	80	86	89	93	x(15)	x(16)	x(15)	x(16)	69	77
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	86	m	x(7)	x(8)	x(7)	x(8)	81	m	90	98	x(15)	x(16)	x(15)	x(16)	68	66
	Poland	96	80	x(7)	x(8)	x(7)	x(8)	75	76	83	93	x(15)	x(16)	x(15)	x(16)	75	71
	Portugal	96	89	82	46	11	12	93	58	92[d]	96[d]	x(15)	x(16)	x(15)	x(16)	75	62
	Slovak Republic	95	100	53	63	14	14	67	77	65	m	28	m	20	m	49	m
	Slovenia	93	m	x(7)	x(8)	x(7)	x(8)	78	61	90	m	x(15)	x(16)	x(15)	x(16)	71	42
	Spain	98	95	73	64	9	11	83	75	87	95	57	35	21	20	78	55
	Sweden	94	94	39	33	12	8	68	66	96	97	x(15)	x(16)	x(15)	x(16)	65	62
	Switzerland	90	m	72	m	14	m	86	m	90	m	50	m	26	m	76	m
	Turkey	92	83	x(7)	x(8)	x(7)	x(8)	86	58	77	79	x(15)	x(16)	x(15)	x(16)	75	53
	United Kingdom	98	98	67	62	10	12	76	74	a	94	a	36	a	28	a	63
	United States	92	92	54	52	27	26	81	78	90	90	31	28	35	34	66	62
	OECD average	93	91	64	m	14	m	80	72	87	92	m	m	m	m	68	65
	EU22 average	94	91	64	55	13	14	78	72	86	92	m	m	m	m	69	64
Partners	Argentina	87	m	51	m	17	m	67	m	96	m	58	m	29	m	88	m
	Brazil	97	m	x(7)	m	x(7)	m	78	m	96	m	x(15)	m	x(15)	m	81	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	96	88	85	78	8	4	93	81	51	70	x(15)	x(16)	x(15)	x(16)	93	100
	Costa Rica	100	m	75	m	4	m	78	m	100	m	x(15)	m	x(15)	m	100	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
	Lithuania	94	86	63	60	19	17	83	77	72	92	34	28	34	28	68	56
	Russian Federation	93	96	x(7)	x(8)	x(7)	x(8)	84[d]	62	88	96	x(15)	x(16)	x(15)	x(16)	67	59
	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: Some levels of education are included with others. Refer to "x" code in Table C6.1 for details.

1. Primary education includes pre-primary programmes.

2. Year of reference 2016.

Source: OECD / UIS / Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

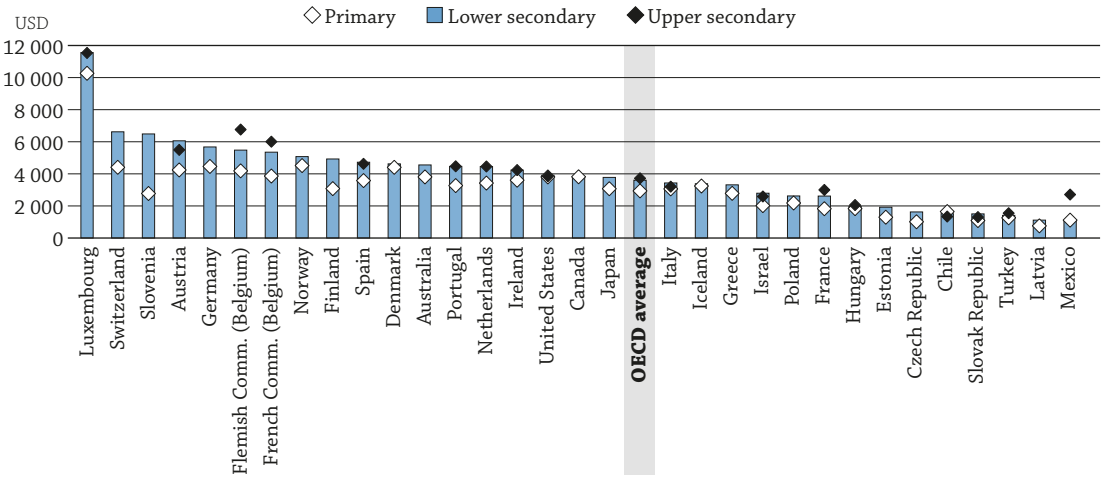
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WHICH FACTORS INFLUENCE TEACHERS' SALARY COST?

- The salary cost of teachers per student is calculated using four factors in this analysis: teachers' salaries, instruction time of students, teaching time of teachers and estimated class size (see *Definitions* section at the end of this indicator). 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 increases from USD 2 936 in primary education to USD 3 604 in lower secondary education.
- The two main factors influencing the level of teachers' salary cost are teachers' salaries and estimated class size. The relationship between these two factors is positive, meaning that countries with higher teacher salaries tend to have larger estimated class sizes. This reflects the choice some countries have to make between increasing teachers' salaries and hiring more teachers.

Figure C7.1. Annual salary cost of teachers per student in public institutions, by level of education (2016)

USD converted using PPPs for private consumption



Countries and economies are ranked in descending order of the annual salary cost of teachers per student in lower secondary education.

Source: OECD (2018), Table C7.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (Box C7.1). The salary cost of teachers, as calculated in this indicator, is a function of students' instruction time, teachers' teaching time, teachers' salaries and estimated class size (see *Methodology* section at the end of this indicator).

Differences among countries in these four 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 four 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 size would also shrink (assuming all other factors remain constant), unless there is a simultaneous drop in the number of teachers as well.

Other findings

- Similar levels of expenditure among countries can mask a variety of contrasting policy choices. For example, Australia and Portugal have very similar teachers' salary costs in lower secondary education, but teachers are better paid in Australia than in Portugal while estimated class size is smaller in Portugal than in Australia. Theoretically, if Portugal increased its estimated class size by five students, teachers' salaries could be equivalent to those in Australia with no increase in public spending.
- The ranking by salary cost of teachers per student changes considerably for a few countries when expressed as a percentage of GDP per capita rather than value in USD. For example, Luxembourg has by far the highest salary cost of teachers per student in lower secondary education: USD 11 560, over three times the OECD average of USD 3 604. However, this cost represents 11.2% of the country's GDP per capita, which is only the tenth highest across OECD countries.
- Given a fixed level of salary cost, a decrease in class size can be compensated by a decrease in teachers' salary, a decrease in instruction time or an increase in teaching time. For example, in Australia, in order to decrease estimated class size by one student and keep the salary cost per student constant, teacher salaries would have to decrease by USD 3 600, annual instruction time would have to decrease by 63 hours, or annual teaching time would have to increase by 54 hours.

Note

The salary cost of teachers per student is estimated based on values for statutory salaries of teachers after 15 years of experience and the most prevalent qualifications (see Indicator D3), theoretical instruction time of students (see Indicator D1) and statutory teaching time of teachers (see Indicator D4). This measure may differ from the actual salary cost of teachers, as a result of the combination of actual average values for these four factors.

The use of statutory salaries means that the level of qualifications and the ageing of the teaching force are not taken into account in this indicator. As teacher salaries tend to vary according to experience and qualifications, an older or more qualified teaching force can lead to a higher salary cost without changes to any of the four factors analysed in this indicator.

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 2 936 per primary student, USD 3 604 per lower secondary student and USD 3 723 per general upper secondary student. 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 Luxembourg (USD 10 265) is over 14 times higher than in Latvia (USD 758). Higher salary costs are a result of higher teachers' salaries and/or of more teachers per student, which is itself pushed up by smaller classes, more hours of required instruction time for students or fewer teaching hours for teachers.

The general increase in cost between primary and lower secondary education is the result of increases in teachers' salaries and in instruction time of students, as well as a decrease in teaching time, all of which push up the cost. In 2016, the OECD average statutory salary for teachers with 15 years of experience was USD 44 397 at lower secondary level, around USD 2 200 higher than the salary of teachers at primary level. Moreover, the average annual instruction time in lower secondary education was 118 hours higher than in primary education, while the teaching time was 78 hours lower, implying that more teachers are needed to teach a given number of pupils.

Contrary to the other factors, estimated 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 estimated class size increases from 15 students at primary level to 16 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 and Mexico are the only OECD countries where larger estimated class sizes in lower secondary education lead to a lower salary cost of teachers per student at that level than at primary level (Tables C7.5a and b, available on line).

In a few countries, the learning environment and the organisation of schools are relatively similar between primary and lower secondary education. For example, in 2016, the difference between the salary cost of teachers per student in primary and lower secondary was of less than USD 150 in Canada, Hungary, Iceland and the United States. The greatest difference between primary and lower secondary education was over USD 3 700 in Slovenia (Table C7.1).

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 across countries. On average across OECD countries, the salary cost of teachers per student represents 6.9% of GDP per capita at primary level, 8.7% at lower secondary level and 8.6% 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 2 183. However, this amount represents 8.0% of the country's GDP per capita, above the OECD average of 6.9%. The opposite happens in Luxembourg. Because of its high teachers' salaries, Luxembourg has by far the highest salary cost of teachers per student in lower secondary education: USD 11 560, over three times the OECD average of USD 3 604. However, this cost represents 11.2% of the country's GDP per capita, which is only the tenth highest across OECD countries.

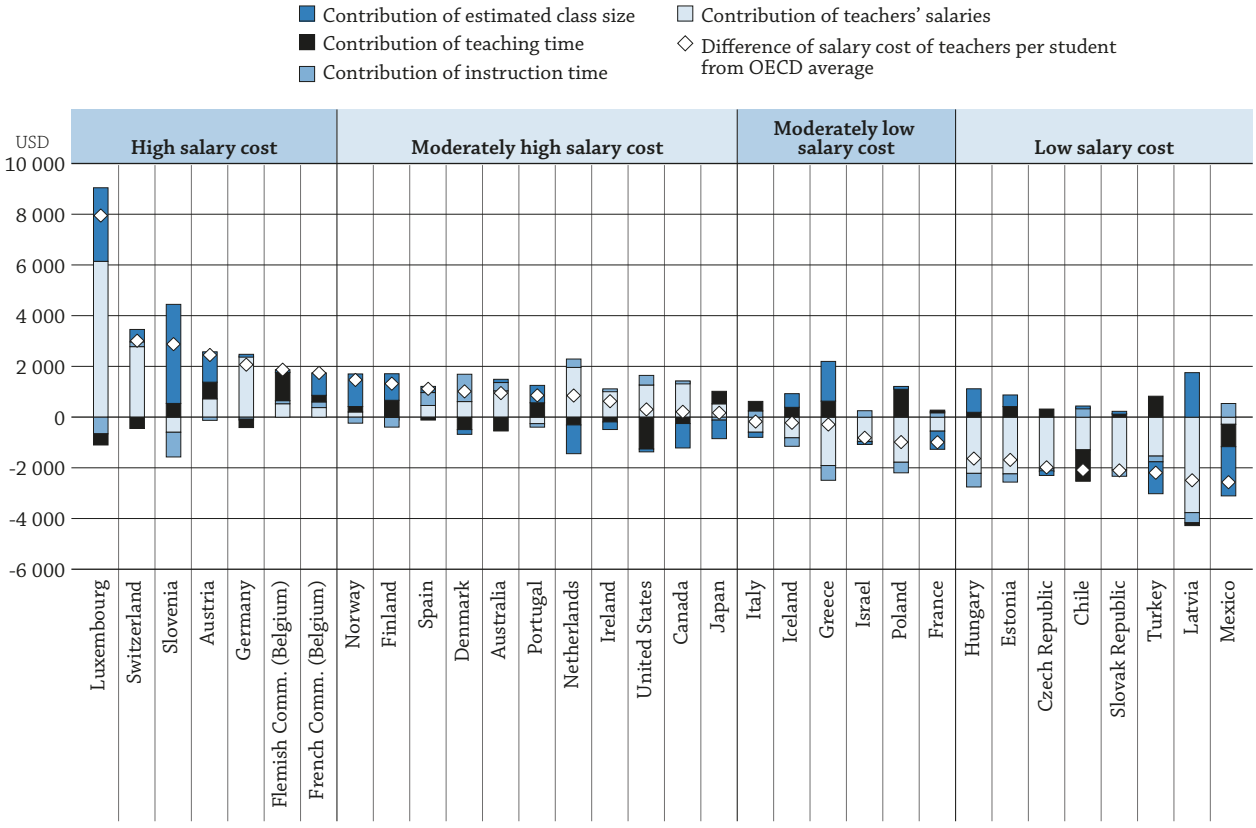
Contribution of each factor to the level of the salary cost of teachers per student

The level of the salary cost of teachers per student is determined by four factors: teachers' salaries, instruction time, teaching time and estimated class size. 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 size constant. Similarly, more teachers must be hired in order to decrease class size 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, higher instruction time, lower teaching time, smaller class sizes or a combination of these four factors. Changes to one of these factors may require compensating trade-offs among the other factors in order to keep the total salary cost constant (Box C7.2).

Figure C7.2. Contribution of various factors to salary cost of teachers per student in public institutions, lower secondary education (2016)

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 Slovenia, the salary cost of teachers per student is USD 2 882 higher than the OECD average. Slovenia has below-average teachers' salaries (- USD 595) and below-average instruction time (- USD 975), both of which push the salary cost of teachers down. However, this is more than compensated for by a lower estimated class size (+ USD 3 909) and lower teaching time (+ USD 543) than the OECD average.

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 (2018), Table C7.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933804983

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 magnitude 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 in lower secondary education in Denmark is USD 4 622, USD 1 018 higher than the OECD average. This difference is the result of the contributing effects of the four factors: above-average teachers' salary adds USD 616 to the difference; above-average instruction time adds USD 1 078; above-average teaching time subtracts USD 489; and above-average estimated class size subtracts USD 188.

Different policy choices made by 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 with similar teachers' salary cost per student, in order to better illustrate different policy choices that are possible and made by other countries while spending similar amounts.

Group 1: High salary cost of teachers per student in lower secondary education

This group, which has the highest salary cost of teachers per student in lower secondary education, is composed of Austria, the French and Flemish Communities of Belgium, Germany, Luxembourg, Slovenia and Switzerland. The salary cost of teachers per student in this group ranges from USD 5 351 to USD 6 621. Luxembourg is not included in this range because its salary cost per student of USD 11 560 makes it an outlier.

Although most of these countries (with the exception of Slovenia) have above-average GDP per capita, they do not correspond to the five richest OECD countries. Moreover, although Austria, the French and Flemish Communities of Belgium, Luxembourg and Switzerland have among the highest total education expenditure per student, Germany and Slovenia fall close to the OECD average. This reinforces the finding that, although salary cost of teachers is related to GDP per capita and total education expenditure, the relationship is not one to one. Some countries allocate a much higher share of their budget to this type of expenditure than others.

Compared to countries from the other groups, it may seem as though these high-spending countries do not face important trade-offs among the four factors analysed in this indicator. For example, with the exception of Slovenia, all of the countries in this group can afford above-average teacher salaries and below-average class size. However, the magnitude of the difference between these factors and the respective OECD averages vary considerably across these countries.

Group 2: Moderately high salary cost of teachers per student in lower secondary education

This is the largest group, composed of 11 countries with above-average salary costs: Australia, Canada, Denmark, Finland, Ireland, Japan, the Netherlands, Norway, Portugal, Spain and the United States. The salary cost of teachers per student in this group ranges from USD 3 778 to USD 5 075. This group is highly heterogeneous in terms of GDP per capita, education expenditure and even education systems, which sheds light on the many different choices countries with similar spending can make.

One of the main salary cost trade-offs countries face is between teachers' salaries and class size. With the exception of Australia and Portugal, countries in this group have above-average teachers' salaries which are at least partially compensated by larger estimated class sizes. The two exceptions, Australia and Portugal, both have below-average estimated class sizes, but teachers' salaries are relatively high in Australia and relatively low in Portugal. If Portugal increased its estimated class size by five students, teacher salaries could be equivalent to those in Australia, with no increase in spending.

Another potential trade-off observed in some countries is between students' required instruction time and teachers' teaching time. In the Netherlands, for example, instruction time is 77 hours longer per year than the OECD average, but this is almost entirely offset by teaching time that is 53 hours longer than the average. A requirement for more 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 270 teaching hours above the OECD average helps compensate for the additional USD 17 510 teachers receive (teachers' statutory salary in the United States is USD 61 907 compared to the OECD average of USD 44 397).

Group 3: Moderately low salary cost of teachers per student in lower secondary education

This group is composed of six countries with below-average salary cost of teachers per student: France, Greece, Iceland, Israel, Italy and Poland. The salary cost of teachers per student in this group ranges from USD 2 615 to USD 3 432. As was the case with Group 2, despite similar levels of salary cost of teachers per student, this group is highly heterogeneous. Greece and Poland have two of the lowest expenditures per student and GDP per capita, whereas the other countries fall around the OECD averages.

This group could be characterised by below-average teacher salaries that are partially offset by less teaching time. But there are important variations across these countries. France and Poland have nearly the same salary cost of teachers per student, but teachers' salaries in France are 47% higher than in Poland, which is offset by having about five more students per class. In Poland, the main factor pushing up the salary cost is the fact that teachers have the lowest number of teaching hours of all OECD countries and economies (481 hours per year, compared to 684 in France and 697 on average across OECD countries).

Group 4: Low salary cost of teachers per student in lower secondary education

This group is composed of the eight countries with the lowest salary cost of teachers per student in lower secondary education: Chile, the Czech Republic, Estonia, Hungary, Latvia, Mexico, the Slovak Republic and Turkey.

The salary cost of teachers per student in this group ranges from USD 1 039 to USD 1 971. These countries all have below-average GDP per capita and below-average expenditure per student, but there are important differences in their policy choices.

In an overall cross-country comparison, Latvia and the Slovak Republic might have been bundled together as having low salary costs due to below-average salaries and below-average estimated class sizes. However, they have made different policy choices: the Slovak Republic's relatively larger estimated class size allows it to pay teachers over twice as much as Latvia, which has the lowest teachers' salaries and the second lowest estimated class size of all OECD countries. Moreover, Chile spends about as much as the Slovak Republic on the salary cost of teachers per student, but because teaching time in Chile is nearly double that of the Slovak Republic, it can afford more instruction time and higher teachers' salaries.

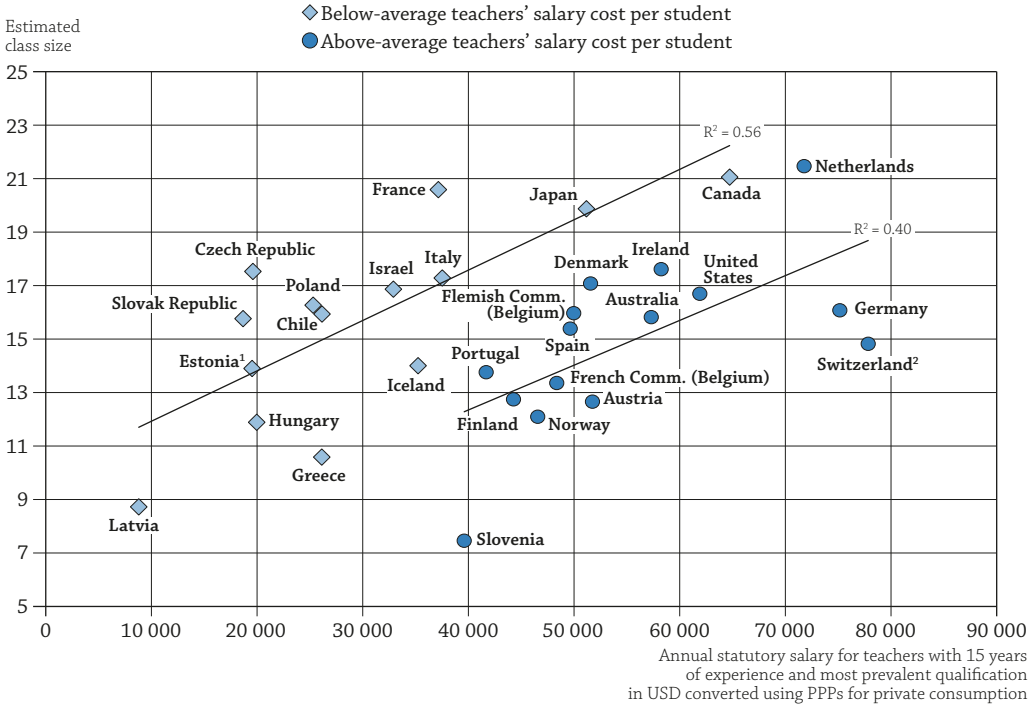
Main factors influencing the level of the salary cost: teachers' salary and estimated class size

At each level of education, teachers' salaries generally have the largest 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 estimated class size. The trade-off between these two variables, which are often the aim of educational reforms and policies, reflects the choice countries have to make between increasing teachers' salaries and hiring more teachers.

Figure C7.3 plots teachers' salaries against estimated class size, disaggregating between countries with above-average and below-average teachers' salary cost per student. It is important to control for the overall level of spending because, compared to low-spending countries, high-spending countries are able to afford more of everything (i.e. higher salaries and lower class sizes), which may give a misleading impression that they do not face trade-offs within their own budget allocation. The figure shows that, within each group of countries, the relationship between estimated class size and teachers' salary is positive, meaning that countries with higher teacher salaries tend to have larger class sizes.

Figure C7.3. Relationship between teachers' salaries and estimated class size, disaggregated by level of salary cost of teachers per student (2016)

Lower secondary education, public institutions only



Note: Luxembourg, Mexico and Turkey have been removed from the chart and the average because they are outliers for either teacher salaries or estimated class size.

1. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.

2. Teachers' statutory salary with 10 years of experience instead of 15 years.

Source: OECD (2018), Table C7.5b, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933805002

Smaller class sizes are often seen as beneficial, but there are mixed evidence regarding their impact on student learning. Results from the latest Programme for International Student Assessment (PISA) show that students in larger classes score higher in science, on average across OECD countries. Other research has found that smaller class sizes may be beneficial in some cases, such as for students from disadvantaged backgrounds that may need more individualised attention (Dynarski, Hyman and Schanzenbach, 2013[2]). Given that reducing class size is a costly measure (Box C7.2), it is important to compare its impact to other possible interventions (OECD, 2016[1]).

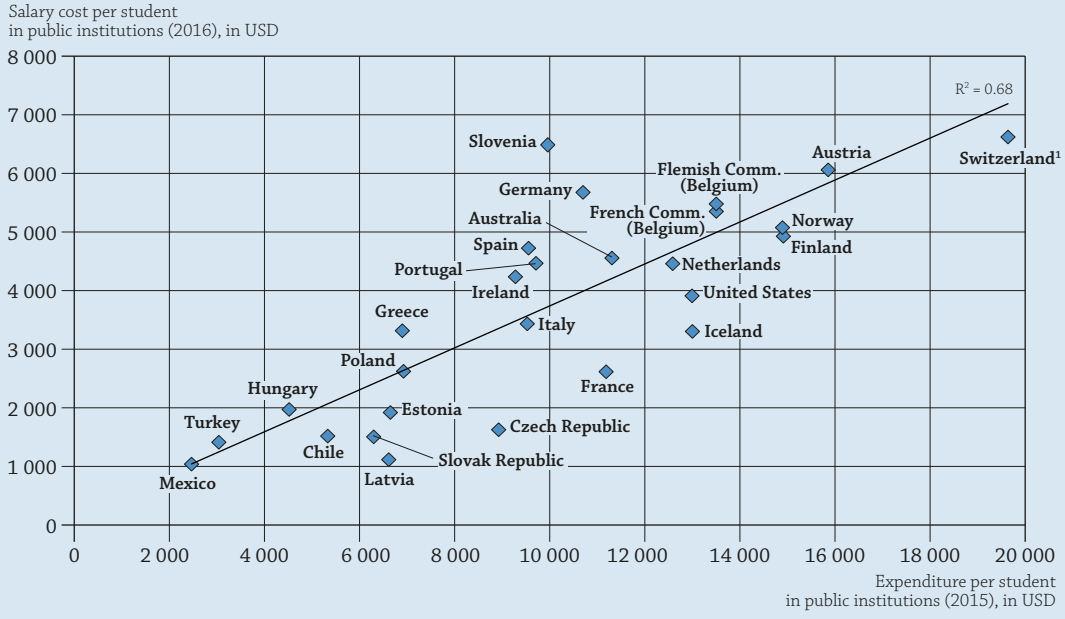
As highlighted in Figure C7.3, one alternative measure is to increase teacher salaries. Evidence from PISA point to the importance of high-quality teaching in improving student outcomes (OECD, 2016[1]) and one way to help school systems attract the best candidates to the teaching profession is by offering higher salaries. However, the need to attract good candidates to the teaching profession and retain the effective ones is not only a matter of raising salaries. It includes, among others, the quality of training before and after entering the profession and of the relationship between teachers and society.

Box C7.1. Relationship between salary cost per student and expenditure per student

Expenditure per student reflects structural and institutional factors, such as the organisation of schools and curricula. Current expenditure on educational institutions can be broken down into compensation of staff and other expenditures (such as maintenance of school buildings, providing students' meals and rental of school buildings and other facilities). Teacher compensation usually constitutes the largest part of current expenditure and therefore of expenditure on education (see Indicator C6). As a result, the level of teacher compensation divided by the number of students – the salary cost of teachers per student – is the largest share of expenditure per student.

Figure C7.a. Relationship between salary cost per student and expenditure per student in lower secondary public institutions (2015, 2016)

Salary cost converted in USD using PPPs for private consumption and expenditure converted using PPPs for GDP



Note: Luxembourg, an outlier, has been removed from the chart in order to improve the visibility. Its expenditure per student is USD 22 927 and teachers' salary cost per student is USD 11 560.
1. Public expenditure only.

Source: OECD (2018), Table C7.1 and Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Figure C7.a plots the salary cost of teachers per student against expenditure per student in public institutions in lower secondary education. The figure shows that, as expected, there is a strong positive relationship between the two measures. However, the salary cost of teachers can vary considerably, even among countries with a similar level of expenditure per student. Greece and Latvia, for example, both spend around USD 7 000 per student in public institutions, but the salary cost per student in Greece is three times that of Latvia.

These differences highlight the fact that countries not only have to decide how to best allocate salary cost resources across the four factors (instruction time, teaching time, teachers' salaries and estimated class size), but also how much of the total education expenditure will be dedicated to the salary cost of teachers. This decision in itself implies trade-offs with other potential types of expenditure not explored in this indicator, such as non-salary compensation of teachers, salaries of non-teaching staff and infrastructure improvements.

Box C7.2. What could be the trade-offs of decreasing class size by one student?

This indicator assesses the impact of four factors (teacher salaries, instruction time, teaching time and estimated 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 could be potential trade-offs among the other factors which would compensate for the smaller class size? More specifically, by how much would salaries or instruction time have to decrease, or teaching time have to increase, in order to maintain the same salary cost?

Table C7.a presents the results for this simulation. For each factor, the value is calculated keeping everything else constant. For example, in Australia, in order to decrease estimated class size by one student and keep the salary cost per student constant, teacher salaries would have to decrease by USD 3 600, annual instruction time would have to decrease by 63 hours, or annual teaching time would have to increase by 54 hours. Any one of these trade-offs would compensate for the additional cost of the decrease in class size, without any change to the total salary cost of teachers per student.

These results emphasise the fact that decreasing class size, by as little as one student, comes with a price tag. Indeed, class size has been decreasing in several OECD countries over recent years (OECD, 2016[3]), though often as a result of demographic changes rather than of active policy choices. Class sizes tend to decrease with student enrolment because of the political, economic and organisational challenges of simultaneously decreasing the number of teachers. However, in the long term, a non-reduction of the teaching force is in itself a policy choice that will keep classes smaller. Table C7.a shows that the price of the smaller class sizes can either be reflected in a higher salary cost, 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 time 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 of one factor at a time. In reality, trade-offs will often consist of changes across several factors at the same time. Moreover, important regional variations, not captured in this indicator, may require specific policies that would not necessarily be reflected on the national averages. Instead, 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 magnitude of the potential trade-offs across the four factors assessed in this indicator.

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Table C7.a. Keeping salary cost constant, what could be the trade-offs of decreasing class size, by one student? (2016)

Lower secondary education, public institutions only

	Teacher salaries (in equivalent USD per year)	Instruction time (in hours per year)	Teaching time (in hours per year)
	(1)	(2)	(3)
Australia	-3 600	-63	54
Austria	-4 100	-71	52
Canada	-3 100	-44	37
Chile	-1 600	-67	78
Czech Republic	-1 100	-51	37
Denmark	-3 000	-70	49
Estonia[1]	-1 400	-59	47
Finland	-3 500	-66	51
Flemish Comm. (Belgium)	-3 100	-59	36
France	-1 800	-48	35
French Comm. (Belgium)	-3 600	-73	53
Germany	-4 700	-57	50
Greece	-2 500	-74	61
Hungary	-1 700	-64	60
Iceland	-2 500	-60	48
Ireland	-3 300	-53	44
Israel	-2 000	-59	44
Italy	-2 200	-57	38
Japan	-2 600	-45	32
Latvia	-1 000	-91	93
Luxembourg	-10 100	-78	75
Mexico	- 900	-28	26
Netherlands	-3 300	-47	37
Norway	-3 900	-72	60
Poland	-1 600	-50	31
Portugal	-3 000	-65	47
Slovak Republic	-1 200	-53	45
Slovenia	-5 300	-103	97
Spain	-3 200	-68	50
Switzerland[2]	-5 300	-65	55
Turkey	- 800	-31	19
United States	-3 700	-61	62

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 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 (2018), Table C7.5b, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805040

Definitions

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.

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.

Teachers' salary refers to the annual statutory salary of teachers after 15 years of experience, converted to USD using PPPs for private consumption.

Methodology

The salary cost of teachers per student (SCS) is calculated as:

$$SCS = Teacher\ salary * Instruction\ time * \frac{1}{Teaching\ time} * \frac{1}{Estimaed\ class\ size}$$

Where estimated class size is calculated as:

$$Estimated\ class\ size = \frac{Instruction\ time}{Teaching\ time} * \frac{Students}{Teachers}$$

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[4]). 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[5]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data referring to the 2016 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 2016.

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 (2016), *Education at a Glance 2016 : OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2016-en (accessed on 12 January 2018). [3]

OECD (2016), *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*, PISA, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264267510-en. [1]

Quebec Ministry of Education, Recreation and Sports (2003), "Le coût salarial des enseignants par élève pour l'enseignement primaire et secondaire en 2000-2001", *Education Statistics Bulletin*, No. 29, www.education.gouv.qc.ca/fileadmin/site_web/documents/PSG/statistiques_info_decisionnelle/bulletin_29.pdf. [4]

Indicator C7 Tables

StatLink https://doi.org/10.1787/888933804888

Table C7.1	Salary cost of teachers per student, by level of education (2016)
Table C7.2	Contribution of various factors to salary cost of teachers per student in primary education (2016)
Table C7.3	Contribution of various factors to salary cost of teachers per student in lower secondary education (2016)

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WEB **Table C7.4 Contribution of various factors to salary cost of teachers per student in general programmes of upper secondary education (2016)**

WEB **Table C7.5a Factors used to compute the salary cost of teachers per student in public institutions, in primary education (2016)**

WEB **Table C7.5b Factors used to compute the salary cost of teachers per student in public institutions, in lower secondary education (2016)**

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 (2016)**

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

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Table C7.1. Salary cost of teachers per student, by level of education (2016)

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, 2016 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	3 808	4 555	m	8.0	9.6	m
Austria	4 243	6 059	5 493	8.4	11.9	10.8
Canada	3 817	3 817	m	8.5	8.5	m
Chile	1 649	1 518	1 339	7.2	6.6	5.9
Czech Republic	1 013	1 626	m	2.9	4.7	m
Denmark	4 405	4 622	m	9.0	9.4	m
Estonia	1 296	1 920	m	4.5	m	m
Finland	3 080	4 927	m	7.1	11.3	m
France	1 827	2 615	2 999	4.4	6.3	7.2
Germany	4 461	5 676	m	9.1	11.6	m
Greece	2 782	3 315	m	10.4	12.4	m
Hungary	1 832	1 971	2 054	6.9	7.4	7.7
Iceland	3 241	3 383	m	6.3	6.6	m
Ireland	3 602	4 235	4 235	5.0	5.9	5.9
Israel	2 020	2 793	2 589	5.4	7.4	6.9
Italy	3 060	3 432	3 202	8.0	8.9	8.3
Japan	3 073	3 778	m	7.3	8.9	m
Korea	m	m	m	m	m	m
Latvia	758	1 115	m	3.0	4.4	m
Luxembourg	10 265	11 560	11 535	9.9	11.2	11.2
Mexico	1 115	1 039	2 709	6.0	5.5	14.5
Netherlands	3 424	4 459	4 459	6.8	8.8	8.8
New Zealand	m	m	m	m	m	m
Norway	4 516	5 075	m	8.8	9.9	m
Poland	2 183	2 623	m	8.0	9.6	m
Portugal	3 268	4 466	4 470	10.7	14.6	14.6
Slovak Republic	1 089	1 504	1 304	3.6	4.9	4.3
Slovenia	2 775	6 487	m	8.5	19.8	m
Spain	3 580	4 724	4 624	9.9	13.0	12.7
Sweden	m	m	m	m	m	m
Switzerland	4 407	6 621	m	6.9	10.3	m
Turkey	1 258	1 412	1 546	4.9	5.5	6.1
United States	3 808	3 911	3 847	6.6	6.8	6.6
Economies						
Flemish Comm. (Belgium)	4 186	5 479	6 761	9.0	11.8	14.5
French Comm. (Belgium)	3 863	5 351	6 004	8.3	11.5	12.9
England (UK)	m	m	m	m	m	m
Scotland (UK)	m	m	m	m	m	m
OECD average[1]	2 936	3 604	3 723	6.9	8.7	8.6

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 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. The OECD average only includes countries and economies with data for all factors used to calculate salary cost.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933804907

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Table C7.2. Contribution of various factors to salary cost of teachers per student in primary education (2016)

In equivalent USD, converted using PPPs for private consumption

		Salary cost of teachers per student (2016)	Difference (in USD) from the 2016 OECD average of **USD 2 936**	Contribution of the underlying factors to the difference from the OECD average			
				Effect (in USD) of teachers' salary below/above the 2016 OECD average of **USD 42 193**	Effect (in USD) of instruction time (for students) below/above the 2016 OECD average of **805 hours**	Effect (in USD) of teaching time (for teachers) below/above the 2016 OECD average of **775 hours**	Effect (in USD) of estimated class size below/above the 2016 OECD average of **15 students per class**
		(1)	(2) = (3)+(4)+(5)+(6)	(3)	(4)	(5)	(6)
OECD	**Countries**						
	Australia	3 808	**872**	1 031	734	- 365	- 528
	Austria	4 243	**1 307**	551	- 480	- 21	1 257
	Canada	3 817	**881**	1 456	454	- 100	- 930
	Chile	1 649	**-1 287**	-1 084	596	- 914	114
	Czech Republic	1 013	**-1 923**	-1 387	- 283	447	- 700
	Denmark	4 405	**1 469**	681	966	- 43	- 135
	Estonia[1]	1 296	**-1 639**	-1 814	- 422	618	- 22
	Finland	3 080	**144**	- 88	- 734	394	572
	France	1 827	**-1 109**	- 454	167	- 351	- 471
	Germany	4 461	**1 525**	1 813	- 498	- 126	336
	Greece	2 782	**- 154**	-1 406	- 72	472	852
	Hungary	1 832	**-1 104**	-1 804	- 470	433	738
	Iceland	3 241	**305**	- 562	- 312	674	504
	Ireland	3 602	**666**	1 024	421	- 550	- 229
	Israel	2 020	**- 916**	- 852	443	- 224	- 283
	Italy	3 060	**124**	- 612	305	36	395
	Japan	3 073	**137**	582	- 164	130	- 412
	Korea	m	**m**	m	m	m	m
	Latvia	758	**-2 177**	-2 652	- 569	151	891
	Luxembourg	10 265	**7 329**	5 102	852	- 276	1 652
	Mexico	1 115	**-1 821**	- 617	- 13	- 62	-1 129
	Netherlands	3 424	**488**	989	497	- 589	- 409
	New Zealand	m	**m**	m	m	m	m
	Norway	4 516	**1 580**	365	- 276	166	1 325
	Poland	2 183	**- 753**	-1 330	- 624	829	372
	Portugal	3 268	**332**	- 38	64	132	173
	Slovak Republic	1 089	**-1 847**	-1 503	- 307	- 68	31
	Slovenia	2 775	**- 161**	- 182	- 552	609	- 36
	Spain	3 580	**644**	179	- 58	- 418	941
	Sweden	m	**m**	m	m	m	m
	Switzerland[2]	4 407	**1 471**	1 759	42	- 196	- 135
	Turkey	1 258	**-1 678**	-1 168	- 227	151	- 433
	United States	3 808	**872**	1 190	634	- 891	- 60
	Economies						
	Flemish Comm. (Belgium)	4 186	**1 250**	596	72	122	460
	French Comm. (Belgium)	3 863	**927**	461	181	267	18
	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 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table C7.3. Contribution of various factors to salary cost of teachers per student in lower secondary education (2016)

In equivalent USD, converted using PPPs for private consumption

		Salary cost of teacher per student (2016)	Difference (in USD) from the 2016 OECD average of **USD 3 604**	Contribution of the underlying factors to the difference from the OECD average			
				Effect (in USD) of teachers' salary below/above the 2016 OECD average of **USD 44 397**	Effect (in USD) of instruction time (for students) below/above the 2016 OECD average of **923 hours**	Effect (in USD) of teaching time (for teachers) below/above the 2016 OECD average of **697 hours**	Effect (in USD) of estimated class size below/above the 2016 OECD average of **16 students per class**
		(1)	(2) = (3) + (4) + (5) + (6)	(3)	(4)	(5)	(6)
OECD	**Countries**						
	Australia	4 555	**951**	1 039	328	- 544	127
	Austria	6 059	**2 455**	726	- 124	656	1 198
	Canada	3 817	**213**	1 421	6	- 251	- 963
	Chile	1 518	**-2 087**	-1 288	381	-1 239	60
	Czech Republic	1 626	**-1 979**	-2 037	- 75	321	- 187
	Denmark	4 622	**1 018**	616	1 078	- 489	- 188
	Estonia[1]	1 920	**-1 685**	-2 236	- 325	417	459
	Finland	4 927	**1 322**	- 12	- 380	667	1 047
	France	2 615	**- 989**	- 550	222	57	- 717
	Germany	5 676	**2 072**	2 410	- 71	- 338	71
	Greece	3 315	**- 289**	-1 908	- 582	633	1 568
	Hungary	1 971	**-1 633**	-2 216	- 537	193	927
	Iceland	3 383	**- 221**	- 813	- 337	389	540
	Ireland	4 235	**630**	1 065	52	- 187	- 301
	Israel	2 793	**- 812**	- 955	255	- 7	- 105
	Italy	3 432	**- 172**	- 593	248	375	- 202
	Japan	3 778	**174**	527	- 115	493	- 732
	Korea	m	**m**	m	m	m	m
	Latvia	1 115	**-2 489**	-3 766	- 399	- 82	1 757
	Luxembourg	11 560	**7 956**	6 150	- 656	- 440	2 903
	Mexico	1 039	**-2 566**	- 281	540	- 882	-1 943
	Netherlands	4 459	**854**	1 964	330	- 305	-1 135
	New Zealand	m	**m**	m	m	m	m
	Norway	5 075	**1 470**	206	- 236	213	1 287
	Poland	2 623	**- 982**	-1 778	- 417	1 203	11
	Portugal	4 466	**861**	- 255	- 139	568	687
	Slovak Republic	1 504	**-2 100**	-2 082	- 249	143	89
	Slovenia	6 487	**2 882**	- 595	- 975	543	3 909
	Spain	4 724	**1 120**	462	510	- 95	243
	Sweden	m	**m**	m	m	m	m
	Switzerland[2]	6 621	**3 016**	2 784	190	- 446	488
	Turkey	1 412	**-2 192**	-1 535	- 225	828	-1 260
	United States	3 911	**306**	1 270	379	-1 255	- 87
	Economies						
	Flemish Comm. (Belgium)	5 479	**1 874**	531	122	1 124	98
	French Comm. (Belgium)	5 351	**1 746**	379	224	260	884
	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 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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/10.1787/888933805059

Indicator D2 What is the student-teacher ratio and how big are classes?
StatLink https://doi.org/10.1787/888933805230

Indicator D3 How much are teachers and school heads paid?
StatLink https://doi.org/10.1787/888933805363

Indicator D4 How much time do teachers spend teaching?
StatLink https://doi.org/10.1787/888933805553

Indicator D5 Who are the teachers?
StatLink https://doi.org/10.1787/888933805724

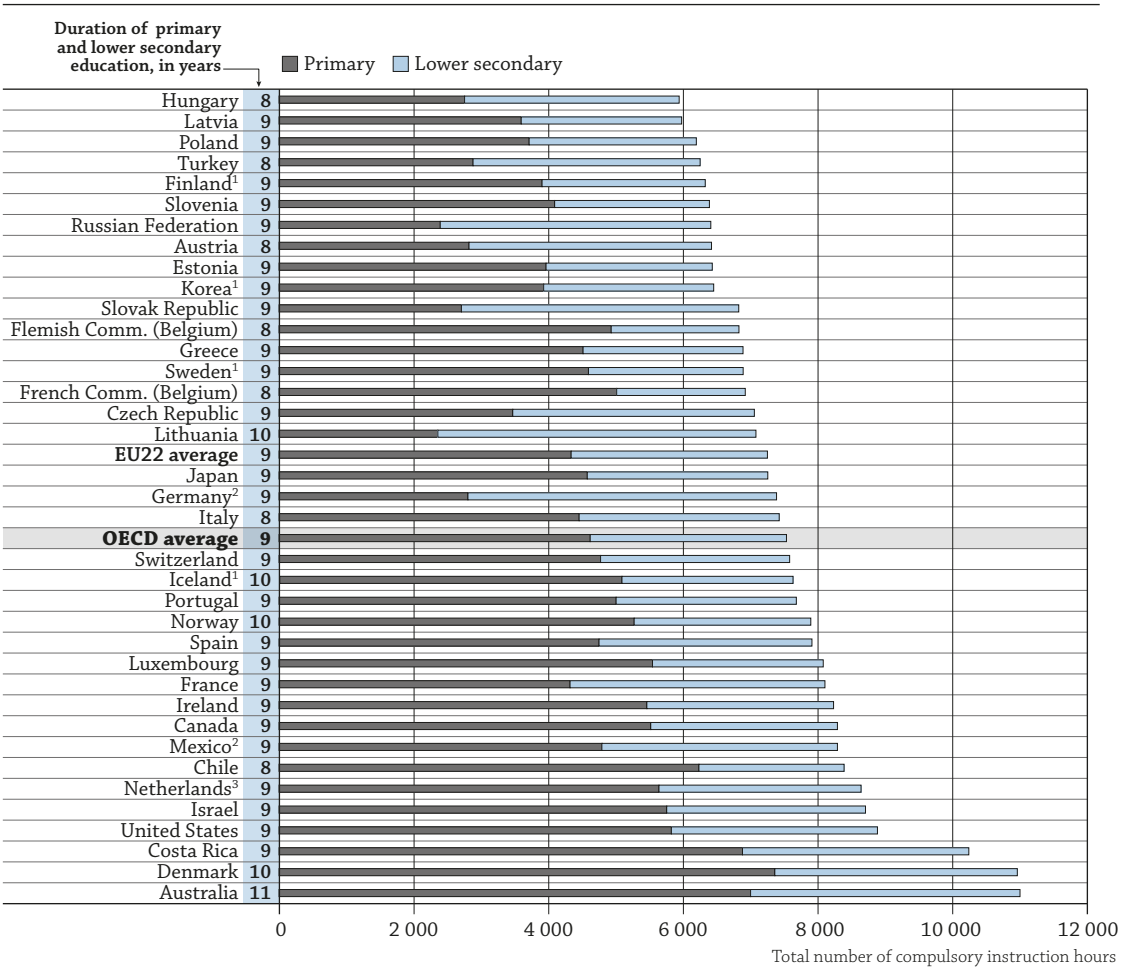
Indicator D6 Who makes key decisions in education systems?
StatLink https://doi.org/10.1787/888933805857

HOW MUCH TIME DO STUDENTS SPEND IN THE CLASSROOM?

- Students in OECD countries and economies receive an average of 7 533 hours of compulsory instruction during their primary and lower secondary education, ranging from 5 940 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, and lower secondary students receive an average of 114 more hours of compulsory education per year than primary students (913 hours).
- On average across OECD countries and economies, instruction in reading, writing and literature, mathematics, and the arts represents 51% of compulsory instruction time for primary school students, and instruction in reading, writing and literature, second and other languages, and mathematics represents 40% of compulsory instruction time for lower secondary school students.

Figure D1.1. Compulsory instruction time in general education (2018)

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 the allocation of instruction time across multiple grades is flexible.

2. Year of reference differs from 2018. See Table D1.1 for more information.

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 (2018), Table D1.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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 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 19% in Poland 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 more 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 11% in Hungary and Korea to 16% in Chile, Latvia and the Russian Federation (and 20% in Italy, including natural science).
- Except for a few countries where the compulsory curriculum is mostly devoted to flexible subjects, in OECD countries and economies, an average of 1% 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 at the primary level and 7% at the lower secondary level is devoted to flexible subjects chosen by schools.
- In one-third 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).

D1

Analysis

Compulsory general education

Both annual instruction time and the length of compulsory education have impacts on the total instruction time during compulsory education. In some countries, the duration of compulsory education is shorter, and students could bear a heavier 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 age 6. In most other countries, students are not required to start until age 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 instruction days, countries also vary in the way they organise recess and breaks (Box D1.2).

Box D1.1. Organisation of breaks within the school year in primary education (2018)

The length of the school year varies greatly between countries, implying that there is also wide variation in the number of weeks children 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 in Ireland, Israel and Lithuania, the number of weeks of instruction differs between these levels by one to four weeks (see Table D4.1). 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 three areas in 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 primary education, this break varies from a minimum of 5 weeks in Mexico and in some subnational entities in Australia and Switzerland to 12 weeks or more in Estonia, Greece, Italy (12 to 14 weeks), Latvia, Lithuania, 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 (Figure D1.a).

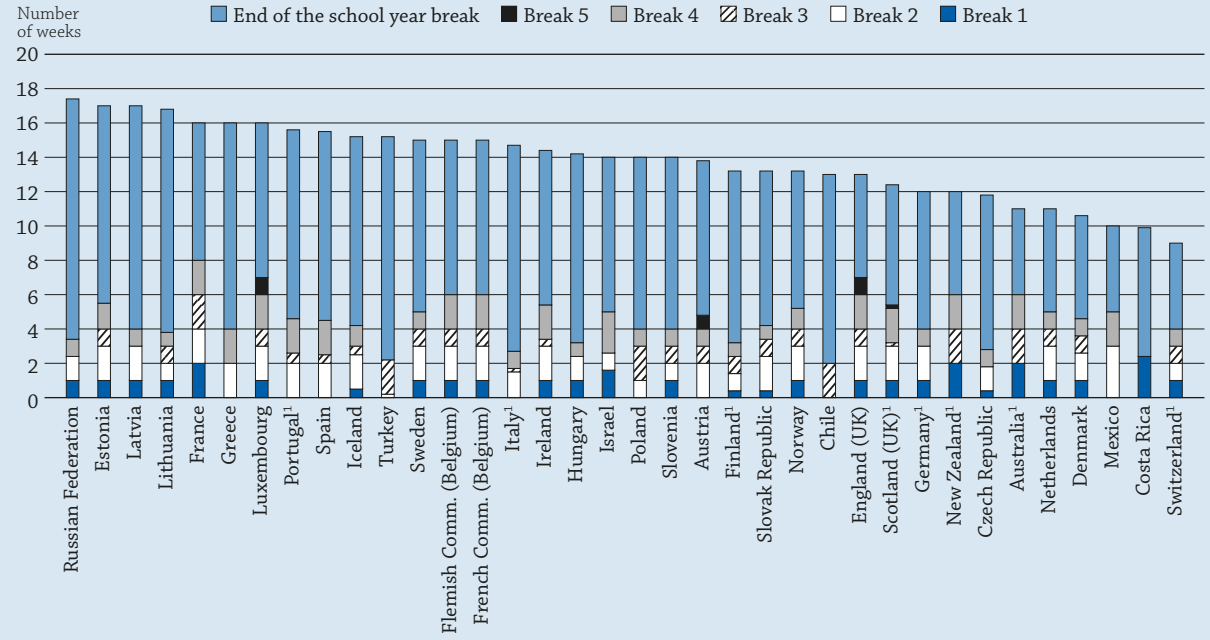
In addition to this long break, children usually have three to four other shorter holiday periods during the school year. Austria, England (United Kingdom), Luxembourg and Scotland (United Kingdom), as well as some *Länder* in Germany offer a fifth break during the third term of the school year.

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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 a two-week break (in the northern hemisphere), or the end of the school year in the southern hemisphere. These 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 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), Germany, Luxembourg and Poland alternate one-week and two-week breaks during the school year.

Figure D1.a. School breaks in primary education (2018)



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.
Countries are ranked in descending order of the number of weeks of breaks during the schol year.
Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Box D1.2. Recess and breaks during the school day

Learning in the classroom demands that students be focused and concentrate for long periods of time. Based on annual instruction hours and the number of instruction days per year, primary students have less than four hours of compulsory instruction per school day in about two-fifths of countries, but at least five hours a day in a few countries (Australia, Canada, Chile, Costa Rica, Denmark, the Flemish Community of Belgium, Ireland, Luxembourg and the United States). This is also the case in France, but the school week is organised in 4.5 rather than 5 days of school so that teaching time per day can be less than five hours. At lower secondary level, the number of compulsory instruction hours per day is usually higher, with all countries having at least four hours of compulsory instruction time per day. Three-quarters of countries have between four and less than six hours per day, and Chile, Denmark and Spain have six hours or more per day (Tables D1.1 and D1.2).

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D1

Research has found that spending some time outside the classroom during the school day in activities other than instruction can help improve students' performance in the classroom. In primary education, breaks in instruction allow pupils to play, rest and freely interact with their peers to further develop cognitive, emotional and social skills. Research suggests that students may then apply those skills in the classroom, thus improving their learning (Pellegrini and Bohn, 2005[1]; Pellegrini et al., 2002[2]). OECD countries increasingly consider recess and breaks as important components of the school day.

How breaks during the school day are organised in OECD countries depends on how education systems are governed and the degree of autonomy that individual schools enjoy (see Box D1.1 in [OECD, 2015[3]]). In most countries, the school day is divided into lessons that last from 45 to 50 minutes, allowing for short breaks between them to make up an entire hour. Across OECD countries, 10-15 minute breaks are generally long enough to allow students to change classrooms and visit the bathroom. These short breaks are different in length and purpose from longer breaks observed in the majority of countries. During longer breaks, students can have breakfast or lunch and are commonly supervised by a teacher or group of teachers.

In primary education, long breaks are common and, in some cases, even compulsory. In Spain, for example, breaks in primary school are considered part of compulsory instruction time. Primary students in Spain have a half-hour break every day in the middle of the morning session that is considered part of the five daily instruction hours. In several countries, a lunch break is set as part of the learning process, where students learn about hygiene, healthy eating habits and/or recycling waste.

In several countries, long breaks can be found at all levels of education. In Australia, schools at all levels of education tend to have one short morning recess and then a longer lunch break. In Canada, there is a midday break for lunch in primary through upper secondary education. In both countries, long breaks can last around 40 to 60 minutes. Some countries have even longer lunch breaks, such as in France, where they last at least 90 minutes for primary education. Breaks can also occur throughout the day. In Switzerland, for example, schools usually organise two breaks of between 15 and 30 minutes each and a long lunch break of about 60 to 90 minutes. In Chile, schools with a large number of pupils may divide students into two or more groups for their breaks, by grade or age.

Schools can use recess and breaks for different purposes. They can use breaks as a way of helping students who have to commute a long distance to school or to harmonise the end of classes when the duration of lesson periods is different across grades, as in the Czech Republic, where ten-minute breaks can be shortened to five minutes. In Denmark, municipalities often use breaks and recess as an integrated part of daily exercise and physical activities for students at all grade levels. This is also the case in Slovenia, where schools sometimes organise a long break intended for students to practice sports in the gym and on the school's outdoor playing fields.

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 4 620 hours of instruction during primary school and 2 913 hours during lower secondary education. While the total compulsory instruction time for primary and lower secondary students averages 7 533 hours (in 9 years on average) across OECD countries and economies, formal instruction-time requirements range from 5 940 in Hungary (in 8 years) to 11 000 in Australia (in 11 years) (Figure D1.1). In England (United Kingdom), New Zealand and Scotland (United Kingdom), regulations do not prescribe 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 variation of instruction time at the subnational level, see Box D1.3).

Compulsory instruction time only captures the time spent by students in formal classroom settings. This is only a part of the total time students spend receiving instruction. Instruction also occurs 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 D1.3 in [OECD, 2017[4]]). These lessons can be financed through public funds or by students and their families (see Box D1.1 in [OECD, 2011[5]]).

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 the formal classroom setting.

Box D1.3. Compulsory instruction time at the subnational level at primary and lower secondary levels

Instruction time varies largely between levels of education and also between countries for each level of education. However compulsory education can also vary significantly within countries, especially in federal countries where requirements are defined at the subnational level.

Among the four countries that reported at least some subnational data on instruction time (Belgium, Canada, the United Kingdom and the United States), the difference in compulsory instruction time in primary education between the subnational regions with the lowest and highest number of hours of instruction varies largely between the two countries with available data. It varies from 4 931 hours to 5 012 hours (by 2%) between the French and Flemish Communities of Belgium, and from 4 320 hours to 7 560 hours (by 75%) between the 51 subnational regions (50 states and Washington DC) of the United States. At the lower secondary level, the variations are similar to primary level: instruction time varies from 1 896 hours to 1 909 hours (by less than 1%) in Belgium and from 2 160 hours to 3 780 hours (by 75%) in the United States. In both these countries, these variations result from differences in annual instruction hours between subnational entities, as the number of years of compulsory primary and lower secondary education does not vary between subnational entities (OECD/NCES, 2018[6]).

Differences in the annual number of hours of compulsory instruction between subnational regions may be explained by differences in the number of annual days of instruction at the subnational level at both primary and lower secondary levels. Within countries with available data, the number of annual days of compulsory instruction at these levels varies between subnational regions by about 6% in Canada (between 180 to 190 days), less than 13% in Belgium (between 159 or 160 days to 179 days) and 16% in the United States (from 160 to 186 days), but does not vary between subnational entities with available information in the United Kingdom (190 days) (OECD/NCES, 2018[6]).

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.

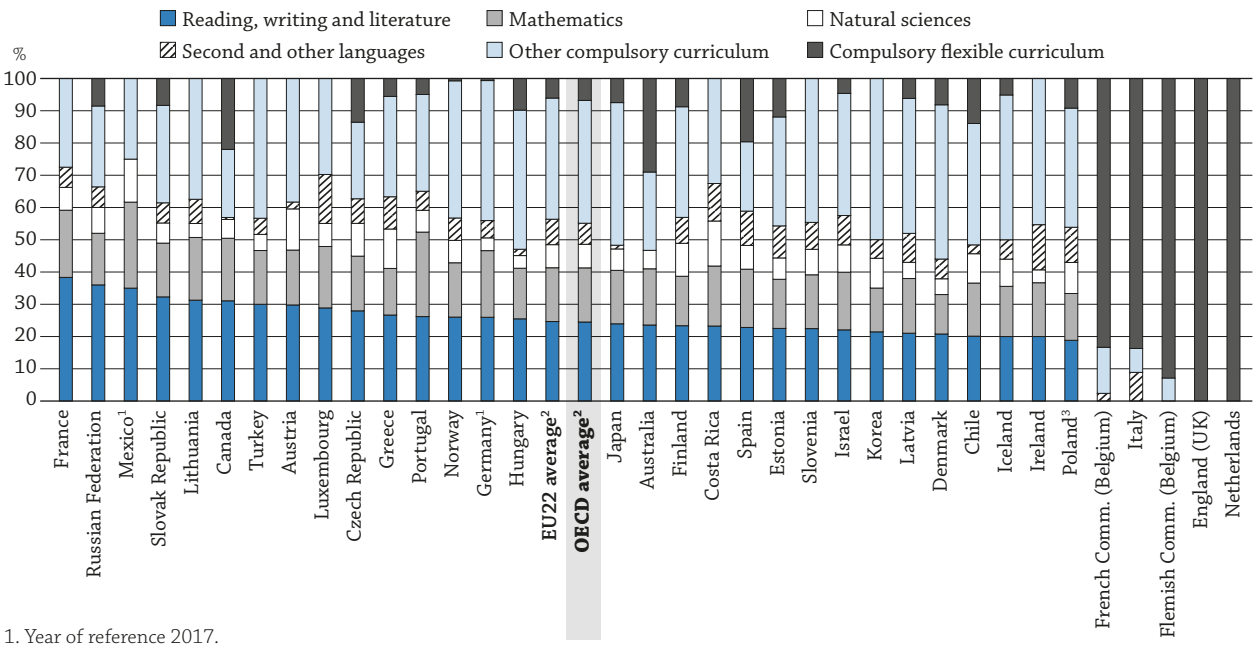
Intended and compulsory instruction time are of the same length (i.e. intended instruction time is fully compulsory) for primary and lower secondary students in about three out of four countries with available data. In Finland, France (lower secondary), Greece, Lithuania, Poland, Portugal (primary) and 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 of students (Box D1.3).

Instruction time per subject

On average across OECD countries, primary students spend 51% 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 19% of the compulsory instruction time on average across OECD countries (Table D1.3a and Figure D1.2a).

Figure D1.2a. Instruction time per subject in primary education (2018)

As a percentage of total compulsory instruction time, in public institutions



1. Year of reference 2017.
2. Excludes England (United Kingdom), Flemish Comm. (Belgium), French Comm. (Belgium), Italy and the Netherlands.
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 (2018), Table D1.3a. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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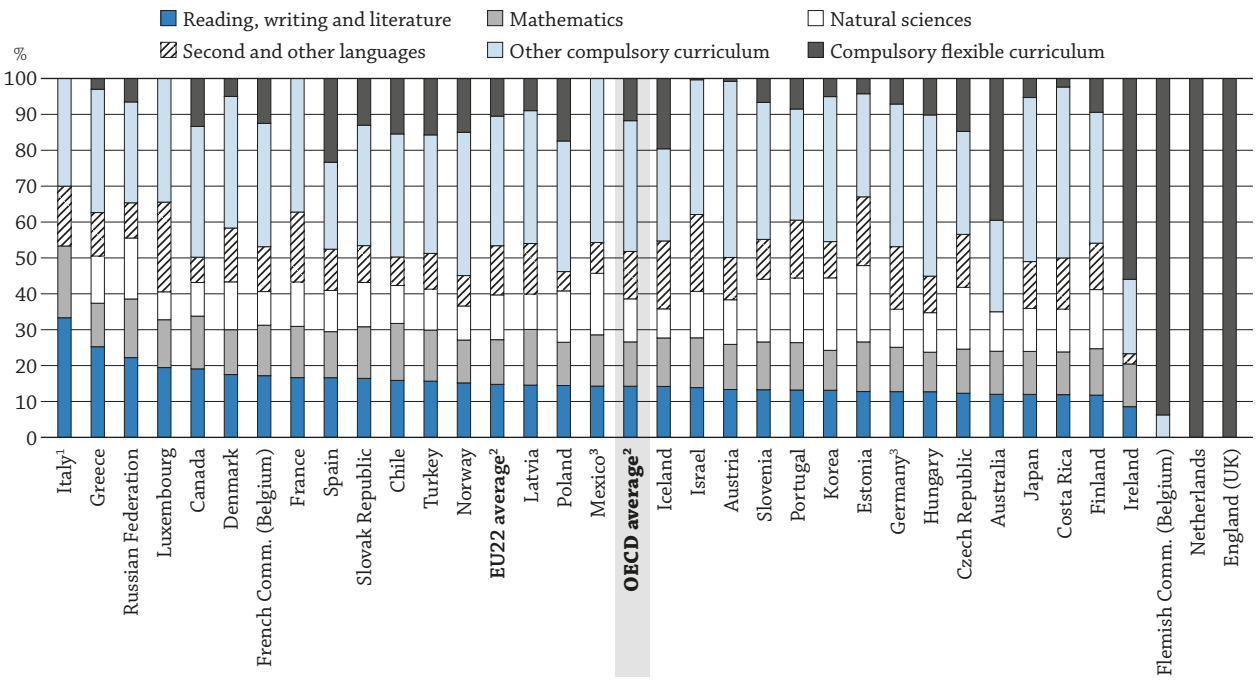
At the lower secondary level, on average across OECD countries and economies, 40% of the compulsory curriculum is composed of three subjects: reading, writing and literature (14%), second and other languages (13%) and mathematics (12%). On average, an additional 12% of the compulsory curriculum is devoted to natural sciences, 10% 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 (12%) of the non-flexible compulsory curriculum for students at this level of education (Table D1.3b and Figure D1.2b).

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 14%, and instruction in mathematics drops from 17% of compulsory instruction time to 12%. Conversely, instruction in natural science climbs from 7% of the compulsory curriculum to 12%, and in social studies from 6% to 10%, while instruction in other languages (second and others) climbs from 6% to 13%. 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 and Luxembourg (Tables D1.3a and b).

At the lower secondary level, there is substantial variation in how countries allocate time among 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 and Japan, but more than 25% of compulsory instruction time in Greece and Italy (in Italy, it also includes time devoted to social studies). In Ireland, reading, writing and literature are taught in two national languages, and therefore the actual estimation of the combined percentage can reach about 21% of the total compulsory instruction time. Compulsory instruction time devoted to second and other languages also varies largely between countries. Second-language instruction accounts for less than 7% of compulsory instruction time in Greece, Ireland and Poland and 13% or more in the French Community of Belgium, Iceland and Japan. In addition, in just over half of countries with available data, studying another language in addition to a second language is compulsory for lower secondary students.

Figure D1.2b. Instruction time per subject in general lower secondary education (2018)

As a percentage of total compulsory instruction time, in public institutions



1. Natural sciences included in mathematics. Social studies included with reading, writing and literature.
2. Excludes England (United Kingdom), Flemish Comm. (Belgium) and the Netherlands.
3. Year of reference 2017.

Countries and economies are ranked in descending order of the proportion of instruction hours devoted to reading, writing and literature.

Source: OECD (2018), Table D1.3b. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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As seen at primary and lower secondary levels, 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 for 7-year-olds is devoted to reading, writing and literature, 18% for 11-year-olds and 11% for 15-year-olds. By contrast, while an average of 3% of instruction time for 7-year-olds is devoted to teaching of a second language, 10% of instruction time for 11-year-olds is spent studying a second language and 2% studying other languages, and for 15-year-olds, 9% of instruction time is devoted to the second language and 5% to other languages. The share of instruction time dedicated to natural sciences increases from 7% for 7-year-olds to 9% for 11-year-olds and 11% for 15-year-olds, while instruction time in social studies increases from 5% for 7-year-olds to 9% for 11-year-olds and 15-year-olds. The portion of instruction time dedicated to the arts slips from 11% for 7-year olds and 9% for 11-year-olds to 4% for 15-year-olds, while the time dedicated to physical education remains fairly constant, at 9% for 7-year-olds and 8% for 11-year-olds, before dropping 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 about one-third 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 (Tables D1.2 and D1.4).

Setting compulsory subjects within a flexible timetable is the practice for most subjects in a few countries. In the Flemish and French Communities of Belgium and in Italy, 83% or more of the compulsory curriculum at the primary level is organised within a flexible timetable. In England (United Kingdom) and the Netherlands, the whole curriculum at the primary level is organised in a flexible timetable. At the lower secondary level, similar patterns

occur in the Flemish Community of Belgium, England (United Kingdom) and the Netherlands. In these countries and economies, compulsory subjects and total instruction time are specified, but not the time to be allocated to each subject. Local authorities, schools and/or teachers are free to decide how much time should be allocated 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, compulsory subjects with flexible timetables account for less than 2% of the compulsory instruction time at both primary and lower secondary levels, even if they could be 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, 7% 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, 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 (50% at lower secondary level) and Spain (23% at lower secondary level). In Australia, Iceland, Norway and Turkey, 15% to 20% of compulsory instruction time is allocated to subjects chosen by lower secondary students (Tables 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 5% of the total compulsory instruction time for primary students and 4% for 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, 25% 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 (Tables 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 pupils 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 to which students are entitled beyond the compulsory hours of instruction and that almost every public school is expected to provide. Subjects can vary from school to school or from region to region and take the form of elective subjects. Students are not required to choose one of the elective subjects, but all public schools are expected to offer this possibility.

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[7]]).

The indicator also illustrates how minimum 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 dividing the total number of instruction hours per the number of grades.

For more information please see the *OECD Handbook for Internationally Comparable Education Statistics 2018* (OECD, 2018[8]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data on instruction time are from the 2017 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 2017/18.

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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D1

Indicator D1 Tables

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	Table D1.1	Instruction time in compulsory general education (2018)
	Table D1.2	Organisation of compulsory general education (2018)
	Table D1.3a	Instruction time per subject in primary education (2018)
	Table D1.3b	Instruction time per subject in general lower secondary education (2018)
WEB	Table D1.4	Instruction time in compulsory general education, by age (2018)
WEB	Table D1.5a	Instruction time per subject for 6-year-olds (2018)
WEB	Table D1.5b	Instruction time per subject for 7-year-olds (2018)
WEB	Table D1.5c	Instruction time per subject for 8-year-olds (2018)
WEB	Table D1.5d	Instruction time per subject for 9-year-olds (2018)
WEB	Table D1.5e	Instruction time per subject for 10-year-olds (2018)
WEB	Table D1.5f	Instruction time per subject for 11-year-olds (2018)
WEB	Table D1.5g	Instruction time per subject for 12-year-olds (2018)
WEB	Table D1.5h	Instruction time per subject for 13-year-olds (2018)
WEB	Table D1.5i	Instruction time per subject for 14-year-olds (2018)
WEB	Table D1.5j	Instruction time per subject for 15-year-olds (2018)
WEB	Table D1.5k	Instruction time per subject for 16-year-olds (2018)
WEB	Table D1.5l	Instruction time per subject for 17-year-olds (2018)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table D1.1. [1/2] Instruction time in compulsory general education[1] (2018)

By level of education, in public institutions

		Primary						
			Average hours per year			Total number of hours		
		Number of grades that are part of compulsory education	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)
OECD	**Countries**							
	Australia	7	1 000	m	m	7 000	m	m
	Austria	4	705	m	m	2 820	m	m
	Canada	6	920	a	920	5 518	a	5 518
	Chile	6	1 039	a	1 039	6 233	a	6 233
	Czech Republic	5	694	m	m	3 469	m	m
	Denmark	7	1 051	a	1 051	7 360	a	7 360
	Estonia	6	661	a	661	3 964	a	3 964
	Finland[2]	6	651	33	683	3 905	195	4 100
	France	5	864	a	864	4 320	a	4 320
	Germany[3, 4]	4	701	a	701	2 804	a	2 804
	Greece	6	752	398	1 151	4 514	2 390	6 903
	Hungary	4	689	a	689	2 754	a	2 754
	Iceland[2]	7	729	a	729	5 100	a	5 100
	Ireland	6	910	a	910	5 460	a	5 460
	Israel	6	959	a	959	5 755	a	5 755
	Italy	5	891	a	891	4 455	a	4 455
	Japan[5]	6	763	a	763	4 576	a	4 576
	Korea[2]	6	655	a	655	3 928	a	3 928
	Latvia	6	599	m	m	3 595	m	m
	Luxembourg	6	924	a	924	5 544	a	5 544
	Mexico[3]	6	800	a	800	4 800	a	4 800
	Netherlands[6]	6	940	m	m	5 640	m	m
	New Zealand	6	m	m	m	m	m	m
	Norway	7	753	a	753	5 272	a	5 272
	Poland	6	619	59	677	3 713	352	4 065
	Portugal	6	834	205	1 039	5 004	1 231	6 235
	Slovak Republic	4	677	a	677	2 707	a	2 707
	Slovenia	6	682	140	822	4 091	840	4 931
	Spain	6	792	a	792	4 750	a	4 750
	Sweden[2]	6	766	m	m	4 593	m	m
	Switzerland	6	796	m	m	4 773	m	m
	Turkey	4	720	a	720	2 880	a	2 880
	United States	6	971	m	m	5 824	m	m
	Economies							
	Flemish Comm. (Belgium)	6	822	a	822	4 931	a	4 931
	French Comm. (Belgium)	6	835	a	835	5 012	a	5 012
	England (UK)	6	m	a	m	m	a	m
	Scotland (UK)	7	m	a	m	m	a	m
	OECD average	6	799	m	m	4 620	m	m
	EU22 average	6	775	m	m	4 337	m	m
Partners	Argentina	m	m	m	m	m	m	m
	Brazil	5	m	m	m	m	m	m
	China	m	m	m	m	m	m	m
	Colombia	5	m	m	m	m	m	m
	Costa Rica	6	1 147	a	1 147	6 880	a	6 880
	India	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m
	Lithuania	4	589	36	626	2 357	146	2 503
	Russian Federation	4	598	m	m	2 393	m	m
	Saudi Arabia	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m

Note: Columns showing instruction time in 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 the allocation of instruction time across multiple grades is flexible.
3. Year of reference 2017.
4. Excludes the last year of compulsory education, which can be classified at either the lower secondary or the upper secondary level.
5. Average planned instruction time in each school at the beginning of the school year.
6. 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: Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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D1

Table D1.1. [2/2] Instruction time in compulsory general education[1] (2018)

By level of education, in public institutions

		Lower secondary							Primary and lower secondary			
			Average hours per year			Total number of hours				Total number of hours		
		Number of grades that are part of compulsory education	Compulsory instruction time	Non-compulsory instruction time	Intended instruction time	Compulsory instruction time	Non-compulsory instruction time	Intended instruction time	Theoretical duration in years	Compulsory instruction time	Non-compulsory instruction time	Intended instruction time
		(8)	(9)	(10)	(11)=(9)+(10)	(12)	(13)	(14)=(12)+(13)	(15)	(16)=(5)+(12)	(17)=(6)+(13)	(18)=(16)+(17)
OECD	**Countries**											
	Australia	4	1 000	m	m	4 000	m	m	11	**11 000**	**m**	**m**
	Austria	4	900	m	m	3 600	m	m	8	**6 420**	**m**	**m**
	Canada	3	924	3	927	2 771	9	2 781	9	**8 289**	**9**	**8 299**
	Chile	2	1 077	a	1 077	2 155	a	2 155	8	**8 388**	**a**	**8 388**
	Czech Republic	4	897	m	m	3 587	m	m	9	**7 056**	**m**	**m**
	Denmark	3	1 200	a	1 200	3 600	a	3 600	10	**10 960**	**a**	**10 960**
	Estonia	3	823	a	823	2 468	a	2 468	9	**6 431**	**a**	**6 431**
	Finland[2]	3	808	87	894	2 423	261	2 683	9	**6 327**	**456**	**6 783**
	France	4	946	189	1 135	3 784	756	4 540	9	**8 104**	**756**	**8 860**
	Germany[3, 4]	5	916	a	916	4 582	a	4 582	9	**7 386**	**a**	**7 386**
	Greece	3	791	253	1 044	2 374	758	3 132	9	**6 888**	**3 147**	**10 035**
	Hungary	4	797	a	797	3 186	a	3 186	8	**5 940**	**a**	**5 940**
	Iceland[2]	3	839	a	839	2 516	a	2 516	10	**7 616**	**a**	**7 616**
	Ireland	3	924	a	924	2 772	a	2 772	9	**8 232**	**a**	**8 232**
	Israel	3	984	a	984	2 951	a	2 951	9	**8 706**	**a**	**8 706**
	Italy	3	990	a	990	2 970	a	2 970	8	**7 425**	**a**	**7 425**
	Japan[5]	3	893	a	893	2 680	a	2 680	9	**7 256**	**a**	**7 256**
	Korea[2]	3	842	a	842	2 525	a	2 525	9	**6 453**	**a**	**6 453**
	Latvia	3	794	m	m	2 381	m	m	9	**5 977**	**m**	**m**
	Luxembourg	3	845	a	845	2 535	a	2 535	9	**8 079**	**a**	**8 079**
	Mexico[3]	3	1 167	a	1 167	3 500	a	3 500	9	**8 300**	**a**	**8 300**
	Netherlands[6]	3	1 000	m	m	3 000	m	m	9	**8 640**	**m**	**m**
	New Zealand	4	m	m	m	m	m	m	10	**m**	**m**	**m**
	Norway	3	874	a	874	2 622	a	2 622	10	**7 894**	**a**	**7 894**
	Poland	3	827	64	891	2 482	192	2 674	9	**6 195**	**544**	**6 738**
	Portugal	3	892	27	919	2 675	80	2 756	9	**7 679**	**1 311**	**8 991**
	Slovak Republic	5	823	a	823	4 117	a	4 117	9	**6 824**	**a**	**6 824**
	Slovenia	3	766	179	944	2 298	536	2 833	9	**6 389**	**1 376**	**7 764**
	Spain	3	1 054	a	1 054	3 161	a	3 161	9	**7 911**	**a**	**7 911**
	Sweden[2]	3	766	m	m	2 297	m	m	9	**6 890**	**m**	**m**
	Switzerland	3	936	m	m	2 807	m	m	9	**7 580**	**m**	**m**
	Turkey	4	843	a	843	3 371	a	3 371	8	**6 251**	**a**	**6 251**
	United States	3	1 020	m	m	3 059	m	m	9	**8 884**	**m**	**m**
	Economies											
	Flemish Comm. (Belgium)	2	948	a	948	1 896	a	1 896	8	**6 827**	**a**	**6 827**
	French Comm. (Belgium)	2	955	a	955	1 909	a	1 909	8	**6 921**	**a**	**6 921**
	England (UK)	3	m	a	m	m	a	m	9	**m**	**a**	**m**
	Scotland (UK)	3	m	a	m	m	a	m	10	**m**	**a**	**m**
	OECD average	3	913	m	m	2 913	m	m	9	**7 533**	**m**	**m**
	EU22 average	3	894	m	m	2 913	m	m	9	**7 250**	**m**	**m**
Partners	Argentina	m	m	m	m	m	m	m	m	**m**	**m**	**m**
	Brazil	4	m	m	m	m	m	m	9	**m**	**m**	**m**
	China	m	m	m	m	m	m	m	m	**m**	**m**	**m**
	Colombia	4	m	m	m	m	m	m	9	**m**	**m**	**m**
	Costa Rica	3	1 120	a	1 120	3 360	a	3 360	9	**10 240**	**a**	**10 240**
	India	m	m	m	m	m	m	m	m	**m**	**m**	**m**
	Indonesia	m	m	m	m	m	m	m	m	**m**	**m**	**m**
	Lithuania	6	787	116	903	4 723	697	5 420	10	**7 080**	**843**	**7 922**
	Russian Federation	5	803	m	m	4 016	m	m	9	**6 410**	**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: Columns showing instruction time in 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 the allocation of instruction time across multiple grades is flexible.
3. Year of reference 2017.
4. Excludes the last year of compulsory education, which can be classified at either the lower secondary or the upper secondary level.
5. Average planned instruction time in each school at the beginning of the school year.
6. 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: Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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] (2018)

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	Number of days students go to school per week	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	Number of days students go to school per week	Flexible allocation of instruction time across multiple grades
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	**Countries**										
	Australia	7	5	200	5.0	No	4	12	200	5.0	No
	Austria	4	6	180	5.0	No	4	10	180	5.0	No
	Canada	6	6	183	5.0	No	3	12	183	5.0	No
	Chile	6	6	180	5.0	No	2	12	178	5.0	No
	Czech Republic	5	6	196	5.0	Yes	4	11	196	5.0	Yes
	Denmark	7	6	200	5.0	No	3	13	200	5.0	No
	Estonia	6	7	175	5.0	Yes	3	13	175	5.0	Yes
	Finland[2]	6	7	188	5.0	Yes	3	13	188	5.0	Yes
	France	5	6	162	4.5	No	4	11	162	4.5	No
	Germany[3, 4]	4	6	188	5.0	No	5	10	188	5.0	No
	Greece	6	6	177	5.0	No	3	12	166	5.0	No
	Hungary	4	6	180	5.0	No	4	10	180	5.0	No
	Iceland	7	6	170	5.0	Yes	3	13	170	5.0	Yes
	Ireland	6	6	182	5.0	No	3	12	165	5.0	No
	Israel	6	6	219	6.0	No	3	12	209	6.0	Yes
	Italy	5	6	200	5.0	No	3	11	200	6.0	No
	Japan	6	6	201	5.0	No	3	12	201	5.0	No
	Korea	6	6	190	5.0	Yes	3	12	190	5.0	Yes
	Latvia	6	7	169	5.0	No	3	13	173	5.0	No
	Luxembourg	6	6	180	5.0	No	3	12	169	5.0	No
	Mexico[3]	6	6	200	5.0	No	3	12	200	5.0	No
	Netherlands[5]	6	6	m	5.0	Yes	3	12	m	5.0	Yes
	New Zealand	6	5	194	5.0	m	4	11	192	5.0	m
	Norway	7	6	190	5.0	Yes	3	13	190	5.0	Yes
	Poland	6	7	178	5.0	Yes	3	13	178	5.0	Yes
	Portugal	6	6	180	5.0	Yes	3	12	178	5.0	Yes
	Slovak Republic	4	6	188	5.0	No	5	10	188	5.0	No
	Slovenia	6	6	190	5.0	No	3	12	185	5.0	No
	Spain	6	6	175	5.0	No	3	12	175	5.0	No
	Sweden[2]	6	7	178	5.0	Yes	3	13	178	5.0	Yes
	Switzerland	6	6	188	5.0	No	3	12	188	5.0	No
	Turkey	4	6	180	5.0	No	4	10	180	5.0	No
	United States	6	6	180	5.0	m	3	12	180	5.0	m
	Economies										
	Flemish Comm. (Belgium)	6	6	159	4.5	No	2	12	160	4.5	No
	French Comm. (Belgium)	6	6	179	5.0	No	2	12	179	5.0	No
	England (UK)	6	5	190	5.0	Yes	3	11	190	5.0	Yes
	Scotland (UK)	7	5	190	5.0	Yes	3	12	190	5.0	Yes
	OECD average	6	6	185	5.0	m	3	12	183	5.0	m
	EU22 average	6	6	182	5.0	m	3	12	180	5.0	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m
	Brazil	5	6	200	5.0	m	4	11	200	5.0	m
	China	m	m	m	m	m	m	m	m	m	m
	Colombia	5	6	200	5.0	m	4	11	200	5.0	m
	Costa Rica	6	6	200	5.0	No	3	12	200	5.0	No
	India	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m
	Lithuania	4	7	170	5.0	Yes	6	11	181	5.0	Yes
	Russian Federation	4	7	169	5.0	No	5	11	175	5.0	No
	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: Columns showing the organisation of compulsory upper secondary education (i.e. Columns 11-15) 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. Allocation of instruction time across multiple levels of education is flexible.
3. Year of reference 2017.
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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805097

D1

Table D1.3a. Instruction time per subject in primary education (2018)

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	20	16	9	9	3	x(16)	9	10	5	x(16)	3	x(16)	2	a	0	14[d]	**100**	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**	m
	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	14	7	1	1	0	3	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)	9	19[d]	x(4)	3	a	x(8)	x(15)	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[d]	8	6	3	6	6	14	a	x(3)	4	a	a	a	5	**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	17	7	6	1	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(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	10	a	a	6	**100**	m
	Luxembourg[3]	29	19	7	2	15	a	10	11	7	a	a	a	a	a	a	a	**100**	a
	Mexico[2]	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**	m
	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]	19	15	10	4	11	a	15	7	a	4	4	a	4	a	a	9	**100**	9
	Portugal	26	26	7	7	6	a	8	9	a	a	2	a	4	2	a	3	**100**	25
	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)	8	x(16)	5	a	a	a	0	a	x(16)	20[d]	**100**	a
	Sweden	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m
	Switzerland	m	m	m	m	a	a	m	m	m	m	m	m	m	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	5	1	0	5	**100**	5
	EU22 average[4]	25	17	7	5	7	1	10	11	4	1	2	1	4	1	0	5	**100**	8
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
	Colombia	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
	Lithuania	31	19	4	4	8	a	12	17[d]	4	a	x(8)	a	a	a	a	a	**100**	6
	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. Allocation of instruction time across multiple levels of education is flexible.
2. Year of reference 2017.
3. The second language of instruction includes other national languages taught.
4. England (United Kingdom), Flemish Comm. (Belgium), French Comm. (Belgium), Italy and the Netherlands 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805116

Table D1.3b. Instruction time per subject in general lower secondary education (2018)

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	a	12	13	7	x(17)	a	7	a	a	1	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	0	15[d]	**100**	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**	m
	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	12	11	10	12	6	8	9	5	1	2	2	2	a	7	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)	8	8[d]	x(4)	2	a	x(8)	x(15)	a	20[d]	x(15)	**100**	a
	Ireland[4]	9	12	x(16)	12	3	x(16)	6	x(16)	x(16)	x(16)	x(16)	x(16)	2	6[d]	a	50[d]	**100**	a
	Israel	14	14	13[d]	18	11	10	6	4	9	x(3)	x(3)	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
	Luxembourg[4]	19	13	8	11	12	13	8	9	7	a	a	a	a	a	a	a	**100**	a
	Mexico[3]	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**	m
	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	a	a	7	x(15)	a	15[d]	x(15)	**100**	a
	Poland[6]	14	12	14	12	3	2	12	5	a	2	1	a	4	9	a	8	**100**	8
	Portugal	13	13	18	14	8	8	7	7	a	2	a	a	a	6	a	2	**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	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	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)[5]	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]	14	12	12	10	9	4	8	7	4	1	2	1	3	1	4	7	**100**	4
	EU22 average[5]	15	12	12	10	9	5	8	7	3	1	2	2	2	1	1	8	**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
	Colombia	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
	Lithuania	18	13	13	15	10	5	5	7	3	3	5	a	1	a	a	a	**100**	15
	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. Allocation of instruction time across multiple levels of education is flexible.

3. Year of reference 2017.

4. The second language of instruction includes other national languages taught.

5. England (United Kingdom), Flemish Comm. (Belgium) and the Netherlands are not included in the averages.

6. Second and other languages included in compulsory flexible curriculum for grades 8 and 9.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

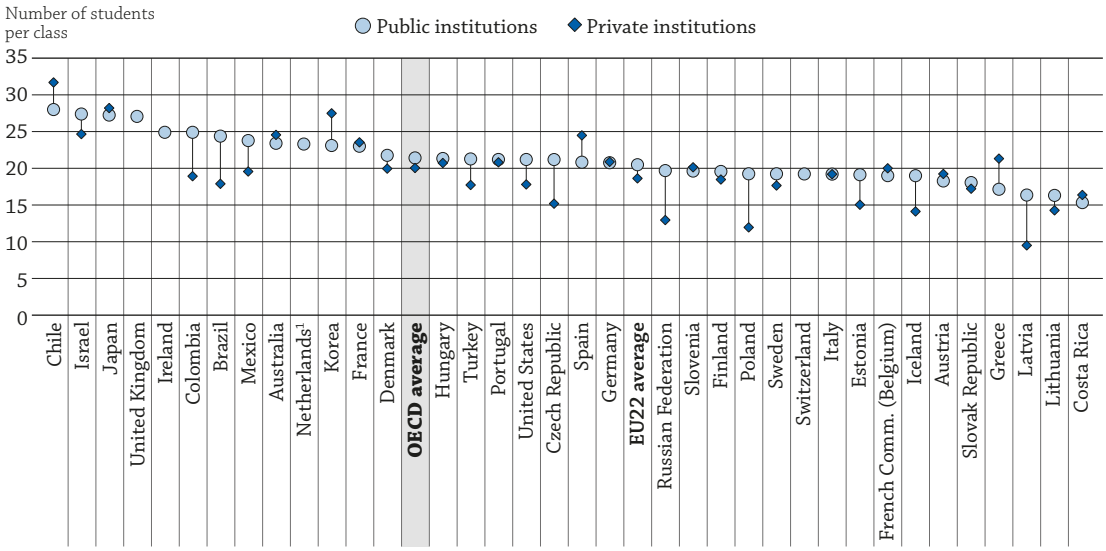
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933805135

WHAT IS THE STUDENT-TEACHER RATIO AND HOW BIG ARE CLASSES?

- The average primary school class in OECD countries in 2016 has 21 students in public institutions and 20 students in private institutions. The difference between class sizes in public and private primary school varies substantially across OECD countries, but it is considerably larger in partner countries.
- The student-teacher ratio is about the same in upper secondary general and vocational programmes across OECD countries.
- On average across OECD countries, there are 15 students per teacher in primary education, 13 students per teacher in secondary education and 15 students per teacher in tertiary education.

Figure D2.1. Average class size in primary education, by type of institutions (2016)



1. Primary education includes pre-primary programmes.

Countries are ranked in descending order of the average class size in primary education public institutions.

Source: OECD / UIS / Eurostat (2018), Table D2.1. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

Class sizes and student-teacher ratios are much-discussed aspects of education and, along with students' instruction time (see Indicator D1), teachers' working time and the division of teachers' time between teaching and other duties (see Indicator D4), these ratios are among the determinants of the demand for teachers. Together with teachers' salaries (see Indicator D3) and age distribution (see Indicator D5), 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 Valdenaire, 2006[1]), overall evidence of the effect of class size on student performance is mixed (Fredriksson, Öckert and Oosterbeek, 2012[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 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

- In almost all countries with available data, the student-teacher ratio decreases or stays the same between the primary and lower secondary levels, despite a general increase in class size between these levels.
- On average across OECD countries, the student-teacher ratio in lower secondary education is slightly lower in private institutions than in public institutions. This is most striking in Mexico, where at the secondary level there are almost 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

Class size

Average class size in primary and lower secondary education

At the primary level, the average class in OECD countries has 21 pupils. There are fewer than 27 pupils per class in nearly all of the countries with available data, with the exception of Chile, Israel and Japan (Table D2.1).

At the lower secondary level, the average class in OECD countries has 23 students. Among all countries with available data on lower secondary education, that number varies from fewer than 20 students per class in Estonia, Latvia, Lithuania, 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 is almost 18 students. On the other hand, in the United Kingdom and, to a lesser extent, Australia, Estonia, Hungary and Latvia, student numbers per class decrease between these two levels of education (Table D2.1).

The indicator on class size is limited to primary and lower secondary education, because class size is difficult to define and compare at higher levels, where students often split into several different classes, depending on the subject area.

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.

In most OECD countries, average class size does 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 is larger than the average class in private schools by more than five students (Table D2.1). But 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, and Spain, the average class in private institutions is larger than in public institutions by 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 lower secondary private institutions is larger than in public institutions in 10 countries, smaller in 16 countries and the same in 5 countries. The differences, however, tend to be smaller than in primary education.

Trends in average class size

On average across OECD countries, class size decreased between 2005 and 2016 at both primary and lower secondary levels (Table D2.1). However, while 19 out of 26 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 26 countries at the primary level.

The most significant decrease occurred at the lower secondary level, where the average class size fell by 7% over the period. 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 20% over the past decade. Also in Korea, classes at the primary level are, on average, 29% smaller than in 2005 – the largest decrease among OECD countries in the past decade. Other countries, however, saw an increase in average class sizes in primary schools: by 14% in Portugal, 17% in Mexico, and 26% in the Russian Federation. At the lower secondary level, average class size has increased by 9% in Denmark, the largest increase among OECD countries.

Student-teacher ratios

The ratio of students to teaching staff compares the number of students (full-time equivalent) to the number of teachers (full-time equivalent) at a given level of education and in similar types of institutions. However, this ratio does not take into account the amount of instruction time for students 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).

At the primary level there are 15 students for every teacher on average across OECD countries. The student-teacher ratio ranges from 10 to 1 in Lithuania and Norway to more than 25 to 1 in Mexico, India and South Africa (Table D2.2).

A corrigendum has been issued for this page. See: http://www.oecd.org/about/publishing/Corrigendum_EAG_2018.pdf

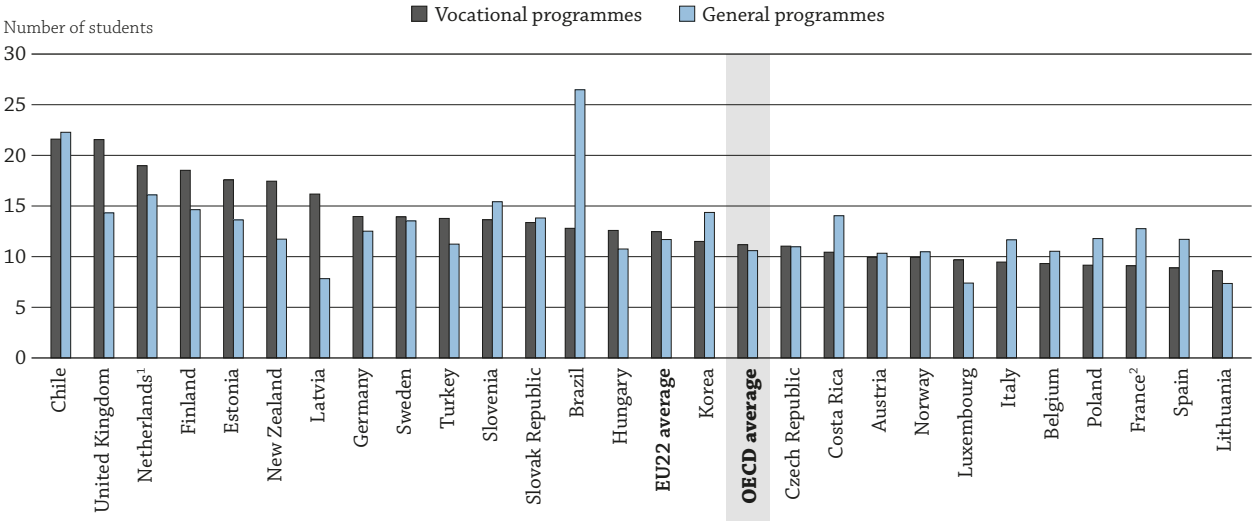
Student-teacher ratios vary even more at the lower secondary level, from fewer than 10 students per teacher in Austria, Belgium, Finland, Latvia, Lithuania, Norway and Slovenia to more than 25 students per teacher in Colombia, India and Mexico. The average across OECD countries is about 13 students per teacher at the secondary level (Table D2.2).

On average, there are fewer students per teacher at the secondary level (13) than at the primary level (15).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 (the teaching time decreases with the level of education as teacher specialisation increases).

At the upper secondary level, the difference between general and vocational programmes in student-teacher ratios varies across countries. On average, the ratio of students to teaching staff in upper secondary vocational programmes and that in upper secondary general programmes are almost equal (13 to 1 in general programmes and 14 to 1 in vocational programmes) (Figure D2.2). 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 countries where it is lower. In Latvia, vocational programmes (16 to 1) have twice as many students per teacher as general programmes (8 to 1). This may be due to the fact that in some countries, vocational programmes are significantly work-based, thus vocational students spend considerable time outside the school. As a result, school 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 countries with available data, the difference is inversed: there are 13 students per teacher in vocational programmes and 26 students per teacher in general programmes. Students in vocational education typically need greater instructor attention, especially as they have access to more sophisticated equipment. In fact, vocational students require more careful supervision as skill specificity rises. This may have important implications in terms of 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, the student-teacher ratio ranges from 8 to 1 in Luxembourg and 10 to 1 in Norway and Sweden to over 20 to 1 in Belgium, Colombia, Ireland, India, Indonesia and Turkey. In Colombia, the student-teacher ratio in tertiary education reaches 31 to 1.

Figure D2.2. Ratio of students to teaching staff in upper secondary education, by type of programmes (2016)



1. Public institutions only.
2. Public and government-dependent private institutions only.

Countries are ranked in descending order of the ratio of students to teaching staff in upper secondary vocational programmes.

Source: OECD / UIS / Eurostat (2018), Table D2.2. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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D2

Student-teacher ratios in public and private institutions

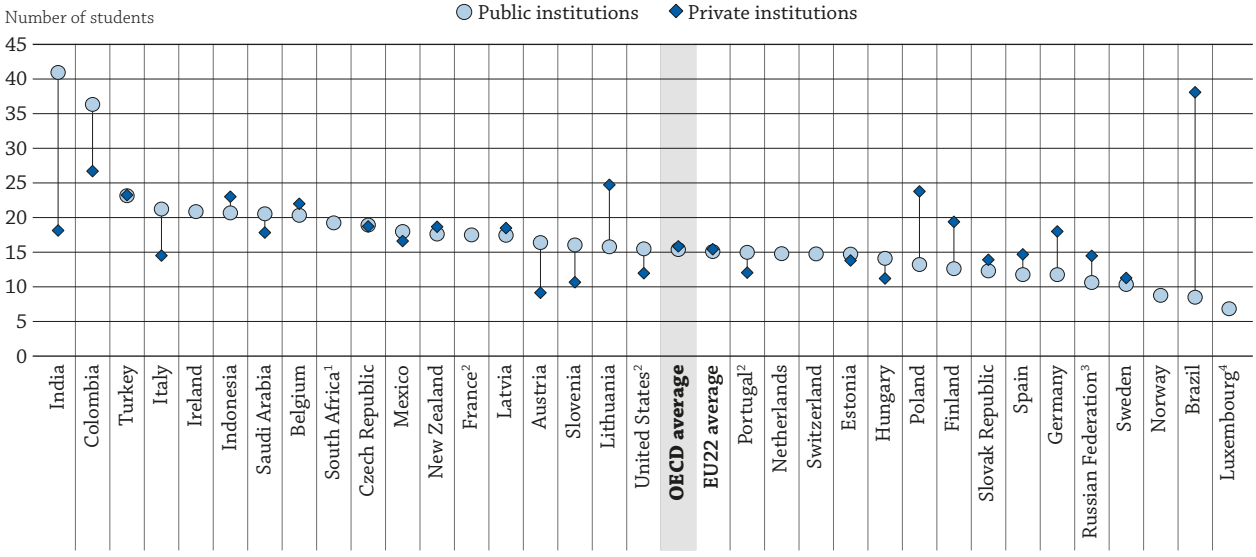
Differences between public and private institutions in student-teacher ratios are similar to those observed for class size. On average across countries for which data are available, the ratios of students to teaching staff are slightly higher in public institutions than in private institutions at the lower and upper secondary level (Table D2.3).

At the lower secondary level, large differences between public and private institutions are found in Colombia, Mexico and Turkey, where there are at least eight more students per teacher in public institutions than in private institutions. In all these countries, however, less than 20% of lower secondary students are enrolled in private institutions (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 Luxembourg, where although over 80% of students are enrolled in public institutions (Education at a Glance Database), the student-teacher ratio is 9 to 1 in public institutions, compared to 23 to 1 in private institutions (Table D2.3).

At the upper secondary level, the student-teacher ratio is greater in public institutions than in private institutions in 15 countries, smaller in public institutions in 14 countries, and similar for both sectors in 5 countries. Turkey is the country with the highest difference in student-teacher ratios at this level, with 15 students per teacher in public institutions and only 6 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 typically lower than the ratio in general programmes (Education at a Glance Database).

Although tertiary education may involve more self-learning than primary and secondary education, the number of students per teacher remains an important concern. The student-teacher ratio is considered to be a proxy of quality in higher education (McDonald, 2013[6]). Students are more likely to receive more support and attention when the student-teacher ratio is low. On average across OECD countries, there are 15 students per teacher at the tertiary level, with very little difference between public and private institutions. In only 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 (Education at a Glance Database).

Figure D2.3. Ratio of students to teaching staff in tertiary education, by type of institution (2016)



1. Year of reference is 2015.
2. Tertiary includes post-secondary non-tertiary education.
3. Tertiary includes part of vocational upper secondary education.
4. Short-cycle tertiary is not included.

Countries are ranked in descending order of the ratio of students to teaching staff in tertiary public institutions.

Source: OECD/UIS/Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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In contrast, the difference between public and private institutions in student-teacher ratios reaches 10 to 1 in Colombia and 23 to 1 in India, where over 50% of tertiary students are enrolled in private institutions. The largest difference across public and private institutions in terms of student-teacher ratio is in Brazil. Interestingly, the ratio is much higher in private institutions, which enrol 73% of tertiary students, than in public institutions, which are the most selective ones (Education at a Glance Database). In Brazil, students could either face a performance barrier in free but highly-selective public institutions, or a financial barrier in private institutions, which could limit their opportunities and raise significant equity concerns.

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 done 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 size measures 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 can 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 group students into smaller classes (see Indicator C7).

Definitions

The educational personnel include two categories:

- **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 department chairpersons 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

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.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[7]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

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Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-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 A1 Tables

StatLink https://doi.org/10.1787/888933805230

Table D2.1 Average class size by type of institution (2016) and index of change (2005, 2016)

Table D2.2 Ratio of students to teaching staff in educational institutions, by level of education (2016)

Table D2.3 Ratio of students to teaching staff, by type of institution (2016)

Cut-off date for the data: 18 July 2018. 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.

Table D2.1. Average class size, by type of institution (2016) and index of change (2005, 2016)

By level of education, calculations based on number of students and number of classes

		Primary					Lower secondary					Index of change between 2005 and 2016 (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)	(14)	(15)	(16)
OECD	Australia	23	25	25	a	24	21	24	24	a	22	98	m	99	88	m	89
	Austria	18	19	x(2)	x(2)	18	21	21	x(7)	x(7)	21	91	m	91	87	m	87
	French Comm. (Belgium)	19	20	20	a	20	m	m	m	a	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	101	95	82	96	90
	Czech Republic	21	15	15	a	21	22	19	19	a	22	103	m	102	93	m	93
	Denmark	22	20	20	a	21	22	21	21	a	21	109	m	110	109	m	109
	Estonia	19	15	a	15	19	19	15	a	15	18	96	m	96	81	m	80
	Finland	20	18	18	a	20	20	20	20	a	20	m	m	m	m	m	m
	France	23	24	x(2)	x(2)	23	25	26	26	12	25	m	m	m	106	105	106
	Germany	21	21	x(2)	x(2)	21	24	24	x(7)	x(7)	24	94	90	94	98	92	97
	Greece	17	21	a	21	17	20	22	a	22	20	88	m	88	83	m	83
	Hungary	21	21	21	17	21	21	21	22	17	21	106	108	106	96	97	96
	Iceland	19	14	14	a	19	20	13	13	a	20	103	m	102	102	m	102
	Ireland	25	m	a	m	m	m	m	a	m	m	102	m	m	m	m	m
	Israel	27	25	25	a	27	29	24	24	a	28	103	m	100	92	m	89
	Italy	19	19	a	19	19	21	21	a	21	21	105	m	105	101	m	101
	Japan	27	28	a	28	27	32	33	a	33	32	96	84	96	96	92	96
	Korea	23	27	a	27	23	29	28	28	a	28	71	85	71	79	80	80
	Latvia	16	10	a	10	16	15	12	a	12	15	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	24	20	a	20	23	29	24	a	24	28	120	89	117	96	91	95
	Netherlands[1]	23[d]	m	m	m	m	m	m	m	m	m	106[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	13	19	22	17	23	15	22	95	101	93	92	101	91
	Portugal	21	21	24	20	21	22	24	25	22	22	116	96	114	98	101	98
	Slovak Republic	18	17	17	a	18	19	18	18	a	19	91	m	91	84	m	83
	Slovenia	20	20	20	a	20	20	22	22	a	20	108	m	108	97	m	97
	Spain	21	24	25	21	22	25	26	27	22	26	107	101	105	106	99	104
	Sweden	19	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	21	18	a	18	21	24	17	a	17	24	77	m	78	m	m	m
	United Kingdom	27	a	27	12	26	21	a	20	11	20	105	m	107	85	m	89
	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	22	m	m	23	m	m	m	m	m	m
	Average for countries with available data for both reference years	21	20	m	m	21	23	22	m	m	23	99	95	99	93	95	93
	EU22 average	20	19	m	m	20	21	21	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	92	84	m	85
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	25	19	a	19	23	31	24	a	24	29	m	m	m	m	m	m
	Costa Rica	15	16	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
	Lithuania	16	14	a	14	16	18	19	a	19	18	110	143	109	82	121	82
	Russian Federation	20	13	a	13	20	19	12	a	12	19	126	m	126	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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

By level of education, 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, doctoral or equivalent level	All tertiary
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Australia	15	x(3)	12[d]	m	12	m	m	m	15	m
	Austria	12	9	10	10	10	9	12	8	17	14
	Belgium	13	9	11	9	10	10	16	x(10)	x(10)	21
	Canada[1]	17[d]	x(1)	x(5)	x(5)	12	12	m	m	m	m
	Chile	20	21	22	22	22	22	a	m	m	m
	Czech Republic	19	12	11	11	11	11	18	11	19	19
	Denmark	m	m	12	m	m	m	a	m	m	m
	Estonia	13	10	14	18	15[d]	13	x(4)	a	14	14
	Finland	13	9	15	19	17	13	18	a	15	15
	France[2]	19	15	13	9	11	13	m	10	m	m
	Germany	15	13	13	14	13	13	13	12	12	12
	Greece	m	m	m	m	m	m	16	a	m	m
	Hungary	11	10	11	13	11	11	14	13	14	14
	Iceland	11	10	m	m	m	m	m	m	m	m
	Ireland[3]	16	m	14	a	14	14	m	m	m	21
	Israel[3]	15	12	x(5)	x(5)	11	11	m	m	m	m
	Italy	11	11	12	9	10	11	m	a	20	20
	Japan	17	13	x(5)	x(5)	12[d]	13[d]	x(5, 10)	m	m	m
	Korea	16	15	14	12	14	14	a	m	m	m
	Latvia	11	8	8	16	10	9	22	19	20	18
	Luxembourg	11	11	7[d]	10[d]	9[d]	10	m	x(3, 4)	8	8
	Mexico	27	34	x(5)	x(5)	20	27	a	21	17	17
	Netherlands[4]	17	16	16	19	18	17	a	15	15	15
	New Zealand	17	16	12	17	13	14	21	19	18	18
	Norway[5]	10	9	10	10	10	10	12	11	10	10
	Poland	11	10	12	9	10	10	14	9	15	15
	Portugal	13	10	x(5)	x(5)	10[d]	10[d]	x(5, 10)	x(10)	x(10)	14[d]
	Slovak Republic	17	12	14	13	14	13	14	8	13	12
	Slovenia	14	6	15	14	14	9	a	18	15	15
	Spain	14	12	12	9	11	11	a	10	13	12
	Sweden	13	12	x(5)	x(5)	14	13	10	9	10	10
	Switzerland[4]	16	12	11	m	m	12	m	a	15	15
	Turkey	18	15	11	14	13	14	a	55	19	23
	United Kingdom	17	15	14	22	16	16	a	x(10)	x(10)	16
	United States	15	15	x(5)	x(5)	15	15	x(10)	x(10)	x(10)	14[d]
	OECD average	15	13	13	14	13	13	m	m	m	15
	EU22 average	14	11	12	13	12	12	m	m	m	15
Partners	Argentina[6]	m	m	m	m	m	m	a	m	m	m
	Brazil	24	25	26	13	24	25	26	10	20	20
	China	17	12	x(5)	x(5)	15	13	m	m	m	m
	Colombia	24	26	x(5)	x(5)	26	26	31	32	30	31
	Costa Rica	12	13	14	10	13	13	a	m	m	m
	India	35	27	x(5)	x(5)	30	28	8	a	24	24
	Indonesia	14	14	x(5)	x(5)	14	14	a	15	24	22
	Lithuania	10	7	7	9	8	7	15	a	16	16
	Russian Federation	21	11[d]	x(2)	x(8)	x(2, 8)	11	41	11	11	11
	Saudi Arabia	12	m	m	m	m	m	a	x(10)	x(10)	20
	South Africa[6, 7]	30	x(5)	x(5)	x(5)	17[d]	28	m	m	m	m
	G20 average	19	16	m	m	15	16	22	m	18	18

1. Primary education includes pre-primary programmes.
2. Public and government-dependent private institutions only.
3. For Ireland, public institutions only for all levels. For Israel, public institutions only for upper secondary education and all secondary.
4. Public institutions only.
5. Public and government-dependent institutions only for primary, lower secondary and tertiary institutions.
6. Year of reference 2015.
7. Upper secondary education includes lower secondary.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

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	Australia[1]	x(5)	x(6)	x(7)	a	13[d]	12[d]	12[d]	m	m	m	m	m
	Austria	9	10	x(2)	x(2)	10	10	x(6)	x(6)	9	10	x(10)	x(10)
	Belgium	9	9	9	m	10	10	10	m	10	9	9	m
	Canada	m	m	m	m	12	13	x(6)	x(6)	12	13	x(10)	x(10)
	Chile	17	25	26	20	20	24	26	16	19	24	26	17
	Czech Republic	12	11	11	a	11	12	12	a	11	12	12	a
	Denmark	m	m	m	a	m	m	m	a	m	m	m	a
	Estonia[2]	10	8	a	8	15	12	a	12	13	10	a	10
	Finland	9	9	9	a	17	17	17	a	13	16	16	a
	France	14	m	17	m	11	m	13	m	13	m	15	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	11	12	9	11	12	11	12	11	12	12	12
	Iceland	10	3	3	a	m	m	m	m	m	m	m	m
	Ireland	x(5)	m	a	m	14[d]	m	a	m	14	m	a	m
	Israel	12	8	8	0	11	m	m	a	11	m	m	0
	Italy	11	11	a	11	11	7	a	7	11	8	a	8
	Japan[3]	14	12	a	12	11[d]	14[d]	a	14[d]	12[d]	13[d]	a	13[d]
	Korea	14	16	16	a	13	15	15	a	14	15	15	a
	Latvia	8	5	a	5	10	8	a	8	9	7	a	7
	Luxembourg	9	23	x(2)	x(2)	9	8	11	6	9	11	23	12
	Mexico	38	18	a	18	22	15	a	15	30	16	a	16
	Netherlands	16	m	a	m	18	m	a	m	17	m	a	m
	New Zealand	17	13	0	13	13	10	10	10	15	11	10	12
	Norway	9	m	8	m	10	11	11	a	10	m	10	m
	Poland	10	9	11	8	10	11	12	11	10	10	11	10
	Portugal[3]	9	15	14	15	9[d]	10[d]	12[d]	10[d]	9[d]	12[d]	13[d]	11[d]
	Slovak Republic	12	11	11	a	14	12	12	a	13	12	12	a
	Slovenia	6	4	4	a	14	16	26	12	9	13	15	12
	Spain	11	15	15	14	10	14	15	13	10	15	15	14
	Sweden	12	17	17	a	14	14	14	a	13	15	15	a
	Switzerland	12	m	m	m	m	m	m	m	m	m	m	m
	Turkey	16	7	a	7	15	6	a	6	16	6	a	6
	United Kingdom	16	14	16	8	16	17	19	8	16	16	18	8
	United States	16	11	a	11	16	11	a	11	16	11	a	11
	OECD average	13	12	m	m	13	12	m	m	13	12	m	m
	EU22 average	11	11	m	m	12	12	m	m	12	12	m	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	26	20	a	20	25	19	a	19	26	20	a	20
	China	12	17	x(2)	x(2)	15	18	x(6)	x(6)	13	17	x(10)	x(10)
	Colombia	28	20	a	20	27	22	a	22	28	21	a	21
	Costa Rica	13	9	x(2)	x(2)	13	9	x(6)	x(6)	13	9	x(10)	x(10)
	India	27	27	x(2)	x(2)	28	32	x(6)	x(6)	27	30	x(10)	x(10)
	Indonesia	15	13	x(2)	x(2)	15	14	x(6)	x(6)	15	13	x(10)	x(10)
	Lithuania	7	9	a	9	8	5	a	5	7	8	a	8
	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	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	17	14	m	m	15	14	m	m	16	14	m	m

1. Includes only general programmes in lower and upper secondary education.
2. Upper secondary education includes lower secondary and post-secondary non-tertiary vocational programmes.
3. Upper secondary education includes programmes from post-secondary non-tertiary education.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

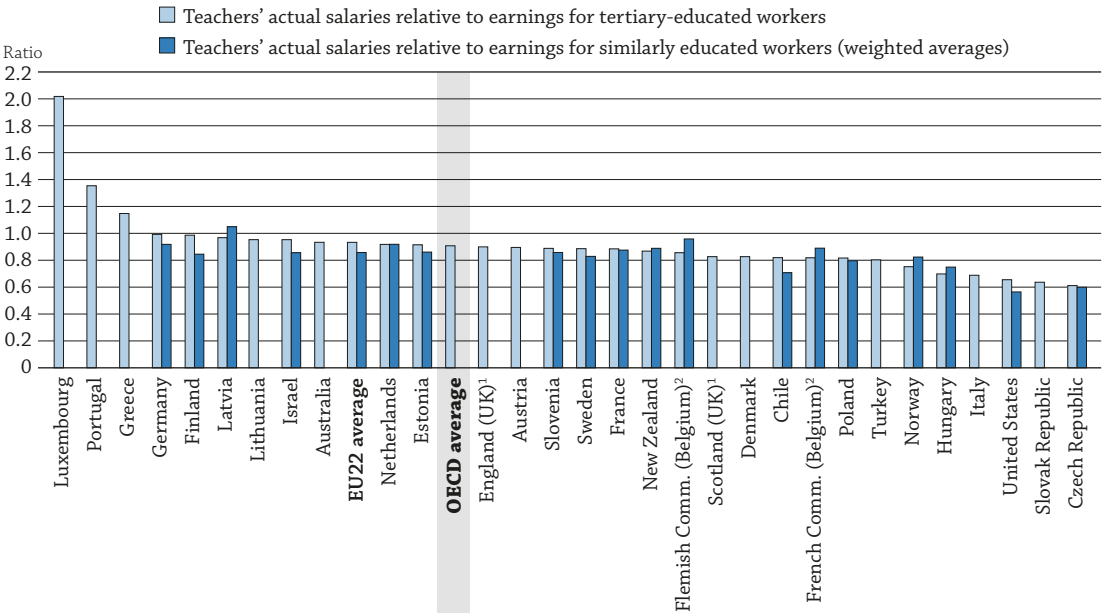
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HOW MUCH ARE TEACHERS AND SCHOOL HEADS PAID?

- 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 35% higher than those of teachers across all levels of education.
- Teachers' actual salaries at pre-primary, primary and general secondary levels of education are 81% to 96% of earnings of tertiary-educated workers on average across OECD countries.
- On average across OECD countries and economies, school heads' salaries are at least 20% higher than earnings of tertiary-educated workers at all levels of education.

Figure D3.1. Lower secondary teachers' salaries relative to earnings for tertiary-educated workers (2017)

Actual salaries (annual average salaries including bonuses and allowances) of lower secondary teachers teaching general programmes 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 (2018), Table D3.2a. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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 school heads.

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 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 in (OECD, 2017[2]) 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 77% and 81% higher than those of teachers with minimum salaries and minimum qualifications at the start of their career.
- Between 2005 and 2017, 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 8% at primary level, 7% at lower secondary level (general programmes) and 5% at upper secondary level (general programmes).
- While statutory salaries of upper secondary teachers with 15 years of experience and minimum qualifications have now reached pre-crisis levels, statutory salaries of primary and lower secondary teachers 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.

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 (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 Canada, Germany, Ireland, the Netherlands and the United States, and they exceed USD 100 000 in Luxembourg (Table D3.1a).

In most countries with available information, teachers' salaries increase with the level of education they teach. In the Flemish and French Communities of Belgium, the Netherlands and Norway, upper secondary teachers with 15 years of experience and most prevalent qualifications earn between 25% and 30% more than pre-primary teachers with the same experience, while in Lithuania and the Slovak Republic they earn 37% to 42% more, in Finland 50% more, and in Mexico, 92% 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 Chile, Costa Rica, France and Slovenia, and teachers have the same salary irrespective of the level of education taught in Australia, England (United Kingdom), Greece, Poland, Portugal, Scotland (United Kingdom) and Turkey (Table D3.1a).

However, in Iceland and Israel the salary of a pre-primary teacher is at least 10% higher than the salary of an upper secondary teacher. In Iceland, this may result from different collective agreements on teachers' salaries, depending of the level of education. In Israel, the 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, Hungary, Luxembourg, the Netherlands, Poland, Spain, and Switzerland require a higher degree (master's or equivalent) to teach 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 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, 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 13 countries with available data, salaries of teachers with the most prevalent qualifications are at least 10% higher than those of teachers with the minimum qualifications in Canada, 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 the teaching career only in the French Community of Belgium, Greece, Hungary, New Zealand and Norway (primary and lower secondary levels). The difference in teachers' salaries between those with most prevalent and minimum qualifications exceeds 35% in England (United Kingdom) and 75% in Costa Rica. However, in Costa Rica, 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 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 of teachers. This is the case in a small number of countries (Canada, Hungary, Iceland, Ireland, Israel and Norway), 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). This is usually linked to recent reforms related to compensation system and/or qualification requirements of teachers. In Ireland, for example, the salary arrangements have changed for teachers who entered the teaching profession from 2012. The salaries related to most prevalent qualifications for teachers with ten 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 ten 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. With the most prevalent qualifications, the average statutory salaries for lower secondary school teachers with 10 years of experience are 30% higher than the average starting salaries, and 38% higher with 15 years of experience. In addition, salaries at the top of the scale (reached after an average of 27 years of experience) are 67% higher, on average, than 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 to 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 larger the range between minimum and maximum salaries, the more years it takes for teachers to achieve maximum status. For example, while on average across OECD countries, a lower secondary teacher with most prevalent qualifications can expect to reach the top of the salary scale after 27 years, it would take only 6-7 years to reach this level in Australia, New Zealand and Scotland (United Kingdom), but maximum salary in these countries is only about 33% to 53% higher than starting salaries, compared to 66% on average across OECD countries. 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 31% higher than starting statutory salaries, compared to 108% 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 most prevalent qualifications is USD 55 for primary teachers, USD 65 for lower secondary teachers and USD 74 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 31%. In Scotland (United Kingdom), there is no difference, while in the Flemish Community of Belgium and Mexico, the salary per teaching hour for an upper secondary teacher is at least 83% 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 statutory working time of teachers is usually similar at primary and secondary level (see Indicator D4).

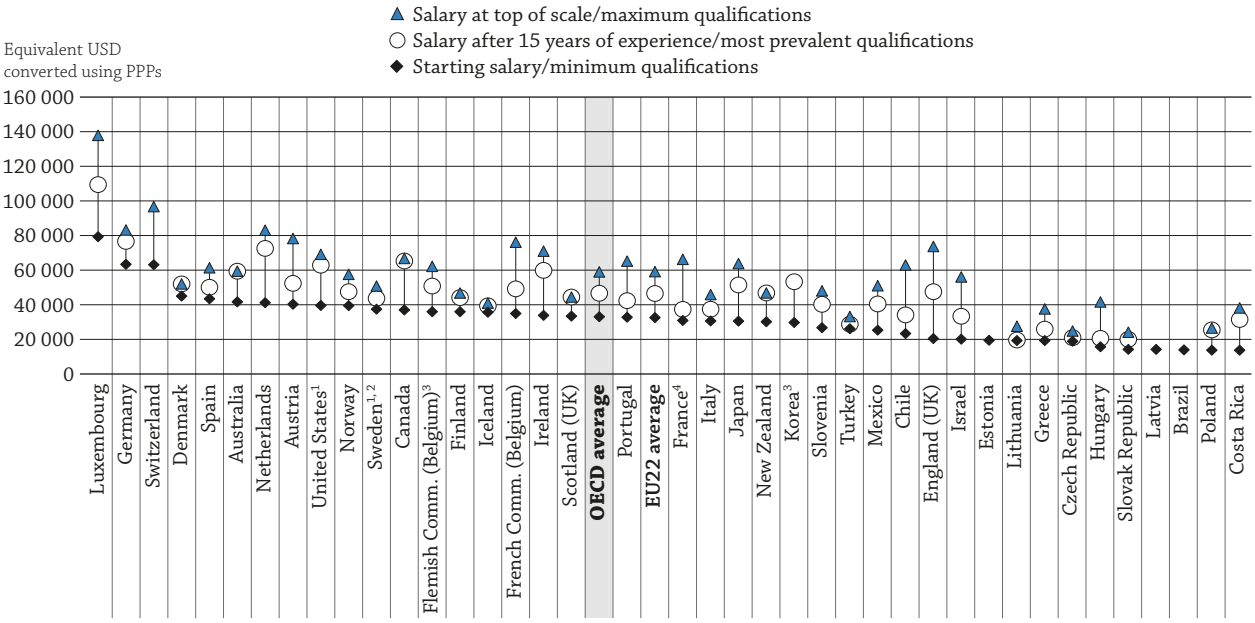
By level of experience and qualification: minimum and maximum teachers' salaries

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 41% 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 78% higher than the average starting salary with the minimum qualification (Figure D3.2).

Figure D3.2. Lower secondary teachers' statutory salaries at different points in teachers' careers (2017)

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 (2018), Table D3.1a, Tables D3.1c and D3.6, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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, exceptions are Chile, France, England (United Kingdom) and Japan, where starting salaries are at least 5% lower than the OECD average, but maximum salaries are 5% to 25% higher. The opposite is true in Denmark, Finland, Iceland and Sweden, where starting salaries are between 7% and 36% higher than the OECD average, while maximum salaries are at least 5% lower than the OECD average (12% to 30% 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.

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, France, Hungary, Ireland, Israel, Japan, Mexico, the Netherlands, and more than three times higher in England (United Kingdom) (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, France, Hungary and Israel (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 that minimum qualifications are the most prevalent across the majority of countries, though not all as for example in England (United Kingdom) (see Table X2.5 for the proportion of teachers with minimum or most prevalent qualification levels), that not all teachers may aim for or reach the top of the salary scale and that few of them may hold the minimum or maximum qualifications (Box D3.1).

Box D3.1. **Salary range of teachers with maximum qualifications (2017)**

Teachers are required to have specific minimum qualifications to enter the teaching profession. In some countries, the most prevalent level of qualifications of teachers is higher than the minimum, and this qualification level is recognised in the compensation system through different salary levels. Some teachers may hold qualifications even higher than the most prevalent one and be paid according to a different salary scale.

About one-quarter of countries and economies with available data offer higher statutory salaries to the teachers with highest qualifications, compared to the most prevalent, as is the case in Canada, England (United Kingdom), France, the French Community of Belgium, Israel, Lithuania, Norway, the Slovak Republic and the United States. In most of these countries, this highest qualification level differs from the most prevalent one at all levels of education. However, in France, it is only available at secondary level (corresponding to salaries associated with *Professeurs agrégés*). In Norway, the masters' degree is the most prevalent qualification (at each stage of the career) and also the highest qualification (recognised by the compensation system) for upper secondary teachers. At primary and lower secondary levels, master's is not the most prevalent qualification, but is still considered as the highest qualification (recognised by the compensation system). As a consequence, the associated salaries of primary and lower secondary teachers with the highest qualification are similar to those of upper secondary teachers with most prevalent qualifications. In the French Community of Belgium, Israel, Lithuania and the Slovak Republic, the minimum qualification is also the most prevalent one (for all levels of education). In this case, a higher qualification level recognised by the compensation system is also available, but held by a smaller proportion of teachers than the minimum qualifications. In Canada, England (United Kingdom) and Norway, the maximum qualification is a third level, compared to the minimum and most prevalent level. This maximum qualification is usually a masters' degree, but it could be a higher qualification. In Israel and the Slovak Republic, this qualification refers to doctoral level.

The proportion of teachers with these qualifications levels and associated salaries varies largely between countries. Among countries with available data, more than 10% of teachers are paid according to this range in England (United Kingdom) and France (upper secondary level).

More detailed information on qualification levels for all participating countries and economies is available 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 2017 (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)

and France, where there was a decline of 4% to 10% respectively, and Greece where salaries decreased by 16%. There were also slight declines in teachers' salaries in real terms (less than 3%) in Italy (primary and secondary education). Salaries increased by more than 20% across primary and secondary education levels in Ireland and Israel. However, in some countries, the overall increase in teachers' salaries between 2000 and 2017 includes periods of decrease in salary (in real terms), particularly from 2010 (Table D3.5a, available on line).

Over the period 2005 to 2017, where three-quarters of OECD countries and economies have comparable data for at least one level of education, more than half of these countries 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 2005 and 2017 reference years, statutory salaries increased by 8% at primary level, 7% at lower secondary level and 5% 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 to improve the quality of education by providing financial incentives to attract high-quality teachers) and also in Hungary (pre-primary), Israel, Luxembourg (pre-primary and primary), Norway (primary and lower secondary) and Sweden (pre-primary, primary and lower secondary).

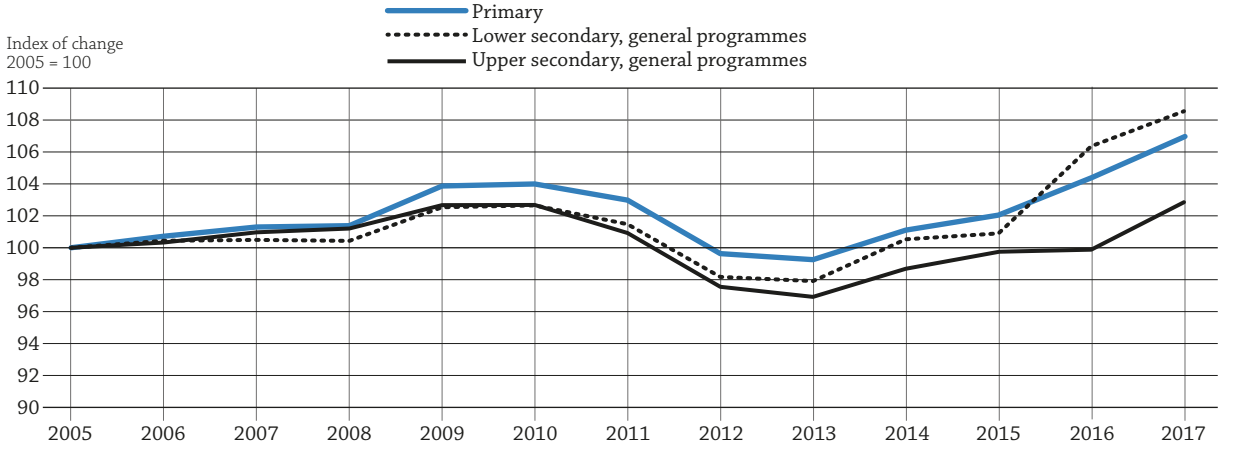
In most countries, similar increases in salary occurred for teachers across primary, lower secondary and upper secondary levels between 2005 and 2017. However, this is not the case in Israel for example where salaries increased by more than 47% at pre-primary level, by 32% at primary level, by 43% at lower secondary level and by 35% 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 includes higher teacher pay in exchange for more working hours (see Indicator D4).

By contrast, salaries have decreased slightly since 2005 in few countries, including Denmark, France, Italy, Japan, Portugal, Scotland (United Kingdom) and Spain, and they decreased by 10% in England (United Kingdom) and by more than 25% in Greece (as a result of a salary freeze since 2011) (Table D3.5a).

However, these overall changes in teachers' salaries in OECD countries between 2005 and 2017 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). While statutory salaries of primary and lower secondary teachers with minimum qualifications have now exceeded pre-crisis levels, on average across OECD countries with data for all reference years, those of upper secondary teachers are still lagging.

Figure D3.3. Change in teachers' salaries in OECD countries (2005 to 2017)

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 (2018), Table D3.5b, available on line. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Statutory salaries of school heads

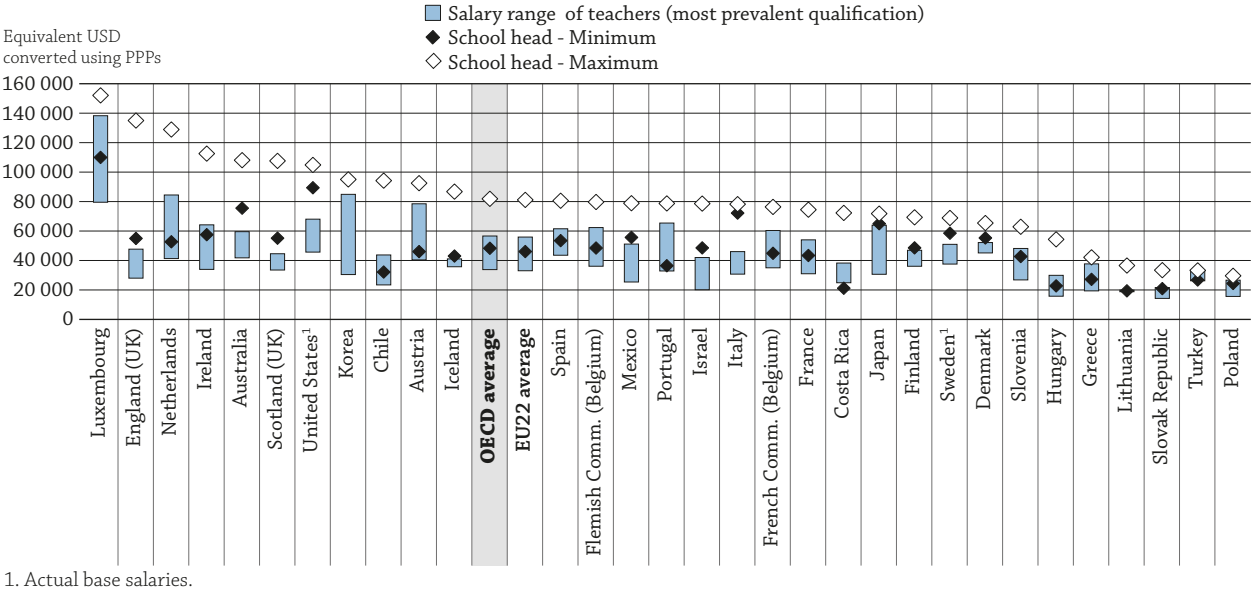
Responsibilities of school heads may vary between countries and also within countries, depending on the schools they are responsible for. School heads may exercise educational responsibilities (which may include teaching tasks but also responsibility for the general functioning of the institution in areas such as timetable, implementation of the curriculum, decisions about what is to be 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 the salary ranges of teachers may reflect the fact that school heads are initially teachers with additional responsibilities. At the lower secondary level, among the 32 countries with available information, school heads are paid according to the teacher salary range, with a school-head allowance in 12 countries and according to a specific salary range in the other countries (in 12 countries with no specific school-head allowance and in 8 countries with a school-head allowance). The amounts payable to school heads, through statutory salary 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.) and to the individual characteristics of school heads (e.g. the duties he/she has to perform, number of year of experience, etc.) (Table D3.9, available on line).

Considering that the amount of teachers' statutory salaries varies according to a large number of criteria, the statutory salary data for school heads focuses on those minimum qualification requirements to become a school head, and only minimum and maximum values are shown in Table D3.10. At lower secondary level, the minimum salary is USD 48 316 on average across OECD countries, varying from USD 18 863 in Latvia to USD 109 968 in Luxembourg, and the maximum salary is USD 81 872 on average across OECD countries, varying from USD 29 617 in Poland to USD 152 083 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.

Figure D3.4. Minimum and maximum statutory salaries for lower secondary teachers and school heads (2017)

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 (2018), Table D3.1b available on line and Table D3.10. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933805515

On average across OECD countries and economies, the maximum statutory salary of a school head with minimum qualifications is 73% higher than the minimum statutory salary in primary education, 68% higher than in lower secondary and 69% higher than in upper secondary. Only in ten countries can school heads at the top of their scale expect to earn twice the statutory salary they started out with in at least one of these levels of education, and in Costa Rica, they can expect to earn more than three times their starting salary.

The minimum statutory salaries for school heads with minimum qualifications are higher than starting salaries of teachers, except in Costa Rica (and Lithuania where they are equal). The difference between minimum salaries for school heads (with minimum qualifications) and starting salaries for teachers (with most prevalent qualifications) increases with levels of education: 24% on average across OECD countries and economies at pre-primary level, 32% at primary level, 43% at lower secondary level and 44% 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, Denmark, England (United Kingdom), Finland, Iceland, Israel, Italy, Japan, Mexico, Scotland (United Kingdom), Sweden and the United States (Figure D3.4).

Similarly, 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 45% 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, England (United Kingdom), Iceland and Scotland (United Kingdom) are more than twice the statutory salaries at 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 *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 force (Box D3.3). 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 37 440 at pre-primary level, USD 41 244 at primary level, USD 43 546 at lower secondary level and USD 46 713 at upper secondary level. Average actual salaries of school heads aged 25-64 vary from USD 57 141 at primary level, USD 64 423 at lower secondary level and USD 68 932 at upper secondary level (Table D3.4) (see Box D3.2 for variation at subnational level).

Among the 29 OECD countries and economies with available data on both statutory salaries of teachers with 15 years of experience and most prevalent qualifications and 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.

Box D3.2. **Subnational variation of teachers' salaries at pre-primary, primary and secondary levels**

Within the five countries that reported subnational data on statutory salaries of teachers (Belgium, Canada, Sweden, the United Kingdom and the United States), statutory salaries vary largely between subnational entities, with different patterns across countries according to level of education and stage of the career of teachers.

In Belgium, statutory salaries are 3% higher in the Flemish Community than in the French Community, whatever the level of education or the stage of the career of teachers (salaries vary between levels of education and stages of the career). In Canada and the United Kingdom, subnational differences vary according to the stage of the career of teachers only (as the lowest salaries – respectively the highest salaries – are similar at the different levels of education). In both countries, the differences between subnational entities are the largest for starting salaries and decrease with the level of experience. For example in Canada, statutory salaries vary by 80% between subnational entities at the starting point (from USD 31 912 to USD 57 425), by 76% after 10 years of experience (from USD 46 418 to USD 81 741) and by 43% after 15 years of experience or at the top of the scale (from USD 57 158 to USD 81 741). In Sweden and the United States, the differences between subnational entities vary according to the stages of the career of teacher and the level of education.

...

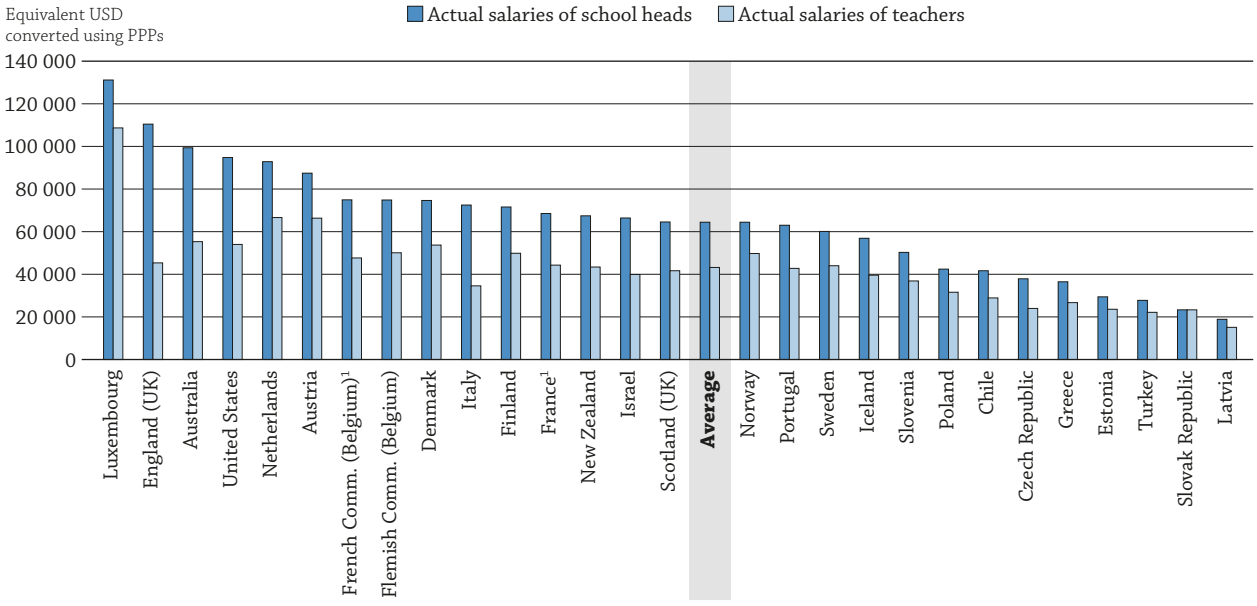
In Sweden the variations are the largest for starting salaries, varying by 18% to 21% according to levels of education, and vary by 10% to 17% at other stages of the career (whatever the level of education). In the United States, there is no clear pattern in the variation (between subnational entities) of statutory salaries at different levels of education and stages of the career. The variations are the smallest for starting salaries at lower secondary level (varying by 71% from USD 33 355 to USD 57 030) and the largest for top of the range salaries at lower secondary level (varying by 200% from USD 51 957 to USD 104 045) (OECD/NCES, 2018[3]).

There are also large subnational variations in actual salaries among the six countries with available data (Belgium, Brazil, Slovenia, Sweden, the United Kingdom and the United States). In Belgium and Slovenia, actual salaries of 25-64 year-old teachers vary by less than 7% between subnational entities at pre-primary, primary, lower secondary and upper secondary levels. Subnational variations of actual salaries for 25-64 year-old teachers are larger in Sweden and the United Kingdom, varying from 10% for upper secondary teachers in Sweden (from USD 43 593 to USD 48 203) to 17% for lower and upper secondary teachers in the United Kingdom (from USD 41 670 to USD 48 817). Subnational differences are much larger in Brazil and the United States. The highest salaries are about twice the lowest salaries in the United States at primary, lower and upper secondary levels (varying from USD 42 060 to USD 84 064 at primary, from USD 41 641 to USD 81 567 at lower secondary and from USD 42 393 to USD 82 540 at upper secondary). In Brazil, salaries in the subnational region with the highest actual salaries are more than three times those in the subnational region with the smallest actual salaries at pre-primary, primary and lower secondary levels, and 5.6 times higher than the lowest actual salaries at the subnational level at upper secondary level (OECD/NCES, 2018[3]).

Within each country, differences in actual salaries at the subnational level are similar for the different age groups for which data are collected (25-34 year-olds, 35-44 year-olds, 45-54 year-olds and 55-64 year-olds), but are slightly larger for the younger age group in Brazil or Sweden. The differences in actual salaries at the subnational level are also similar for women and men in the different countries with available information (OECD/NCES, 2018[3]).

Figure D3.5. Actual salaries of lower secondary teachers and school heads (2016)

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 (2018), Table D3.4. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933805534

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 35% higher than those of teachers at pre-primary level, and the premium is 39% at primary level, and 48% at lower and upper secondary levels. The difference between actual salaries of school heads and teachers varies largely between countries and between levels of education. Countries with the highest premium for school heads compared to teachers are England (United Kingdom) (secondary levels) and Italy (primary and secondary levels), where actual salaries of school heads are twice that of teachers. The premium is the lowest and less than 25% in Denmark (pre-primary level), Finland (pre-primary level), France (pre-primary and primary levels), Luxembourg (secondary levels) and Norway (pre-primary level). 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 France actual salaries of school heads and teachers are approximately similar at pre-primary and primary levels, but, the difference is 55% at lower secondary and 37% 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).

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[4]). Salaries of teachers relative to those of other occupations (with similar education) 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 career progression pathways available to teachers and the compensation they can expect in the longer term.

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 earnings of other tertiary-educated professionals: 25-64 year-old full-time, full-year workers with a similar tertiary education (ISCED 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 between the distribution of teachers by tertiary attainment and the distribution of tertiary-educated workers by attainment level, actual salaries of teachers are compared to a weighted average of earnings of similarly educated workers (earnings of similarly educated workers weighted by the proportion of teachers with similar tertiary attainment) (see Table X2.6 in Annex 2 for the proportion of teachers by attainment level).

Among the 19 countries and economies with available data (for at least one level), actual salaries of teachers amount to 60% or less of earnings of similarly educated workers in the Czech Republic (primary and lower secondary) and the United States. Very few countries and economies have actual salaries of teachers that reach or exceed those of similarly educated workers. However, in the Flemish Community of Belgium, actual salaries of teachers equal those of similarly educated workers, and in Latvia they are 5% higher at the lower secondary level and 22% higher at upper secondary level (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 5 to 8) (see *Methodology* section). Against this benchmark, actual teacher salaries relative to other tertiary workers increase with higher education levels. Pre-primary teachers' salaries amount to 81% of full-time, full-year earnings, on average, among 25-64 year-olds with tertiary education. Primary teachers earn 86% of the benchmark salary, lower secondary teachers 91%, and upper secondary teachers 96% (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 48% those of tertiary-educated workers, and in the Czech Republic at primary and secondary levels where they reach 61% to 63% of those of tertiary-educated workers. However in some countries, teachers earn more than tertiary-educated adults at all levels of education (in Greece, Luxembourg and Portugal), or at upper secondary level only (in Finland, the Flemish and French Communities of Belgium, Germany and Latvia). In Luxembourg and Portugal, teachers earn at least 30% more than tertiary-educated workers, and in Luxembourg, secondary teachers earn twice as much. However caution is necessary when interpreting the ratio. For example, in Greece the proportion of overqualified people in their job may lead to lower average earnings compared to workers with similar proficiency but who are well-matched with their jobs. This may explain that teachers' salaries are higher than those of similarly educated workers (Table D3.2a and Figure D3.1).

Box D3.3. Actual average salaries of teachers, by age group and gender (2016)

At primary and secondary levels, actual salaries of older teachers (age 55-64) are, on average, 37% to 39% higher than those of younger teachers (age 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, Norway and Sweden, while it is 60% or more in Austria, Chile, Greece, Israel, and Portugal (Table D3.4).

Despite the increase in teachers' salaries for older age groups, the comparison of teachers' salaries with earnings of tertiary-educated workers seems to show that teachers' salaries may evolve at a slower rate than earnings of other workers and that the teaching profession is less attractive as the workforce ages. On average across OECD countries and economies, teachers' actual salaries relative to earnings of tertiary-educated workers are about 14 percentage points higher among the youngest adults (age 25-34) than among the older age groups (age 55-64) 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.

Differences between actual salaries for male and female teachers are small, 2% or less, on average, at primary and secondary levels, in favour of men.

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, actual salaries of male teachers (age 25-64) are 77% (at primary level) to 88% (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 33 percentage points higher among women than among the men at pre-primary, primary and secondary levels of education. This higher ratio among female teachers shows that the teaching profession 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).

As actual salaries of school heads are higher than those of teachers, they are also higher on average than those of other tertiary-educated adults, and the difference increases with the level of education. On average across OECD countries and economies, school heads earn 21% more than tertiary-educated adults at primary level, 34% more at lower secondary level and 42% more at upper secondary level. School heads earn less than tertiary-educated adults only in the Czech Republic (pre-primary, primary and lower secondary levels), Denmark (pre-primary level), Estonia (pre-primary level), Finland (pre-primary level), France (pre-primary and primary levels), Norway (pre-primary, primary and lower secondary levels) and the Slovak Republic.

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 reduction 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 as meriting 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 tasks and responsibilities of teachers). Taking on other responsibilities, however, often entails having 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 three-quarters of countries and economies with available information. This may be either reduced teaching time, as in Finland, Portugal and the Slovak Republic, or an occasional or annual additional payment, as in Austria, Costa Rica, England (United Kingdom), France, Germany, Ireland, Italy, Japan, Korea, Norway, Spain and Turkey. In Denmark, teachers may benefit from both reduced teaching time and an annual payment.

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, England (United Kingdom), the French Community of Belgium and Portugal.

Among the 29 countries with available data, about one-third provide additional compensation to school heads for participation 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, Greece, Ireland, Japan, Korea, Mexico, Portugal, Slovenia, and Spain) 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). As for 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 are thus not compensated with any extra allowances.

At lower secondary level, additional compensation is also awarded to school heads for outstanding performance in 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 France and Spain, where school heads are rewarded for high performance, but not teachers (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 England (United Kingdom), where such incentives are provided only to teachers, and Australia, where they are only provided to school heads (Tables D3.11 and D3.7, available on line).

Definitions

Teachers refer 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.

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 2016 to 30 June 2017 for statutory data and from 1 July 2015 to 30 June 2016 for actual data. The reference date for PPPs is 2016/17 for statutory data and 2015/16 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. 2017 and 2016). Tables with salaries in national currency are included in Annex 2. For calculation of 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 (first four columns). The weights, collected for every country individually, are based on the percentage of teachers by ISCED level of tertiary attainment (see Table X2.6 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 2016 reference year used for salaries of teachers or school heads, a deflator has been used to adjust earnings data to 2016 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[5]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data on salaries and bonuses for teachers and school heads are derived from the 2017 joint OECD/Eurydice data collection on salaries of teachers and school heads. Data refer to the school year 2016/17 (for statutory salaries) or 2015/16 (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

StatLink https://doi.org/10.1787/888933805363

	Table D3.1a	Teachers' statutory salaries, based on the most prevalent qualifications at different points in teachers' careers (2017)
WEB	Table D3.1b	Teachers' statutory salaries, based on the most prevalent qualifications at a given level of education (2017)
WEB	Table D3.1c	Teachers' statutory salaries, based on the minimum qualifications to enter the teaching profession (2017)
	Table D3.2a	Actual salaries of teachers and school heads relative to earnings of tertiary-educated workers (2017)
WEB	Table D3.2b	Teachers' statutory salaries relative to earnings of tertiary-educated workers (2017)
WEB	Table D3.2c	Teachers' actual salaries relative to earnings of tertiary-educated workers, by age group and by gender (2016)
WEB	Table D3.2d	School heads' statutory salaries relative to earnings of tertiary-educated workers (2017)
WEB	Table D3.3a	Comparison of teachers' statutory salaries, based on the most prevalent qualifications of teachers by level of education (2017)
WEB	Table D3.3b	Comparison of teachers' statutory salaries, based on the minimum qualifications required to enter the teaching profession in the reference year (2017)
	Table D3.4	Average actual salaries of teachers and school heads, by age group and by gender (2016)
WEB	Table D3.5a	Trends in teachers' salaries, based on most prevalent qualifications at different points in teachers' careers, between 2000 and 2017
WEB	Table D3.5b	Trends in teachers' salaries, based on minimum qualifications on entry to the profession, between 2000 and 2017
WEB	Table D3.6	Starting/maximum teachers' statutory salaries, based on minimum/maximum qualifications (2017)
WEB	Table D3.7	Criteria used for base salaries and additional payments awarded to teachers in public institutions, all level of education (2017)
WEB	Table D3.8	Decision-making level for criteria used for determining teachers' base salaries and additional payments, by level of education (2017)
WEB	Table D3.9	Structure of compensation system for school heads (2017)
	Table D3.10	Minimum / maximum school heads' statutory salaries, based on minimum qualifications (2017)
WEB	Table D3.11	Criteria used for base salaries and additional payments awarded to school heads in public institutions, by level of education (2017)
WEB	Table D3.12	Decision-making level for criteria used for determining schools heads' base salaries and additional payments, by level of education (2017)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table D3.1a. Teachers' statutory salaries, based on the most prevalent qualifications at different points in teachers' careers (2017)

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	41 798	59 043	59 568	59 568	41 798	59 043	59 568	59 568	41 800	59 043	59 568	59 568	41 798	59 043	59 568	59 568
	Austria	m	m	m	m	40 548	44 633	49 961	73 501	40 411	46 965	52 538	78 495	40 460	50 880	57 533	83 660
	Canada	m	m	m	m	39 222	62 860	65 474	65 474	39 222	62 860	65 474	65 474	39 222	62 860	65 474	65 474
	Chile	23 429	29 004	34 231	43 760	23 429	29 004	34 231	43 760	23 429	29 004	34 231	43 760	24 028	29 804	35 111	44 959
	Czech Republic	17 920	18 338	18 805	20 964	18 944	20 110	21 007	24 785	18 953	20 147	21 049	24 901	18 971	20 165	21 044	24 862
	Denmark	41 274	46 552	46 552	46 552	44 919	49 863	51 506	51 506	45 134	50 466	52 183	52 183	42 841	55 675	55 675	55 675
	Estonia	a	a	a	a	19 529	a	a	a	19 529	a	a	a	19 529	a	a	a
	Finland[1]	29 578	31 945	31 945	31 945	33 408	38 671	40 991	43 451	36 081	41 765	44 271	46 927	38 261	45 951	47 789	50 656
	France[2]	29 516	33 618	35 963	52 374	29 516	33 618	35 963	52 374	31 003	35 106	37 450	54 010	31 003	35 106	37 450	54 010
	Germany	m	m	m	m	56 535	66 950	70 693	75 002	63 555	73 357	76 838	83 451	63 866	77 619	81 260	92 386
	Greece	19 374	22 754	25 998	37 699	19 374	22 754	25 998	37 699	19 374	22 754	25 998	37 699	19 374	22 754	25 998	37 699
	Hungary	14 227	19 206	20 629	27 031	14 227	19 206	20 629	27 031	15 752	19 206	20 629	27 031	15 752	21 265	22 840	29 928
	Iceland	34 394	35 716	38 105	38 105	35 756	37 179	39 477	39 477	35 756	37 179	39 477	39 477	30 347	31 805	32 706	41 414
	Ireland	m	m	m	m	33 962	53 805	59 459	68 712	33 962	55 761	60 053	69 306	33 962	55 761	60 053	69 306
	Israel	23 001	29 855	33 647	61 436	20 051	27 056	30 321	51 495	20 159	28 891	33 442	53 650	20 666	27 221	30 580	49 298
	Italy	28 514	31 368	34 444	41 914	28 514	31 368	34 444	41 914	30 739	34 051	37 530	46 030	30 739	34 879	38 581	48 121
	Japan	m	m	m	m	30 631	43 847	51 593	63 969	30 631	43 847	51 593	63 969	30 631	43 847	51 593	65 658
	Korea	30 395	45 746	53 405	84 842	30 395	45 746	53 405	84 842	30 455	45 806	53 465	84 902	29 738	45 088	52 747	84 185
	Latvia	12 994	a	a	a	14 252	a	a	a	14 252	a	a	a	14 252	a	a	a
	Luxembourg[3]	70 192	90 782	102 505	124 036	70 192	90 782	102 505	124 036	79 551	99 439	109 734	138 279	79 551	99 439	109 734	138 279
	Mexico	19 893	25 261	31 686	39 996	19 893	25 261	31 686	39 996	25 401	32 237	40 595	51 139	49 286	57 031	60 886	65 843
	Netherlands	38 922	48 775	58 036	61 279	38 922	48 775	58 036	61 279	41 309	63 345	72 778	84 469	41 309	63 345	72 778	84 469
	New Zealand[4]	m	m	m	m	30 254	46 337	46 337	46 337	30 746	46 963	46 963	46 963	31 238	47 589	47 589	47 589
	Norway	35 577	41 489	41 489	41 908	39 585	47 687	47 687	51 209	39 585	47 687	47 687	51 209	47 211	52 171	52 171	57 740
	Poland	15 600	20 926	25 553	26 636	15 600	20 926	25 553	26 636	15 600	20 926	25 553	26 636	15 600	20 926	25 553	26 636
	Portugal	32 887	40 041	42 489	65 417	32 887	40 041	42 489	65 417	32 887	40 041	42 489	65 417	32 887	40 041	42 489	65 417
	Slovak Republic[5]	12 754	14 037	14 673	15 824	14 267	17 129	20 057	21 625	14 267	17 129	20 057	21 625	14 267	17 129	20 057	21 625
	Slovenia[5]	26 823	31 917	38 890	44 691	26 823	33 099	40 351	48 166	26 823	33 099	40 351	48 166	26 823	33 099	40 351	48 166
	Spain	38 987	42 217	45 069	55 384	38 987	42 217	45 069	55 384	43 565	47 241	50 257	61 543	43 565	47 241	50 257	61 543
	Sweden[4, 5, 6]	36 192	38 433	39 444	42 737	36 689	41 322	43 201	49 587	37 566	42 321	43 827	50 964	37 566	43 771	44 891	52 217
	Switzerland	52 743	66 002	m	80 416	56 351	70 049	m	85 753	63 308	80 029	m	96 997	71 249	91 416	m	109 240
	Turkey	26 219	27 223	28 835	33 288	26 219	27 223	28 835	33 288	26 219	27 223	28 835	33 288	26 219	27 223	28 835	33 288
	United States[5, 6]	38 635	52 853	64 279	71 280	39 183	53 826	61 028	67 197	39 707	54 566	63 046	68 052	40 517	54 609	63 006	70 900
	Economies																
	Flemish Comm. (Belgium)[5]	36 099	45 269	50 966	62 359	36 099	45 269	50 966	62 359	36 099	45 269	50 966	62 359	45 038	57 404	65 463	78 894
	French Comm. (Belgium)	35 041	43 817	49 332	60 364	35 041	43 817	49 332	60 364	35 041	43 817	49 332	60 364	43 593	55 566	63 369	76 373
	England (UK)	28 011	a	47 688	47 688	28 011	a	47 688	47 688	28 011	a	47 688	47 688	28 011	a	47 688	47 688
	Scotland (UK)	33 531	44 588	44 588	44 588	33 531	44 588	44 588	44 588	33 531	44 588	44 588	44 588	33 531	44 588	44 588	44 588
	OECD average	30 817	38 456	41 386	50 486	32 258	41 884	45 004	54 156	33 498	43 886	46 780	56 874	34 943	46 244	48 697	59 639
	EU22 average	29 922	36 921	40 714	47 867	31 699	40 426	44 568	52 868	33 041	42 704	46 644	56 006	33 781	44 886	48 884	58 736
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	13 971	m	m	m	13 971	m	m	m	13 971	m	m	m	13 971	m	m	m
	China	m	m	m	m	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	m	m	m	m
	Costa Rica	23 888	28 165	30 304	36 720	23 888	28 165	30 304	36 720	24 893	29 351	31 580	38 266	24 893	29 351	31 580	38 266
	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
	Lithuania	12 573	13 532	13 842	14 432	19 385	19 571	19 696	19 882	19 385	19 571	19 696	19 882	19 385	19 571	19 696	19 882
	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 qualificaiton is defined for each of the four stage of the career included in this table. Please see Box D3.2, 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, includes only those teachers teaching general subjects within vocational programmes.
6. Actual base salaries.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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D3

Table D3.2a. Actual salaries of teachers and school heads relative to earnings of tertiary-educated workers (2016)

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: Actual salaries, relative to earnings for full-time, full-year similarly educated workers (weighted averages, 25-64 year-olds)				All teachers: Actual salaries, relative to earnings for full-time, full-year workers with tertiary education (ISCED 5 to 8, 25-64 year-olds)				All school heads: 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
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD	**Countries**													
	Australia	2016	m	m	m	m	0.92	0.93	0.93	0.93	1.36	1.42	1.68	1.59
	Austria	2016	m	m	m	m	m	0.76	0.90	0.97	m	1.06	1.18	1.42
	Canada	2015	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	2015	0.73	0.69	0.71	0.76	0.84	0.80	0.82	0.89	1.17	1.16	1.18	1.30
	Czech Republic	2015	0.75	0.60	0.60	0.61	0.52	0.61	0.61	0.63	0.74	0.97	0.97	1.05
	Denmark	2016	m	m	m	0.79	0.68	0.82	0.83	0.95	0.76	1.15	1.15	1.51
	Estonia	2016	0.67	0.88	0.86	0.85	0.62	0.91	0.91	0.91	0.94	1.14	1.14	1.14
	Finland	2015	0.73	0.77	0.84	0.94	0.66	0.89	0.99	1.11	0.82	1.24	1.42	1.50
	France	2014	0.82	0.80	0.88	0.99	0.78	0.76	0.88	1.00	0.81	0.81	1.37	1.37
	Germany	2016	m	0.83	0.92	0.97	m	0.90	0.99	1.05	m	m	m	m
	Greece	2016	m	m	m	m	1.06	1.06	1.15	1.15	1.44	1.44	1.57	1.57
	Hungary	2016	0.76	0.75	0.75	0.67	0.66	0.70	0.70	0.75	m	m	m	m
	Iceland	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
	Israel	2016	0.84	0.84	0.86	0.82	0.84	0.88	0.95	0.90	m	1.60	1.59	1.62
	Italy	2014	m	m	m	m	0.68	0.68	0.69	0.72	m	1.44	1.44	1.44
	Japan	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
	Latvia	2016	0.87	0.88	1.05	1.22	0.79	0.80	0.97	1.13	1.23	1.32	1.21	1.48
	Luxembourg	2016	m	m	m	m	1.80	1.80	2.02	2.02	m	m	2.43	2.43
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	2014	0.78	0.78	0.92	0.92	0.73	0.73	0.92	0.92	1.03	1.03	1.28	1.28
	New Zealand	2016	m	0.87	0.89	0.93	m	0.85	0.87	0.93	m	1.27	1.35	1.47
	Norway	2016	0.74	0.82	0.82	0.80	0.67	0.75	0.75	0.82	0.81	0.97	0.97	1.12
	Poland	2016	0.69	0.77	0.80	0.77	0.68	0.79	0.82	0.80	1.01	1.08	1.10	1.10
	Portugal	2016	m	m	m	m	1.50	1.38	1.35	1.47	1.99	1.99	1.99	1.99
	Slovak Republic	2016	m	m	m	m	0.48	0.64	0.64	0.64	0.48	0.64	0.64	0.64
	Slovenia	2016	0.78	0.83	0.86	0.84	0.69	0.87	0.89	0.94	1.18	1.21	1.21	1.24
	Spain	m	m	m	m	m	m	m	m	m	m	m	m	m
	Sweden	2016	0.84	0.88	0.83	0.83	0.76	0.86	0.89	0.91	1.11	1.21	1.21	1.25
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	2016	m	m	m	m	0.80	0.80	0.80	0.80	1.01	1.01	1.01	1.01
	United States	2016	0.55	0.55	0.56	0.58	0.62	0.63	0.65	0.68	1.09	1.11	1.15	1.17
	Economies													
	Flemish Comm. (Belgium)	2015	0.99	1.00	0.96	0.97	0.88	0.88	0.86	1.11	1.25	1.25	1.28	1.53
	French Comm. (Belgium)	2015	0.95	0.94	0.89	0.94	0.85	0.84	0.82	1.04	1.19	1.21	1.29	1.54
	England (UK)	2016	m	m	m	m	0.80	0.80	0.90	0.90	1.48	1.48	2.19	2.19
	Scotland (UK)	2016	m	m	m	m	0.83	0.83	0.83	0.83	1.28	1.28	1.28	1.28
	OECD average		m	m	m	m	0.81	0.86	0.91	0.96	m	1.21	1.34	1.42
	EU22 average		0.80	0.82	0.86	0.88	0.82	0.88	0.93	1.00	1.10	1.21	1.37	1.45
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
	Colombia	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
	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
	Lithuania	2014	m	m	m	m	0.95	0.95	0.95	0.95	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
	G20 average		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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

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	54 654	54 914	55 313	55 313	80 743	84 312	99 364	94 123
	Austria[1]	m	56 684	66 329	71 920	a	78 503	87 432	104 942
	Canada	m	m	m	m	m	m	m	m
	Chile	29 659	28 400	28 901	31 290	41 282	40 956	41 666	45 873
	Czech Republic	20 233	24 060	23 966	24 888	28 980	37 888	37 888	41 110
	Denmark	44 441	53 121	53 703	61 437	49 457	74 628	74 628	98 402
	Estonia	15 861	23 584	23 584	23 584	24 157	29 421	29 421	29 421
	Finland[2]	33 450	45 244	49 860	56 220	41 462	62 917	71 567	75 819
	France[3]	38 941	37 968	44 294	49 883	40 455	40 455	68 517	68 517
	Germany	m	65 716	72 593	76 823	m	m	m	m
	Greece[1]	24 770	24 770	26 697	26 697	33 399	33 399	36 484	36 484
	Hungary	22 824	24 122	24 122	25 909	m	m	m	m
	Iceland	36 140	39 572	39 572	54 021	50 464	56 885	56 885	79 496
	Ireland	m	m	m	m	m	m	m	m
	Israel	35 210	36 950	39 897	37 536	m	67 167	66 413	67 885
	Italy	34 167	34 167	34 568	36 383	a	72 478	72 478	72 478
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	12 267	12 465	15 096	17 590	19 146	20 670	18 882	23 142
	Luxembourg	96 884	96 884	108 673	108 673	m	m	131 144	131 144
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	53 149	53 149	66 617	66 617	74 911	74 911	92 837	92 837
	New Zealand	m	42 536	43 397	46 714	m	63 537	67 435	73 319
	Norway	44 120	49 753	49 753	54 126	53 748	64 421	64 421	73 979
	Poland	26 303	30 508	31 567	30 779	39 184	41 586	42 417	42 529
	Portugal	47 336	43 498	42 770	46 587	63 006	63 006	63 006	63 006
	Slovak Republic[1, 4]	17 449	23 316	23 316	23 367	17 449	23 316	23 316	23 367
	Slovenia	28 621	36 120	36 864	38 950	49 114	50 269	50 269	51 636
	Spain	m	m	m	m	m	m	m	m
	Sweden[1]	37 696	42 657	44 016	45 349	54 965	60 097	60 097	62 271
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	22 143	22 143	22 143	22 143	27 757	27 757	27 757	27 757
	United States[1]	51 295	52 197	54 000	55 992	90 208	91 888	94 775	96 262
	Economies								
	Flemish Comm. (Belgium)	51 325	51 737	50 090	64 977	73 000	73 019	74 846	89 715
	French Comm. (Belgium)[5]	49 718	48 856	47 664	60 615	69 593	70 374	74 927	89 599
	England (UK)[1]	40 553	40 553	45 343	45 343	74 399	74 399	110 442	110 442
	Scotland (UK)[6]	41 670	41 670	41 670	41 670	64 539	64 539	64 539	64 539
	OECD average	37 440	41 244	43 546	46 713	50 496	57 141	64 423	68 932
	EU22 average	36 883	41 402	44 246	47 466	48 072	55 046	64 257	68 570
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil[7]	22 003	22 740	23 252	24 116	m	m	m	m
	China	m	m	m	m	m	m	m	m
	Colombia	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	m	m	m	m	m	m	m	m
	Lithuania[8]	21 085	21 085	21 085	21 085	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 5-28), 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.
2. Includes data on the majority, i.e. kindergarten teachers only for pre-primary education.
3. Year of reference 2015.
4. Includes salaries of school heads and teachers.
5. Year of reference 2017.
6. Includes all teachers, irrespective of their age.
7. Year of reference 2014.
8. Includes unqualified teachers.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2017)

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	Maximum salary	Ratio (max/min)	Minimum salary	Maximum salary	Ratio (max/min)	Minimum salary	Maximum salary	Ratio (max/min)	Minimum salary	Maximum salary	Ratio (max/min)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	**Countries**												
	Australia	66 763	108 091	**1.62**	66 763	108 091	**1.62**	75 534	108 091	**1.43**	75 534	108 091	**1.43**
	Austria	m	m	**m**	46 025	92 484	**2.01**	46 025	92 484	**2.01**	60 684	116 155	**1.91**
	Canada	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Chile	32 156	94 205	**2.93**	32 156	94 205	**2.93**	32 156	94 205	**2.93**	32 986	96 604	**2.93**
	Czech Republic	18 123	a	**a**	19 005	a	**a**	19 005	a	**a**	19 005	a	**a**
	Denmark	44 506	52 136	**1.17**	55 296	65 410	**1.18**	55 296	65 410	**1.18**	68 345	77 764	**1.14**
	Estonia	a	a	**a**	a	a	**a**	a	a	**a**	a	a	**a**
	Finland[1]	33 426	36 100	**1.08**	47 021	61 242	**1.30**	48 572	69 307	**1.43**	55 564	67 385	**1.21**
	France	37 246	58 025	**1.56**	37 246	58 025	**1.56**	43 400	74 480	**1.72**	47 626	80 084	**1.68**
	Germany	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Greece	24 528	39 473	**1.61**	24 528	39 473	**1.61**	27 190	42 134	**1.55**	28 077	43 021	**1.503**
	Hungary	22 763	49 083	**2.16**	22 763	49 083	**2.16**	22 763	54 343	**2.39**	25 202	54 343	**2.16**
	Iceland	39 171	62 899	**1.61**	43 025	86 750	**2.02**	43 025	86 750	**2.02**	59 146	88 780	**1.50**
	Ireland	m	m	**m**	43 315	99 206	**2.29**	57 519	112 551	**1.96**	57 519	112 551	**1.96**
	Israel	a	a	**a**	48 485	78 408	**1.62**	48 547	78 623	**1.62**	39 024	95 859	**2.46**
	Italy	a	a	**a**	72 175	78 234	**1.08**	72 175	78 234	**1.08**	72 175	78 234	**1.08**
	Japan[2]	m	m	**m**	64 958	71 808	**1.11**	64 958	71 808	**1.11**	66 563	75 626	**1.14**
	Korea	a	95 211	**a**	a	95 211	**a**	a	95 031	**a**	a	94 314	**a**
	Latvia	18 863	a	**a**	18 863	a	**a**	18 863	a	**a**	18 863	a	**a**
	Luxembourg[3]	m	m	**m**	m	m	**m**	109 968	152 083	**1.38**	109 968	152 083	**1.38**
	Mexico	24 500	72 180	**2.95**	24 500	72 180	**2.95**	55 664	78 874	**1.42**	49 995	79 169	**1.58**
	Netherlands	47 857	79 670	**1.66**	47 857	79 670	**1.66**	52 697	128 905	**2.45**	52 697	128 905	**2.45**
	New Zealand	m	m	**m**	49 756	93 728	**1.88**	m	m	**m**	48 354	93 746	**1.94**
	Norway	a	a	**a**	a	a	**a**	a	a	**a**	a	a	**a**
	Poland	21 199	25 689	**1.21**	21 963	26 454	**1.20**	24 410	29 617	**1.21**	27 515	33 508	**1.22**
	Portugal	36 438	78 735	**2.16**	36 438	78 735	**2.16**	36 438	78 735	**2.16**	36 438	78 735	**2.16**
	Slovak Republic	16 416	26 823	**1.63**	20 913	33 436	**1.60**	20 913	33 436	**1.60**	20 913	33 919	**1.62**
	Slovenia	41 139	62 893	**1.53**	42 693	62 893	**1.47**	42 693	62 893	**1.47**	42 693	73 041	**1.71**
	Spain	44 742	68 029	**1.52**	44 742	68 029	**1.52**	53 493	80 564	**1.51**	53 493	80 564	**1.51**
	Sweden	m	m	**m**	58 540	68 871	**1.18**	58 540	68 871	**1.18**	59 980	70 123	**1.17**
	Switzerland	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Turkey	26 760	33 288	**1.24**	26 760	33 288	**1.24**	26 760	33 288	**1.24**	26 760	33 493	**1.25**
	United States[4, 5]	81 588	101 812	**1.25**	83 907	103 095	**1.23**	89 371	104 865	**1.17**	86 530	114 980	**1.33**
	Economies												
	Flemish Comm. (Belgium)	47 241	79 710	**1.69**	47 241	79 710	**1.69**	48 465	79 710	**1.64**	58 979	96 245	**1.63**
	French Comm. (Belgium)	39 934	74 571	**1.87**	39 934	74 571	**1.87**	44 907	76 373	**1.70**	57 091	91 128	**1.60**
	England (UK)	54 984	135 002	**2.46**	54 984	135 002	**2.46**	54 984	135 002	**2.46**	54 984	135 002	**2.46**
	Scotland (UK)	55 135	107 619	**1.95**	55 135	107 619	**1.95**	55 135	107 619	**1.95**	55 135	107 619	**1.95**
	OECD average	38 064	70 056	**m**	43 233	75 687	**1.73**	48 316	81 872	**1.68**	50 575	86 369	**1.69**
	EU22 average	35 561	64 904	**1.68**	40 794	71 481	**1.68**	46 066	81 137	**1.70**	49 225	85 520	**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**
	Colombia	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Costa Rica	20 621	62 896	**3.05**	20 137	36 373	**1.81**	21 174	72 298	**3.41**	21 174	72 298	**3.41**
	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**
	Lithuania	15 422	33 754	**2.19**	19 385	36 571	**1.89**	19 385	36 571	**1.89**	19 385	36 571	**1.89**
	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. Excludes the social security contributions and pension-scheme contributions paid by the employees.
3. Includes the social security contributions and pension-scheme contributions paid by the employers.
4. Actual base salaries.
5. 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

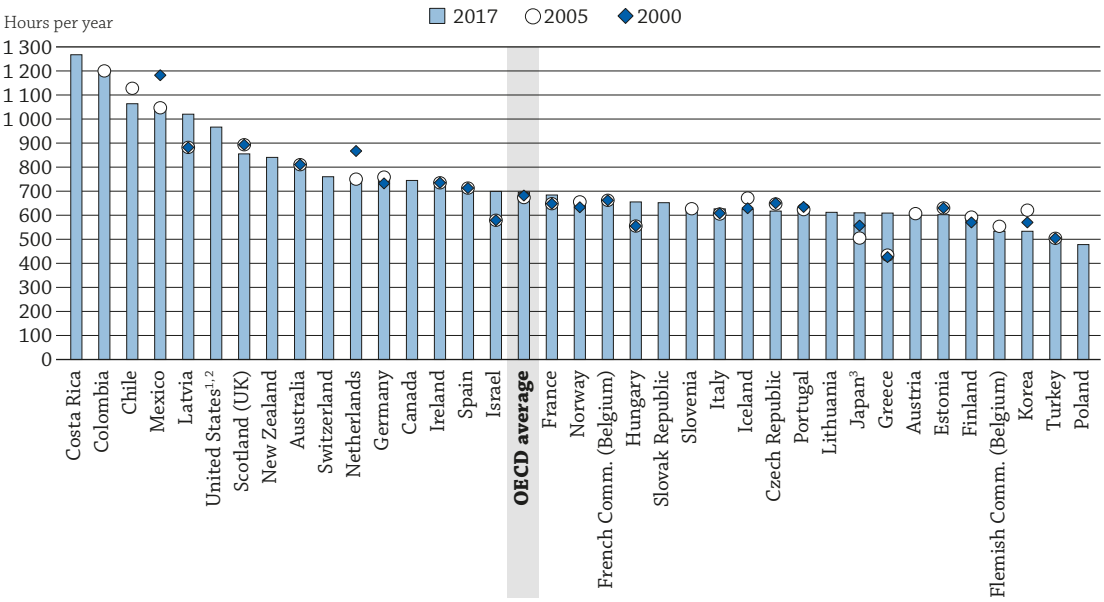
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HOW MUCH TIME DO TEACHERS SPEND TEACHING?

- Based on official regulations, public school teachers in OECD countries and economies are required to teach on average 1 044 hours per year at pre-primary level, 784 hours at primary level, 703 hours at lower secondary level (general programmes) and 657 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 2017.

Figure D4.1. Number of teaching hours per year in general lower secondary education (2000, 2005 and 2017)

Net statutory contact time in public institutions



Note: The OECD average refers to OECD countries and economies with available data for 2005, 2010, 2015 and 2017.

1. Actual teaching time.

2. Year of reference 2016 instead of 2017.

3. Average planned teaching time in each school at the beginning of the school year.

Countries and economies are ranked in descending order of the number of teaching hours per year in general lower secondary education in 2017.

Source: OECD (2018), Table D4.2. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 to work more hours than required by statutory working time.

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

- Most countries regulate the number of hours per year that teachers are formally required to work, 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.
- 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.
- On average across OECD countries and economies, in public institutions pre-primary teachers are required to teach about 39% more hours than primary school teachers. Statutory requirements for working time at school and/or total working time also differ between pre-primary and primary levels, but generally to a lesser extent.
- 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 1 044 hours per year across OECD countries and economies, ranging from 532 hours per year in Mexico to 1 755 in Germany.
- Public primary school teachers are required to teach on average 784 hours per year across OECD countries and economies, but this ranges from less than 590 in Estonia, Lithuania and Poland to more than 1 050 in Chile and Costa Rica.
- The number of teaching hours required in public lower secondary schools (general programmes) averages 703 hours per year across OECD countries and economies, ranging from 478 hours in Poland to over 1 050 hours in Chile, Colombia and Costa Rica.
- Teachers in public upper secondary schools (general programmes) are required to teach on average 657 hours per year across OECD countries and economies, but teaching time ranges from 405 hours in Denmark to over 1 050 hours in Chile, Colombia and Costa Rica.
- There has been little change in statutory teaching hours between 2000 and 2017 on average across countries with available data for 2000, 2005, 2010, 2015 and 2017, but in a few countries, teaching time increased or decreased by 10% or more between 2000 and 2017.

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 variation of teaching time at the subnational level, see Box D4.1).

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 157 per year in the Flemish Community of Belgium to 225 in Germany, Iceland and Norway. Annual teaching time ranges from 532 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 1 044 hours per year, spread over 41 weeks or 196 days of teaching (Table D4.1 and Figure D4.2).

Primary school teachers are required to teach an average of 784 hours per year in public institutions. In most countries with available data, daily teaching time ranges from three to six hours a day. There is no set rule on how teaching time is distributed throughout the year. In Spain, for example, primary school teachers must teach 880 hours per year, nearly 100 hours more than the OECD average. However, these teaching hours are spread over fewer days of instruction than the OECD average, because primary school teachers in Spain teach an average of 5 hours per day, compared to the OECD average of 4.3 hours (Table D4.1).

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 three countries (Belgium, Canada and the United Kingdom) reporting subnational data. The number of weeks of teaching (at pre-primary, primary, lower and upper secondary levels) varies between regions, by one week within Belgium (from 36 to 37 weeks) and two weeks within Canada (from 36 to 38 weeks). In the United Kingdom, there are 38 weeks of teaching in the different subnational regions. However these differences mask larger differences in teaching time of teachers (number of days or hours of teaching) at the subnational level (OECD/NCES, 2018[1]).

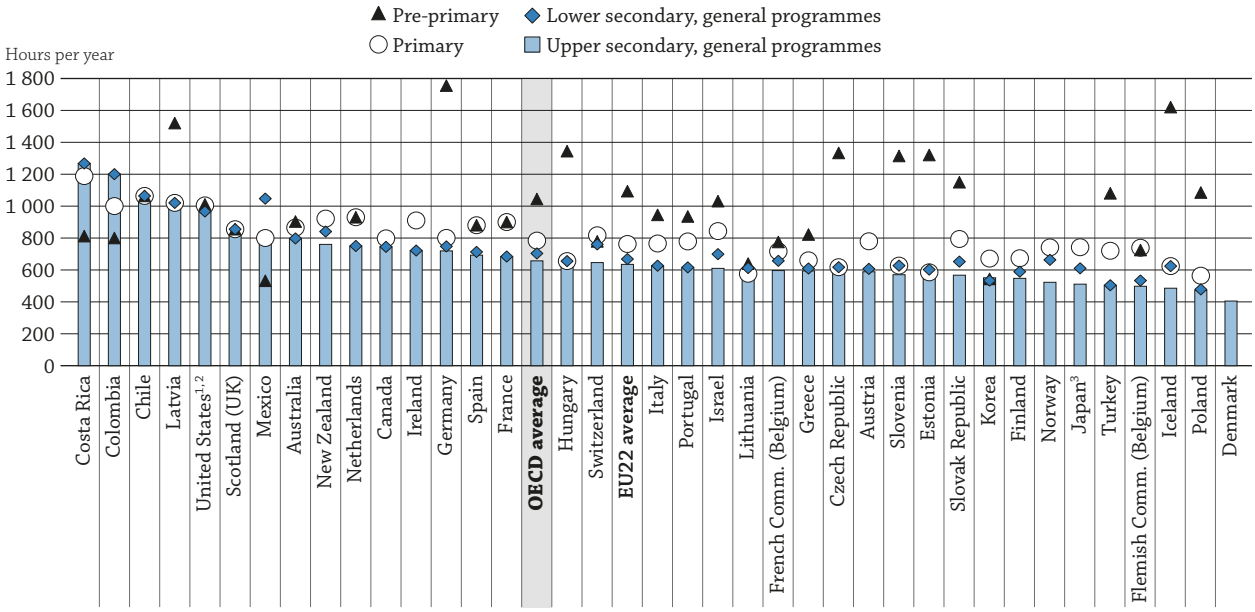
Patterns of variation at the subnational level are different between these countries. In Belgium, the number of days of teaching varies much more between the French and Flemish Communities than the number of hours of teaching. At upper secondary level (general programmes), the number of days of teaching is 40% higher in the French Community than in the Flemish Community (179 days compared to 128 days), whereas the teaching hours varies by 20% between the two communities (498 hours in the Flemish Community compared to 596 hours in the French Community). However, these differences are mainly due to the fact that it is not possible to exclude the number of examination days in the French Community of Belgium, whereas these days are excluded in the Flemish Community of Belgium. By contrast, the number of teaching days at primary and secondary levels varies by 6% between the different provinces/territories in Canada (190 days compared to 180 days), but teaching hours vary much more between subnational regions. The largest number of teaching hours is 29% higher than the smallest number at primary level (905 hours compared to 700 hours), and the difference exceeds 50% at lower and upper secondary levels (934 hours compared to 612 hours) (OECD/NCES, 2018[1]).

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 minimum or typical teaching time is reported in the subnational regions of Belgium, but maximum or estimated teaching time is reported in the different subnational regions in Canada (for more information on potential differences in data reported, see Box D4.2).

Lower secondary school teachers in general programmes in public institutions are required to teach an average of 703 hours per year, ranging from fewer than 600 hours in Finland, the Flemish Community of Belgium, Korea, Poland and Turkey to more than 1 000 hours in Chile, Colombia, Costa Rica, Latvia and Mexico. However, 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 (2017)

Net statutory contact time in public institutions



1. Actual teaching time.
2. Year of reference 2016.
3. Average planned teaching time in each school at the beginning of the school year.

Countries and economies are ranked in descending order of the number of teaching hours per year in general upper secondary education.

Source: OECD (2018), Table D4.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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A teacher of general subjects in upper secondary education in public institutions has an average teaching load of 657 hours per year. Teaching time exceeds 800 hours in only seven countries and economies: Chile, Colombia, Costa Rica, Latvia, Mexico, Scotland (United Kingdom) and the United States. However, in Chile and Scotland (United Kingdom), the reported hours refer to the maximum time teachers can be required to teach, not to their typical teaching load (Box D4.2). In contrast, teachers are required to teach fewer than 500 hours per year in Denmark, the Flemish Community of Belgium, Iceland and Poland. 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 Colombia, Costa Rica and Latvia (Table D4.1).

Variations in how teaching time is regulated and/or reported across countries may explain some of the differences in statutory teaching time between countries (Box 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 gathering this information ensures that similar definitions and methodologies are used in compilation of data in all 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. For example, teaching time is converted into hours (of 60 minutes) to avoid differences resulting from the varying duration of teaching periods between countries.

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 the pre-primary level, about one-quarter of the countries and economies reporting statutory teaching time could not specify whether these activities were included or excluded from these data. At other levels of education, most countries can exclude all or most of these activities from teaching time. However, excluding examination days may be more challenging for countries. At the upper secondary level about 30% of countries do not exclude them, and in 30% of countries, the information on whether they are excluded or included is not available. This may result in overestimating teaching time by a few days in these countries.

Moreover, data based on regulations that are reported in this indicator may refer to minimum, typical or maximum teaching time, which may explain some of the differences 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.

Differences in teaching time between levels of education

In most countries, statutory teaching time at the upper secondary level (general programmes) is less than at the pre-primary level. 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, Korea and Mexico, where upper secondary school teachers are required to teach more hours than pre-primary school teachers (Table D4.1 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 39% 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 D4.1).

In the Flemish Community of Belgium, France and Turkey, primary school teachers have at least 30% 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 Colombia and Mexico (Table D4.1).

Teaching time at lower and upper secondary levels is similar across most countries. However, in Iceland, Mexico and Norway, annual required teaching time at the lower secondary level is at least 20% more than at the upper secondary level (Table D4.1).

Differences in teaching time between types of programmes

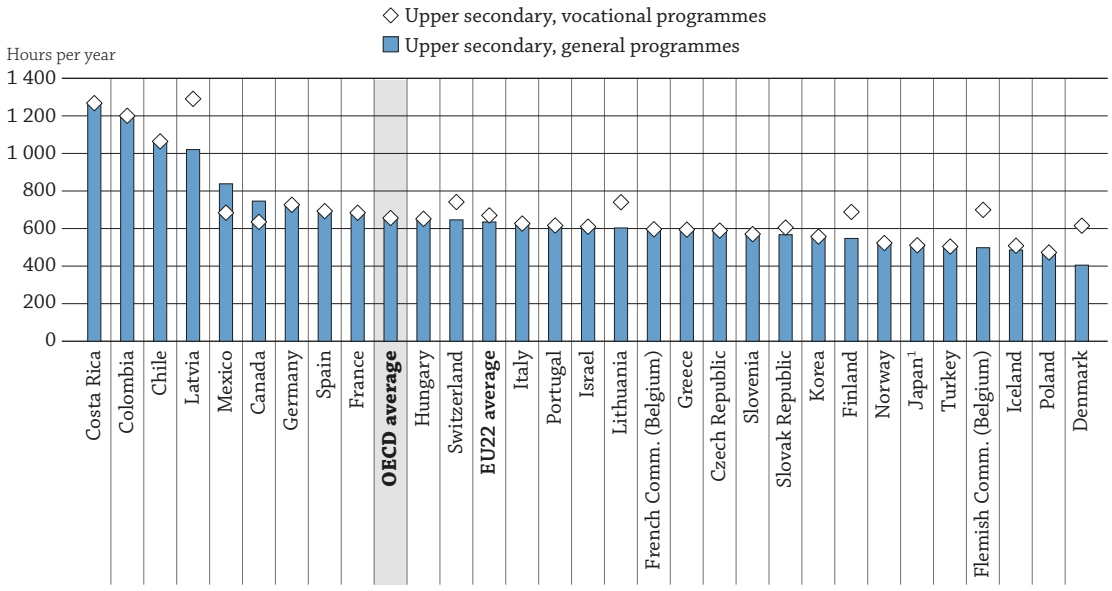
In most countries, statutory teaching time does not vary between general and vocational programmes. Focusing on upper secondary level, for which most countries have both general and vocational programmes, teaching time is similar in both general and vocational programmes in nearly two-thirds of the countries with available information. However, teaching time is at least 15% higher in vocational than in general programmes in Finland, Latvia, Lithuania and Switzerland, and at least 40% higher in the Flemish Community of Belgium (for practical courses in vocational programmes) and Denmark. In both these countries, annual teaching time in general upper secondary programmes is significantly lower than the OECD average (fewer than 500 hours, compared to 657 hours on average across OECD countries). 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, teaching time of individual teachers may differ from the regulation, 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.

Figure D4.3. Number of teaching hours per year in general and vocational programmes at upper secondary level (2017)

Net statutory contact time in public institutions



1. Average planned teaching time in each school at the beginning of the school year.

Countries and economies are ranked in descending order of the number of teaching hours per year in general upper secondary education.

Source: OECD (2018), Table D4.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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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 significantly from statutory requirements. In Latvia, for example, lower secondary teachers actually teach 46% more than the statutory teaching time. This reflects the low value of statutory salaries, meaning teachers often perform additional teaching time or other tasks for which they can be compensated. In Slovenia, lower secondary teachers teach around 7% more hours than the statutory benchmark time, while in Poland, actual teaching time is up to 14% more than statutory requirements. By contrast, in France and Lithuania, actual teaching time is about 2% to 5% 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 17 years, some countries with available data (and no break in time series) reported an increase or decrease of 10% or more in teaching time in one or several levels between 2000 and 2017 (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 2017 in Israel, Japan and Latvia (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 is also significant in Japan, albeit to a lesser extent (about 9% or 53 hours). At the upper secondary level, the largest increase in teaching time also occurred in Israel, where teachers had to teach at least 16% more hours (86 additional hours) in 2017 than in 2000 (Table D4.2).

By contrast, net teaching time dropped between 2000 and 2017 in some countries and economies. At the pre-primary level, among the few countries and economies with available data for 2000 and 2017, teaching time decreased by 9% 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 135 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 level (by 63 hours). The decrease exceeded 22% in Korea at the primary level (194 hours). In Scotland (United Kingdom), the decrease 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 of net contact time, the maximum time teachers at these levels in Scotland (United Kingdom) can be required to teach is longer than the OECD average teaching time (Table D4.2).

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 lessons' 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 10%. However, in Hungary, Latvia, Sweden and Turkey pre-primary teachers are required to be available at school at least 30% more hours than upper secondary school teachers (although statutory total working time is the same for both levels in Hungary, Latvia and Turkey) (Table D4.1).

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, Norway (in pre-primary education), Poland, the Slovak Republic and Switzerland. This may result from the fact that, in some countries, such as France for example, total annual statutory working time is valid for all civil servants, not specifically for teachers (Table D4.1).

In Sweden, although the total working time per year is decided through collective agreements, school leaders decide on the number of working hours per week and (to some extent) on the use of teachers' time (teaching or non-teaching activities).

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, years in the profession or for doing extracurricular activities at school. Iceland reduces 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 38-year-old and older teachers have a 48-hour extra holiday per year. In addition, 55-year-old or older upper secondary teachers receive a reduction of teaching time (from 58 hours for 55-59 year-olds to 290 hours for 60-year-old and older teachers).

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 (see Box D4.3 for details on these

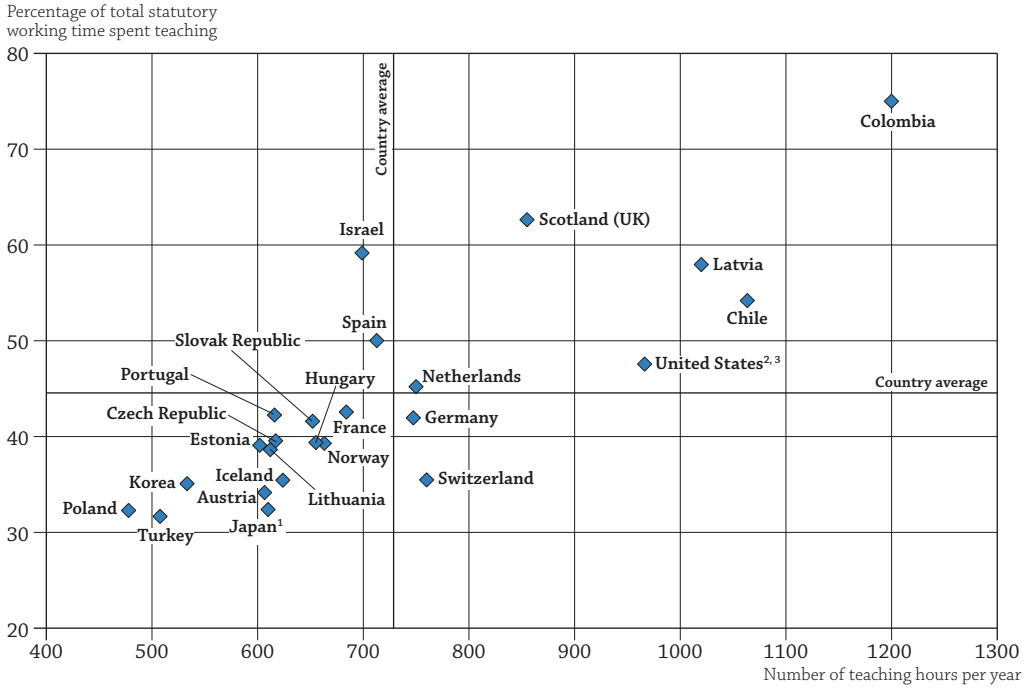
tasks at lower secondary level). The amount of time available for these non-teaching activities varies across countries; a larger proportion of statutory working time spent teaching may indicate that a lower proportion of working time is devoted to these activities.

Even if teaching is a core activity of teachers, in a large number of countries, most of their working time is spent on activities other than teaching. In the 24 countries and economies with data for both teaching and total working time for lower secondary teachers, 44% of teachers' working time is spent on teaching on average, with the proportion ranging from 32% or less in Japan, Poland and Turkey to 75% in Colombia. 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 616 hours in Portugal), but 32% of working time is spent on teaching in Japan, compared to 42% 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, Colombia, Israel, Latvia, Scotland (United Kingdom) and Spain spend at least 50% of their statutory working time teaching (Figure D4.4).

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 D4.1).

Figure D4.4. Percentage of lower secondary teachers' working time spent teaching (2017)

Net teaching time (typical annual number of hours) as a percentage of total statutory working time in general programmes in public institutions



1. Average planned teaching time in each school at the beginning of the school year.
2. Actual teaching time.
3. Year of reference 2016 instead of 2017.

Source: OECD (2018), Table D4.1. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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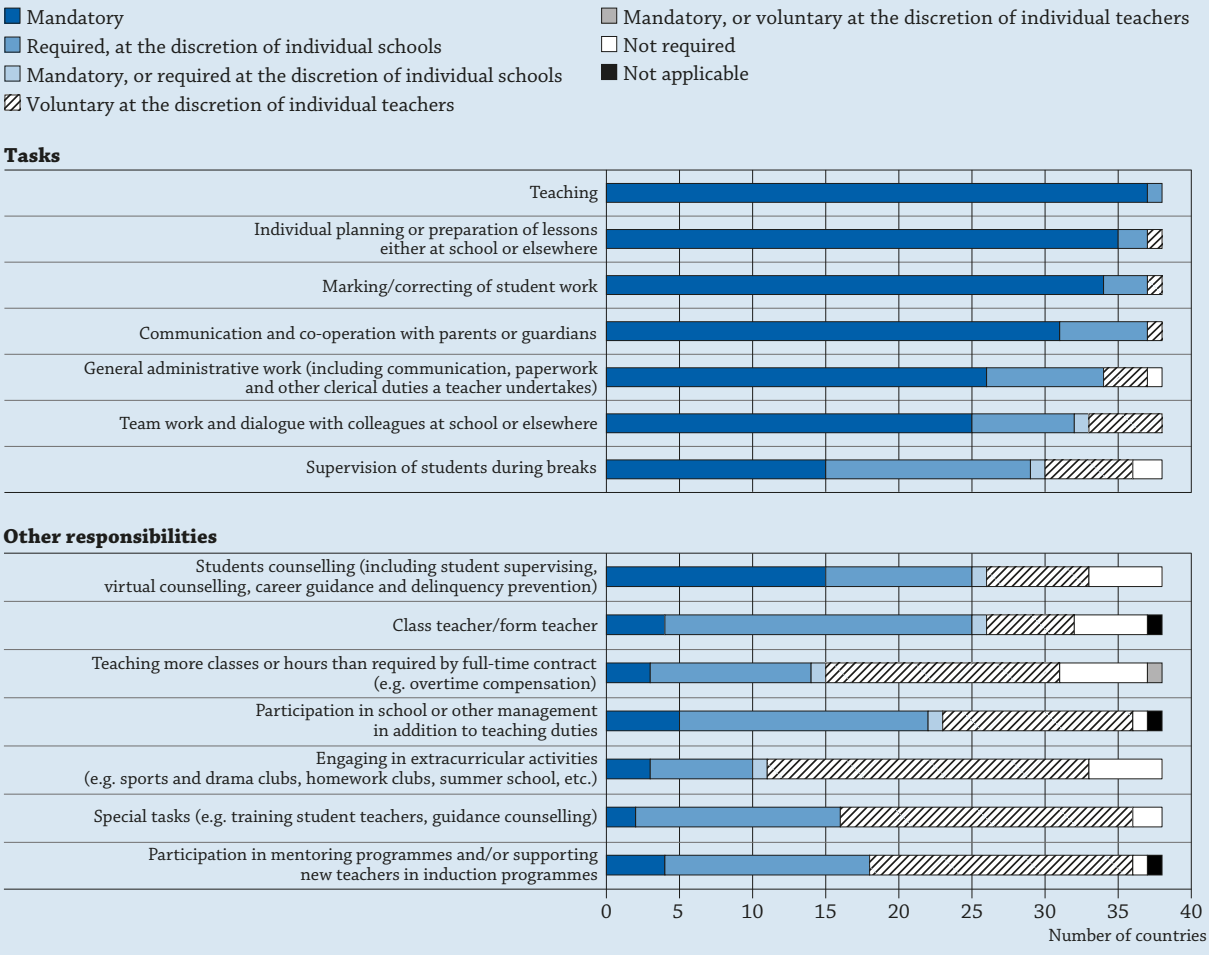
Box D4.3. Non-teaching tasks required of teachers in lower secondary education (2017)

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 the actual participation of teachers in non-teaching activities, but they provide an insight into the breadth and complexity of teachers' roles.

According to regulations, individual planning or preparing lessons, marking/correcting student work, general administrative communication and paperwork, and communicating and co-operating with parents are the most common non-teaching tasks required of lower secondary teachers (general programmes) during their statutory working time at school or statutory total working time (Table D4.3). These tasks are required in at least 26 of the 37 countries and economies with available data. Teamwork and dialogue with colleagues and supervising students during breaks are also required in around half of the countries with available data. In a quarter of countries, lower secondary teachers are required to take on various additional responsibilities, such as counselling students, teaching more classes or hours than required in the full-time contract, or being class/form teacher (Table D4.3 and Figure D4.a).

Figure D4.a. Tasks and responsibilities lower secondary teachers are required to perform (2017)

For lower secondary teachers teaching general programmes in public institutions



Source: OECD (2018), Table D4.3. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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...

Teachers do not only perform tasks that are required by regulations; they often perform voluntarily tasks such as engaging in extracurricular activities, training student teachers, offering guidance counselling and participating in school or other management activities. In almost half of the countries, individual teachers decided whether or not to perform these tasks. Responsibilities such as class/form teacher or participating in school or other management in addition to teaching duties are largely distributed at the school level.

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, less 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' contracts of employment 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 (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data are from the 2017 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2016/17 (statutory information) or school year 2015/16 (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.

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/NCES (2018), *Education at a Glance Subnational Supplement*, OECD/National Center for Education Statistics, Paris and Washington, DC, https://nces.ed.gov/surveys/annualreports/oecd/index.asp. [1]

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Indicator D4 Tables

StatLink https://doi.org/10.1787/888933805553

Table D4.1	Organisation of teachers' working time (2017)
Table D4.2	Number of teaching hours per year (2000, 2005 to 2017)
Table D4.3	Tasks and responsibilities of teachers, by level of education (2017)
WEB Figure D4.5	Actual and statutory teaching time in general lower secondary education (2016)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table D4.1. [1/2] Organisation of teachers' working time (2017)

Number of statutory teaching weeks, teaching days, net teaching hours and teachers' working time 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	40	40	40	m	198	195	195	195	m	903	865	797	797	m
	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	798	745	746	635
	Chile[2]	38	38	38	38	38	178	178	178	178	178	1 064	1 064	1 064	1 064	1 064
	Czech Republic[1]	45	39	39	39	39	215	187	187	187	187	1 333	617	617	589	589
	Denmark	a	a	a	a	a	a	a	a	a	a	a	a	a	405	615
	Estonia[1]	46	35	35	35	40	220	172	172	172	195	1 320	585	602	568	a
	Finland[3]	m	38	38	38	38	m	187	187	187	187	m	673	589	547	688
	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	801	747	719	726
	Greece[2]	36	36	36	35	35	176	176	177	172	172	822	660	609	594	594
	Hungary[3]	43	38	38	38	38	210	182	182	181	181	1 344	655	655	652	652
	Iceland	46	37	37	36	36	225	180	180	175	175	1 620	624	624	485	508
	Ireland[1]	m	37	33	33	m	m	182	164	164	m	m	910	722	722	m
	Israel[1]	37	37	36	36	36	182	182	175	173	173	1 031	843	699	610	610
	Italy[1]	42	39	39	39	39	189	174	174	174	174	945	766	626	626	626
	Japan[4]	m	40	40	39	39	m	201	201	196	196	m	742	610	511	511
	Korea[3]	36	38	38	38	38	180	190	190	190	190	543	671	533	551	557
	Latvia[1]	39	35	35	35	44	190	170	170	170	215	1 520	1 020	1 020	1 020	1 290
	Luxembourg[1]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico[1]	42	42	42	36	36	200	200	200	171	171	532	800	1 047	838	684
	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]	45	38	38	38	38	225	190	190	190	190	a	741	663	523	523
	Poland[1]	45	37	37	37	37	217	179	177	175	175	1 085	564	478	473	473
	Portugal[2]	41	39	38	38	38	187	173	168	168	168	935	779	616	616	616
	Slovak Republic[1]	44	39	39	39	39	209	189	189	189	189	1 150	794	652	567	605
	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[1]	47	a	a	a	a	224	a	a	a	a	m	a	a	a	a
	Switzerland[1]	39	39	39	39	39	190	190	190	190	190	779	817	760	646	741
	Turkey[1]	38	38	38	38	38	180	180	180	180	180	1080	720	504	504	504
	United States[5, 6]	36	36	36	36[d]	x(5)	180	180	180	180[d]	x(11)	1 011	1 004	966	966[d]	x(17)
	Economies															
	Flemish Comm. (Belgium)[1, 3]	37	37	37	37	37	157	157	128	128	128	725	739	533	498	699
	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	41	38	38	37	38	196	183	181	180	182	1044	784	703	657	656
	EU22 average	41	38	37	37	38	197	180	177	177	180	1093	762	668	635	670
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
	Colombia[1]	40	40	40	40	40	200	200	200	200	200	800	1 000	1 200	1 200	1 200
	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
	Lithuania[1]	a	32	34	34	a	a	160	170	168	a	640	576	612	603	740
	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 on vocational programmes at lower secondary level (i.e. Columns 4, 10, 16, 22 and 28) 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) (in the Flemish Community of Belgium, for pre-primary and primary levels).
2. Maximum teaching time.
3. Minimum teaching time (in the Flemish Community of Belgium, for lower and upper secondary levels).
4. Average planned teaching time in each school at the beginning of the school year.
5. Actual teaching time.
6. Year of reference 2016.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table D4.1. [2/2] Organisation of teachers' working time (2017)

Number of statutory teaching weeks, teaching days, net teaching hours and teachers' 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
		(19)	(20)	(21)	(23)	(24)	(25)	(26)	(27)	(29)	(30)
OECD	**Countries**										
	Australia[1]	1 243	1 242	1 239	1 239	m	a	a	a	a	a
	Austria[1]	m	a	a	a	a	a	1 776	1 776	a	a
	Canada[1]	m	1 228	1 233	1 236	1 280	m	a	a	a	1 280
	Chile[2]	1 830	1 830	1 830	1 830	1 830	1 962	1 962	1 962	1 962	1 962
	Czech Republic[1]	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]	1 610	a	a	a	a	1 610	1 540	1 540	1 540	1 540
	Finland[3]	m	787	703	642	769	a	a	a	a	a
	France[1]	954	954	a	a	a	1 607	1 607	1 607	1 607	1 607
	Germany[1]	a	a	a	a	a	1 782	1 782	1 782	1 782	1 782
	Greece[2]	1 134	1 134	1 176	1 176	1 176	a	a	a	a	a
	Hungary[3]	1 512	1 165	1 165	1 158	1 158	1 664	1 664	1 664	1 664	1 664
	Iceland	1 760	1 610	1 610	1 440	1 440	1 760	1 760	1 760	1 800	1 800
	Ireland[1]	m	1 073	811	811	m	a	a	a	a	a
	Israel[1]	1 067	1 236	1 181	1 166	1 166	1 067	1 236	1 181	1 166	1 166
	Italy[1]	a	a	a	a	a	a	a	a	a	a
	Japan[4]	a	a	a	a	a	1 883	1 883	1 883	1 883	1 883
	Korea[3]	a	a	a	a	a	1 520	1 520	1 520	1 520	1 520
	Latvia[1]	1 560	1 050	1 050	1 050	1 320	1 760	1 760	1 760	1 760	1 760
	Luxembourg[1]	m	m	m	m	m	m	m	m	m	m
	Mexico[1]	772	800	1 167	971	692	a	a	a	a	a
	Netherlands[2]	a	a	a	a	a	1 659	1 659	1 659	1 659	1 659
	New Zealand[1]	m	1 536	1 243	950	m	a	a	a	a	a
	Norway[2]	a	1 300	1 225	1 150	1 150	1 688	1 688	1 688	1 688	1 688
	Poland[1]	m	m	m	m	m	1 808	1 496	1 480	1 464	1 464
	Portugal[2]	1 086	1 038	920	920	920	1 572	1 488	1 458	1 458	1 458
	Slovak Republic[1]	m	m	m	m	m	1 568	1 568	1 568	1 568	1 568
	Slovenia[1]	a	a	a	a	a	m	m	m	m	m
	Spain[1]	1 140	1 140	1 140	1 140	1 140	1 425	1 425	1 425	1 425	1 425
	Sweden[1]	1 792	1 360	1 360	1 360	1 360	a	1 767	1 767	1 767	1 767
	Switzerland[1]	a	a	a	a	a	2 142	2 142	2 142	2 142	2 142
	Turkey[1]	1 160	980	836	836	836	1 592	1 592	1 592	1 592	1 592
	United States[5, 6]	1 441	1 443	1 449	1 446[d]	x(23)	1 980	2 016	2 032	2 047[d]	x(29)
	Economies										
	Flemish Comm. (Belgium)[1, 3]	904	904	a	a	a	a	a	a	a	a
	French Comm. (Belgium)[1]	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)[2]	1 045	1 045	1 045	1 045	a	1 365	1 365	1 365	1 365	a
	OECD average	1 295	1 184	1 178	1 135	1 160	1 630	1 622	1 645	1 640	1 635
	EU22 average	1 274	1 059	1 041	1 034	1 121	1 568	1 551	1 585	1 571	1 610
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
	Colombia[1]	1 350	1 350	1 350	1 350	1 350	1 600	1 600	1 600	1 600	1 600
	Costa Rica[1]	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
	Lithuania[1]	1 452	a	a	a	a	1 584	1 584	1 584	1 584	1 584
	Russian Federation	m	m	m	m	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, 10, 16, 22 and 28) 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) (in the Flemish Community of Belgium, for pre-primary and primary levels).
2. Maximum teaching time.
3. Minimum teaching time (in the Flemish Community of Belgium, for lower and upper secondary levels).
4. Average planned teaching time in each school at the beginning of the school year.
5. Actual teaching time.
6. Year of reference 2016.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805572

Table D4.2. Number of teaching hours per year (2000, 2005 to 2017)

Net statutory contact time in public institutions, by level of education

		Primary					Lower secondary, general programmes					Upper secondary, general programmes				
		2000	2005	2010	2015	2017	2000	2005	2010	2015	2017	2000	2005	2010	2015	2017
		(15)	(16)	(21)	(26)	(28)	(29)	(30)	(35)	(40)	(42)	(43)	(44)	(49)	(54)	(56)
OECD	**Countries**															
	Australia	882	888	868	866	865	811	810	819	806	797	803	810	803	804	797
	Austria[1]	m	774	779	779	779	m	607	607	607	607	m	589	589	589	589
	Canada	m	m	799	797	798	m	m	740	742	745	m	m	744	743	746
	Chile	m	1 128	1 105	1 157	1 064	m	1 128	1 105	1 157	1 064	m	1 128	1 105	1 157	1 064
	Czech Republic	m	813	862	823	617	650	647	647	617	617	621	617	617	589	589
	Denmark[2, 3]	640	640	650	784[b]	a	640	640	650	784[b]	a	m	m	377	386	405
	Estonia	630	630	630	619	585	630	630	630	619	602	578	578	578	568	568
	Finland	656	677	680	677	673	570	592	595	592	589	527	550	553	550	547
	France	924	924	924	900	900	648	648	648	648	684	648	648	648	648	684
	Germany	783	808	805	799	801	732	758	756	750	747	690	714	713	714	719
	Greece	609	604	589	630[b]	660	426	434	415	592[b]	609	429	430	415	600[b]	594
	Hungary	583	583	604	652	655	555	555	604	652	655	555	555	604	648	652
	Iceland	629	671	624	m	624	629	671	624	m	624	464	560	544	m	485
	Ireland	915	915	915	915	910	735	735	735	735	722	735	735	735	735	722
	Israel	731	731	820	864	843	579	579	598	704	699	524	524	521	587	610
	Italy	744	739	770	752	766	608	605	630	616	626	608	605	630	616	626
	Japan[4]	635	578	707	742	742	557	505	602	610	610	478	429	500	511	511
	Korea	865	883	807	658	671	570	621	627	548	533	530	605	616	551	551
	Latvia	882	882	882	685[b]	1 020	882	882	882	685[b]	1 020	882	882	882	685[b]	1 020
	Luxembourg	m	774	739	810	m	m	642	634	739	m	m	642	634	739	m
	Mexico	800	800	800	800	800	1 182	1 047	1 047	1 047	1 047	m	848	843	848	838
	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	564	m	m	497	486	478	m	m	494	481	473
	Portugal	779	765	779	743	779	634	623	634	605	616	577	567	634	605	616
	Slovak Republic	m	m	841	832	794	m	m	652	645	652	m	m	624	617	567
	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	884	m	m	810	817	m	m	m	765	760	674	m	m	656	646
	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	739	m	554[b]	542	538	533	m	518[b]	505	502	498
	French Comm. (Belgium)	722	722	732	728	716	662	662	671	668	657	603	603	610	606	596
	England (UK)[2]	m	m	684	942	a	m	m	703	817	a	m	m	703	817	a
	Scotland (UK)	950	893	855	855	855	893	893	855	855	855	893	893	855	855	855
	OECD average	770	775	772	793	777	680	680	679	705	695	628	648	642	662	647
	Average for OECD countries with 2000, 2005, 2010, 2015 and 2017 data	777	775	781	767	784	682	673	681	685	696	634	632	640	635	654
	Average for EU22 countries with 2000, 2005, 2010, 2015 and 2017 data	783	780	782	766	791	678	673	676	680	697	660	655	661	657	682
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
	Colombia	m	1 000	1 000	1 000	1 000	m	1 200	1 200	1 200	1 200	m	1 200	1 200	1 200	1 200
	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
	Lithuania	m	m	m	565	576	m	m	m	610	612	m	m	m	610	603
	Russian Federation[2]	m	615	615	561	m	m	507	507	483	m	m	507	507	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 years 2000 to 2017 for pre-primary education (i.e. Columns 1-14) are available for consultation on line. Data on years 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014 and 2016 for primary education, lower secondary education and upper secondary education (i.e. Columns 17-20; 22-25; 27; 31-34; 36-39; 41; 45-48; 50-53; 55) 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, in England [UK] data for 2015 refer to 2016).

3. Year of reference 2011 instead of 2012 and 2013, and year of reference 2015 instead of 2014 for upper secondary education.

4. Average planned teaching time in each school at the beginning of the school year.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805591

Table D4.3. [1/2] Tasks and responsibilities of teachers, by level of education (2017)

Teachers' tasks and responsibilities in public institutions as defined explicitly in regulations and/or steering documents

		Lower secondary, general programmes						
		Tasks						
		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
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	**Countries**							
	Australia	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Austria	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Canada	m	m	m	m	m	m	m
	Chile	Mand.	Mand.	Mand.	School req.	School req.	School req.	School req.
	Czech Republic	Mand.	Voluntary	Voluntary	School req.	Voluntary	School req.	School req.
	Denmark	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Estonia	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Finland	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	France	Mand.	Mand.	Mand.	Mand.	Mand.	Not req.	Voluntary
	Germany	Mand.	Mand.	Mand.	School req.	Mand.	School req.	Voluntary
	Greece	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Hungary	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Iceland	Mand.	Mand.	Mand.	School req.	School req.	Voluntary	Voluntary
	Ireland	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Israel	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Italy	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Japan	Mand.	Mand.	Mand.	Mand.	Mand.	Mand./School req.	Mand.
	Korea	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Latvia	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	School req.
	Luxembourg	m	m	m	m	m	m	m
	Mexico	Mand.	Mand.	Mand.	School req.	School req.	Not req.	Voluntary
	Netherlands	School req.	School req.	School req.	School req.	School req.	School req.	School req.
	New Zealand[1]	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Norway	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Poland	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Portugal	Mand.	Mand.	Mand.	Mand.	Mand.	Voluntary	Mand.
	Slovak Republic	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Slovenia	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Spain	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Sweden	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	Mand.
	Switzerland	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Turkey	Mand.	Mand.	Mand.	Not req.	Mand.	Voluntary	Mand.
	United States	Mand.	School req.	School req.	School req.	School req.	School req.	School req.
	Economies							
	Flemish Comm. (Belgium)	Mand.	Mand.	School req.	School req.	School req.	School req.	School req.
	French Comm. (Belgium)	Mand.	Mand.	Mand.	Mand.	Mand.	Voluntary	Voluntary
	England (UK)	Mand.	Mand.	Mand.	Voluntary	Mand.	Voluntary	Mand.
	Scotland (UK)	Mand.	Mand.	Mand.	Voluntary	Mand.	Voluntary	Mand./School req.
Partners	Argentina	m	m	m	m	m	m	m
	Brazil	Mand.	Mand.	m	m	Mand.	m	m
	China	m	m	m	m	m	m	m
	Colombia	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
	Costa Rica	Mand.	Mand.	Mand.	Voluntary	Mand.	Mand.	Mand.
	India	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m
	Lithuania	Mand.	Mand.	Mand.	Mand.	Mand.	School req.	School req.
	Russian Federation	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m
	South Africa	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

Note: Pre-primary, primary, lower secondary (vocational programmes) and upper secondary levels (added in separate rows) are available for consultation on line (see *StatLink* below). See *Definitions* and *Methodology* sections for more information.

1. Citeria 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805610

Table D4.3. [2/2] Tasks and responsibilities of teachers, by level of education (2017)

Teachers' tasks and responsibilities in public institutions as defined explicitly in regulations and/or steering documents

		Lower secondary, general programmes							
		Other responsibilities							
		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)	Students counselling (including student supervising, virtual counselling, career guidance, and delinquency prevention)	Engaging in extracurricular activities (e.g. homework clubs, sports and drama clubs, summer school)	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
		(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	**Countries**								
	Australia	School req.	Not req.	Voluntary	Voluntary	School req.	School req.	Voluntary	School req.
	Austria	School req.	Mand.	School req.	Voluntary	Voluntary	School req.	Voluntary	Mand.
	Canada	m	m	m	m	m	m	m	m
	Chile	Voluntary	School req.	School req.	Voluntary	Voluntary	School req.	Voluntary	Mand.
	Czech Republic	Voluntary	School req.	Voluntary	Voluntary	Voluntary	School req.	School req.	Mand.
	Denmark	School req.	School req.	School req.	School req.	School req.	School req.	School req.	School req.
	Estonia	School req.	Voluntary	Mand.	School req.	School req.	School req.	Voluntary	Mand.
	Finland	Voluntary	Voluntary	Mand.	Voluntary	Voluntary	Voluntary	Voluntary	Mand.
	France	Voluntary	Mand/Vol.	Mand.	Voluntary	Voluntary	Voluntary	Voluntary	Mand/Vol.
	Germany	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	School req.
	Greece	Not req.	Voluntary	Mand.	Voluntary	Voluntary	Mand.	Mand.	Mand.
	Hungary	Voluntary	Voluntary	Mand.	Mand.	Not req.	Not req.	Voluntary	Mand.
	Iceland	Voluntary	Not req.	Voluntary	Voluntary	Voluntary	School req.	Voluntary	Mand.
	Ireland	School req.	Voluntary	Not req.	Voluntary	Voluntary	School req.	Voluntary	Mand.
	Israel	Voluntary	Voluntary	School req.	Not req.	Voluntary	School req.	Voluntary	Voluntary
	Italy	School req.	Voluntary	Voluntary	Voluntary	Voluntary	Not req.	Voluntary	Mand.
	Japan	Mand./School req.	Mand./School req.	Mand.	Mand./School req.	School req.	Mand./School req.	School req.	Mand.
	Korea	School req.	Voluntary	Mand.	School req.	School req.	School req.	School req.	Mand.
	Latvia	Mand.	School req.	Mand.	School req.	School req.	School req.	School req.	Mand.
	Luxembourg	m	m	m	m	m	m	m	m
	Mexico	School req.	Not req.	Not req.	Not req.	School req.	Not req.	School req.	Mand.
	Netherlands	School req.	School req.	School req.	School req.	School req.	School req.	School req.	School req.
	New Zealand[1]	School req.	School req.	Mand./School req.	Voluntary	School req.	School req.	School req.	School req.
	Norway	School req.	School req.	School req.	Not req.	Voluntary	School req.	Voluntary	Voluntary
	Poland	School req.	Voluntary	Not req.	Voluntary	Voluntary	School req.	Voluntary	Mand.
	Portugal	Mand.	Mand.	Mand.	Mand.	School req.	Mand.	School req.	Voluntary
	Slovak Republic	Voluntary	School req.	Voluntary	Voluntary	Voluntary	Mand.	Voluntary	Voluntary
	Slovenia	School req.	Mand.	Mand.	Mand.	Mand.	a	Mand.	Mand.
	Spain	Mand.	Not req.	Mand.	Voluntary	Voluntary	Not req.	School req.	Voluntary
	Sweden	Voluntary	Voluntary	School req.	Voluntary	Voluntary	School req.	a	School req.
	Switzerland	Voluntary	Not req.	Mand.	Not req.	Voluntary	Voluntary	Voluntary	Mand.
	Turkey	Mand.	Voluntary	Not req.	Voluntary	School req.	School req.	School req.	Voluntary
	United States	School req.	School req.	School req.	School req.	School req.	School req.	School req.	School req.
	Economies								
	Flemish Comm. (Belgium)	Voluntary	Voluntary	Not req.	Voluntary	Voluntary	Voluntary	Voluntary	Mand.
	French Comm. (Belgium)	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	School req.	Mand.
	England (UK)	School req.	School req.	School req.	School req.	School req.	School req.	School req.	School req.
	Scotland (UK)	a	Voluntary	Mand.	Voluntary	School req.	School req.	Mand.	Mand.
Partners	**Argentina**	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	Mand.
	China	m	m	m	m	m	m	m	m
	Colombia	Mand.	Not req.	Mand.	Not req.	Not req.	Not req.	Not req.	School req.
	Costa Rica	School req.	Voluntary	Mand.	Voluntary	Mand.	Mand.	Mand.	School req.
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Lithuania	School req.	School req.	School req.	Voluntary	Voluntary	School req.	Voluntary	Mand.
	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?

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

Note: Pre-primary, primary, lower secondary (vocational programmes) and upper secondary levels (added in separate rows) are available for consultation on line (see *StatLink* below). See *Definitions* and *Methodology* sections for more information.

1. Citeria 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

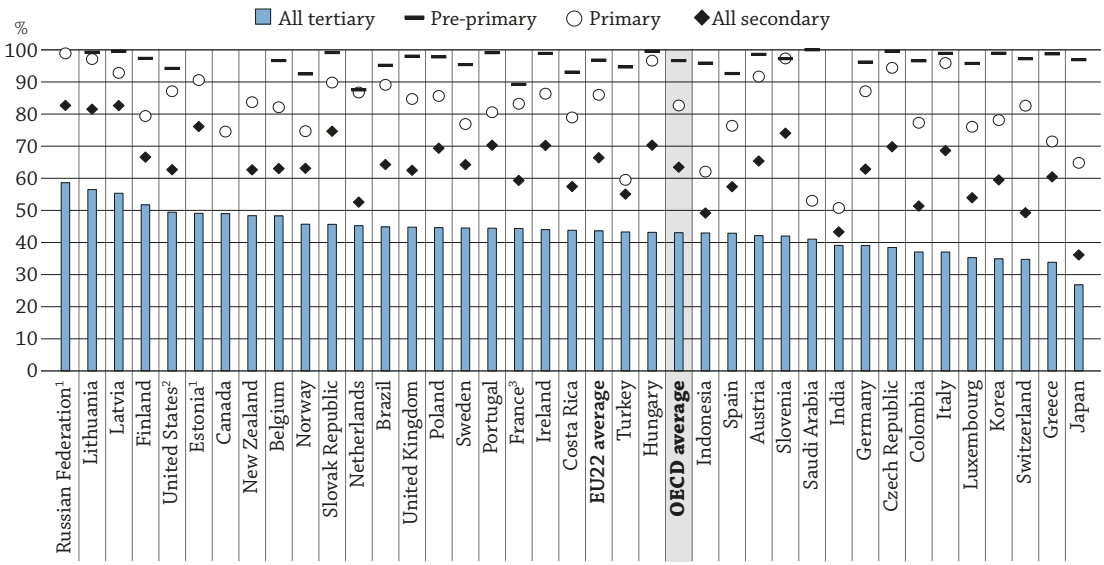
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WHO ARE THE TEACHERS?

- Women constitute almost all of the teaching workforce at the pre-primary level, while they represent less than half of it at the tertiary level. Over the past decade, there has been a gradual increase in this gender gap from primary level to upper secondary level, but a decrease at the tertiary level.
- 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, teachers are getting younger in a third of OECD countries.
- In most countries, teachers above 50 years old constitute a large share of the teaching force. Among men, the share of younger teachers (below 30) at the upper secondary level is below 15% in most OECD countries with available data.

Figure D5.1. Gender distribution of teachers (2016)

Percentage of women among teaching staff in public and private institutions, by level of education



1. Pre-primary includes early childhood education.

2. All tertiary includes post-secondary non-tertiary education.

3. Public and government-dependent private institutions only for all levels except for tertiary. For tertiary education, public institutions only.

Countries are ranked in descending order of the share of female teachers in tertiary education.

Source: OECD / UIS / Eurostat (2018), Table D5.2 and Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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, use of teaching assistants and other non-classroom staff in schools, enrolment rates at the different levels of education, and starting and ending age for compulsory education. With large proportions of teachers in several OECD countries set to reach retirement age in the next decade, and/-or the projected increase in the size of the school-age population, 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]) (Stigler and Hiebert, 1999[2]).

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 impact on student learning warrant detailed study (OECD, 2017[3]).

Other findings

- On average across OECD countries, 12% of primary teachers are under the age of 30. The United Kingdom has the largest proportion of primary teachers (31%) under the age of 30 of all countries with available data. By contrast, in Italy and Portugal, only 1% of primary teachers are in that age group.
- At the primary level, the median of the average ages of teachers across OECD countries is about the same for men and women (44 years old). Men tend to be slightly older in higher levels of education (starting from lower secondary). The difference is the largest in tertiary education where the median of the average ages across countries is 48 for male teachers and 46 for female teachers.

D5

Analysis

Teachers' age distribution

Teachers' age distribution varies considerably across countries and can be affected by a variety of factors, such as the size and age distribution of the population and the duration of tertiary education, as well as by 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 into the labour market. Competitive salaries, good working conditions and career development opportunities may attract young people to teaching in some countries and, in others, may help to retain effective teachers.

On average across the OECD, more than half of primary, lower secondary and upper secondary teachers are between the ages of 30 and 49.

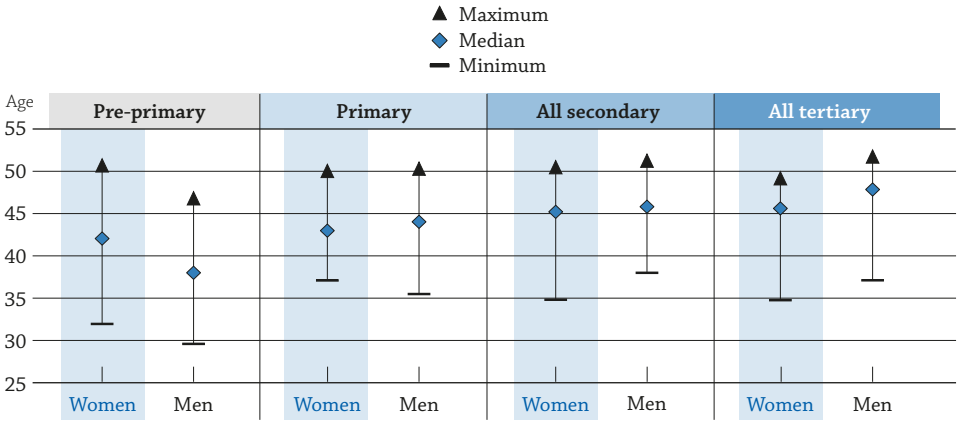
Young teachers (below the age of 30) – make up only a small proportion of the teaching population: 12% in primary education, 10% in lower secondary and 8% in upper secondary, on average across the OECD. This pattern is particularly striking at the upper secondary level: in nearly two-thirds of the countries with available data, teachers below age 30 make up less than 10% of the teaching population. They account for less than 5% of teachers in the Czech Republic, Finland, Greece, Hungary, Italy, Lithuania, Portugal, Slovenia and Spain (Table D5.1).

In contrast, a high share of teachers are 50 or older. This share increases with education levels, from 31% in primary education to 35% in lower secondary and 38% in upper secondary education. This pattern is again quite striking at the upper secondary level, where older teachers account for more than 30% of all teachers in 28 out of 35 countries with available data. There is, however, a high level of cross-country variation, with figures ranging from 12% in Turkey to 63% in Italy for upper secondary education.

Across OECD countries with available data, the average age of teachers tends to be slightly greater in higher education levels compared to lower ones for both men and women. In half of the countries with available data, female secondary teachers are, on average, over age 45 and male secondary teachers are over age 46. In comparison, at the pre-primary level, female teachers are under age 42 and male teachers are under age 39 in half of the countries with available data. However, this last result should be interpreted with caution as, on average across the OECD, men make up only 3% of the teaching workforce at the pre-primary level.

Figure D5.2. Distribution of the average ages of teachers, by gender and education level (2016)

Median, minimum and maximum of the average ages of teachers



Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Overall, the distribution of the average ages of female teachers only varies slightly between primary and tertiary education levels. The difference in teachers' average age across education levels is greater among men than women. Among countries with available data, the median average age of male teachers at the primary level is four years less than the median average age of male teachers at the tertiary level. For female teachers, this difference drops to only one year. These results mask stronger variations across countries. For example, in Canada, the difference

between the average age of primary teachers and the average age of tertiary teachers is the same for men and women (4 years). In contrast, larger differences between the average age of primary and tertiary teachers are observed for men and women in countries such as Korea and the United Kingdom: primary female teachers in Korea and the United Kingdom are respectively 6 and 8 years younger than their peers teaching at tertiary level. Among men, this difference rises to 13 years in Korea and 12 years in the United Kingdom (Figure D5.2).

The ageing of the teaching force has a number of implications for education systems across countries. In addition to prompting recruitment and training efforts to replace retiring teachers, it 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 2016

On average across OECD countries with available data for both years, the share of teachers age 50 and older has increased by 3 percentage points over the decade, for primary to upper secondary education combined. Hungary, Lithuania, Poland, Portugal and Slovenia saw an increase of over 10 percentage points (Education at a Glance Database), although in Poland the share of teachers of age 50 and older remains lower than the OECD average.

Around one-third of the countries with available data (Chile, France, Germany, Ireland, Luxembourg, the United Kingdom and the United States) exhibit a negative change in the percentage of teachers of age 50 or older, which indicates that the teaching population is getting younger. This may be explained, in part, by efforts to implement teacher recruitment policies. For instance, the United Kingdom, which has seen the largest decrease in the share of older teachers, launched an ambitious recruitment campaign in the early 2000s.

In countries where the school-age population has increased over this period (see Indicator B1), 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[4]]). In addition, fiscal constraints (particularly driven by pension obligations and healthcare costs for retirees) may put pressure on governments to reduce academic offerings, increase class size or integrate more self-paced online learning (Peterson, 2011[5]).

Gender profile of teachers

On average across OECD countries, more than two-thirds of teachers are women, in all levels of education combined. The highest proportions of female teachers, however, are concentrated in the earlier years of schooling, and the share shrinks at each successive level of education. Indeed, while women represent 97% of the teaching staff in pre-primary education on average across OECD countries, they represent 43% at the tertiary level (Table D5.2).

At the pre-primary level, women make up at least 90% of the teaching population in all countries with available data, except France (89%) and the Netherlands (88%). In primary education, the share of female teachers averages 83% in OECD countries, and it is above 60% in all OECD and partner countries except India (51%), Saudi Arabia (53%) and Turkey (59%).

In lower and upper secondary education, although female teachers continue to dominate, the proportion of male teachers is larger than at earlier levels. In lower secondary education, 69% of teachers on average across OECD countries are women. In fact, they represent at least 50% of the teaching staff at this level in all countries with available data except India (45%), Indonesia (49%) and Japan (42%).

At the upper secondary level, the share of female teachers' drops to 59% on average across OECD countries though this can vary from 30% in Japan to 80% in Latvia. It also varies considerably between programmes. On average across OECD countries, women represent 62% of teachers in general programmes and 56% of teachers in vocational programmes. In some countries such as Estonia, Finland and Hungary, the share of female teachers in general programmes is 15 percentage points higher than in vocational programmes, even though women still make up the majority of vocational teachers in these countries.

At the tertiary level, the gender profile of teachers is reversed, with men making up the majority across OECD countries and female teachers representing 43% of the teaching staff on average. In fact, among countries with available data, only Finland, Latvia, Lithuania and the Russian Federation have more than 50% of female teachers in tertiary education. The smallest share of female tertiary teachers in the OECD is found in Japan (27%). Among partner countries, the smallest share of tertiary teachers is in Colombia (37%).

Why do so few men decide to teach at the lower levels of education? 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 have aspirations for their children's professions based on gender stereotypes (Croft et al., 2014[6]) (Kane and Mertz, 2012[7]) (OECD, 2015[1]). Even among teaching positions themselves, there are gender imbalances across the different fields of education. At the lower secondary level, women make up a lower share of teachers in science, mathematics and technology than in the overall teaching population (OECD, 2014[8]) (OECD, 2017[3]). This also may result from the social perception of science as being a masculine domain, which may discourage women from pursuing tertiary studies in that field (OECD, 2014[8]).

From an economic point of view, the choice of future jobs is also influenced by young people's expectations for future earning potential. In every country with available data, 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 a tertiary degree in other fields (see Indicator D3 and [OECD, 2017[3]]). These differences in relative salaries for men and women are likely to make the teaching profession more appealing to women, especially at the lower levels of education.

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[9]) (OECD, 2005[10]) (OECD, 2009[11]). While there is little evidence that a teacher's gender has an impact on student performance (e.g. [Antecol, Eren and Ozbeklik, 2012[12]] [Holmlund and Sund, 2008[13]]), aiming for better balance across genders can nevertheless have positive effects on all students. In particular, there is evidence that female teachers' attitudes towards some school subjects, such as mathematics, can influence their female students' achievement (Beilock et al., 2010[14]) (OECD, 2014[15]). Furthermore, male teachers can serve as role models and contribute to students developing positive gender identities, particularly for those students who do not have many positive male role models in their lives.

The gender distribution of school leadership staff does not reflect the gender mix among teachers (OECD, 2014[15]). While the proportion of male teachers in primary schools is relatively small in many countries, there is an over-representation of male principals. This suggests that male teachers tend to be promoted to principal positions more often than female teachers, although most of them are recruited from the ranks of teachers who are mostly women (see Indicator D6 in [OECD, 2016[16]]).

Share of male and female teachers by age group and level of education

The higher proportion of women among young teachers, together with the predominance of female tertiary graduates in the field of education (see Education at a Glance Database), may raise concerns about future gender imbalances at the primary to upper secondary levels, where women already dominate the profession.

Gender and age imbalances in the teaching profession can be analysed through at least two lenses: the age distribution among both female and male teachers, and the gender distribution of teachers in each age group. In most countries, the share of women is higher among young teachers (below age 30) than among older teachers (age 50 or older). At the primary level, the difference between the two age groups is rather small, with 84% of women in the younger group, compared to 82% in the older group, on average across OECD countries (Table D5.3). At lower secondary level, the difference is also small on average: women make up 70% of teachers under the age of 30, and 66% of those of age 50 or older. The difference grows larger at the upper secondary level: on average across OECD countries, 62% of teachers under age 30 are women, compared to 56% in the older group.

However, at the tertiary level, where female teachers are a minority on average, the higher share of women among the younger generation of teachers suggests an increase in gender parity. On average across OECD countries, the share of female tertiary teachers is closer to 50% (i.e. an equal gender distribution) among the younger group, with 52% of female teachers under age 30, and 38% age 50 or older.

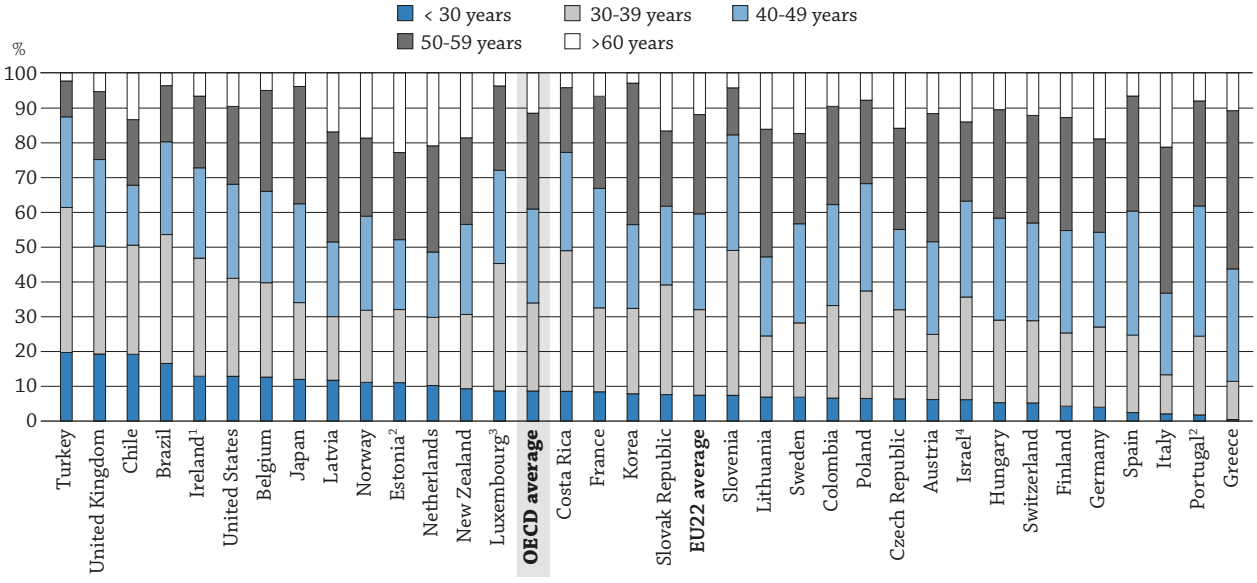
These indicators are consistent with the gender distribution dynamics observed over the decade, which point to a gradual increase in the gender gap in the teaching profession at the primary and secondary level, but a decrease at the tertiary level. On average, for all OECD countries with data for both years, the rise in the share of female teachers between 2005 and 2016 has widened the gender gap by 3 percentage points for the primary and secondary levels combined, while it has narrowed the gap by 4 percentage points at the tertiary level. At the primary and secondary levels combined, this difference reaches over 5 percentage points in countries such as the Czech Republic, Germany, Greece, Ireland and Korea. At the tertiary level, the gender gap has decreased considerably in many countries, with a change of at least 7 percentage points in Belgium, Germany, Japan, the Netherlands and Slovenia.

The gender gap at tertiary level has widened by 8 percentage points in the Russian Federation, where women represent almost 60% of tertiary teachers in 2016.

These persistent gender imbalances in the teaching profession have raised a number of concerns, and countries such as the United Kingdom have implemented policies encouraging the recruitment and retention of a diverse and inclusive teacher workforce, including in terms of gender (OECD, 2017[3]) (OECD, 2014[8]).

These findings suggest that it is more likely to have male teachers of older age groups with increasing levels of education. In most countries with available data, teachers over age 50 represent a large share of the male teaching force at secondary level. The share of younger teachers (under age 30) is below 15% in almost all of OECD countries with available data, except in Chile (19%) and Turkey (20%). Even in countries where men represent most of the teaching workforce, as in Japan and Switzerland, they are more likely to belong to older age groups. In fact, in some countries, the majority of male teachers in upper secondary education are above age 50. In Italy, 63% of male teachers in upper secondary are above age 50, the largest share across OECD and partner countries.

Figure D5.3. Age distribution of male teachers in secondary education (2016)



1. Public institutions only.
2. Upper secondary includes programmes from post-secondary non-tertiary education.
3. Upper secondary includes short-cycle tertiary.
4. Private institutions are not included for upper secondary education.

Countries are ranked in descending order of the share of male secondary teachers below the age of 30.

Source: OECD / UIS / Eurostat (2018), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Definitions

Instructional personnel (teachers) include two categories:

- **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 department chairpersons 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.

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Methodology

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[17]) and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data refer to the academic year 2015/16 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2017 (for details, see Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-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

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Table D5.1 Age distribution of teachers (2016)

Table D5.2 Gender distribution of teachers (2016)

Table D5.3 Gender distribution of teachers by age group (2016) and percentage of female teachers for all ages (2005, 2016)

Cut-off date for the data: 18 July 2018. 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.

D5

Table D5.1. Age distribution of teachers (2016)

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
		(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	15	47	39	10	41	49	6	49	45	10	45	45
	Belgium	20	56	25	17	54	28	14	54	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	22	53	25	21	51	28	21	50	29	21	52	27
	Czech Republic	8	51	41	9	56	36	4	45	51	7	50	43
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia[2]	10	47	43	8	39	53	8[d]	41[d]	51[d]	9[d]	43[d]	48[d]
	Finland	8	61	31	8	60	32	3	49	47	7	57	36
	France	12	67	21	9	60	31	9	60	31	10	62	27
	Germany	8	53	39	7	46	47	5	54	41	7	50	43
	Greece	9	54	36	1	52	47	0	50	50	5	53	43
	Hungary	7	54	39	5	53	42	4	60	36	5	56	39
	Iceland	5	56	39	5	56	39	m	m	m	m	m	m
	Ireland[3]	15	67	19	x(7)	x(8)	x(9)	11[d]	63[d]	26[d]	13	65	22
	Israel[3]	13	65	22	10	62	28	10	56	34	12	62	26
	Italy	1	45	55	2	44	55	2	35	63	1	41	58
	Japan[4]	17	52	31	16	54	31	11[d]	52[d]	37[d]	15[d]	52[d]	33[d]
	Korea	19	66	15	12	60	28	11	59	31	14	62	23
	Latvia	9	52	39	6	43	51	6	42	52	7	47	46
	Luxembourg[5]	21	59	20	12	64	24	12[d]	64[d]	24[d]	16[d]	62[d]	22[d]
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	15	49	36	15	45	40	11	41	49	14	46	40
	New Zealand	12	49	38	12	47	41	10	46	43	12	48	40
	Norway	16	54	30	16	54	30	8	49	43	14	53	33
	Poland	9	59	31	6	66	28	5	63	32	7	62	31
	Portugal[4]	1	61	38	1	59	40	2[d]	62[d]	36[d]	1[d]	61[d]	38[d]
	Slovak Republic	7	63	30	9	53	38	8	50	43	8	55	37
	Slovenia	5	58	36	5	58	36	3	53	44	5	57	38
	Spain	9	58	33	3	60	37	3	60	37	5	59	35
	Sweden	8	55	37	8	55	37	5	51	44	7	54	39
	Switzerland[4]	17	49	33	10	55	36	5[d]	53[d]	42[d]	12[d]	52[d]	36[d]
	Turkey	21	63	15	31	63	5	20	68	12	24	65	11
	United Kingdom	31	54	15	24	58	18	20	56	25	26	56	19
	United States	16	55	29	16	56	29	12	54	33	15	55	30
	OECD average	12	56	31	10	54	35	8	53	38	11	55	34
	EU22 average	11	56	33	8	53	38	7	52	41	9	54	37
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	13	68	18	15	65	20	14	64	22	14	66	20
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	7	54	39	7	56	38	7	56	38	7	55	38
	Costa Rica	5	63	31	8	67	24	9	67	23	7	65	28
	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
	Lithuania	4	52	44	5	47	48	4	43	53	4	47	48
	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 education includes pre-primary programmes.
2. Upper secondary includes programmes from lower secondary vocational and post-secondary non-tertiary education.
3. For Ireland, public institutions only. For Israel, private institutions are included for all levels except for pre-primary and upper secondary levels.
4. Upper secondary includes post-secondary non-tertiary education.
5. Upper secondary includes short-cycle tertiary.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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 (2016)

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, doctoral or equivalent level	All tertiary	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD	Australia	m	m	m	m	m	m	m	m	45	m	m
	Austria	99	92	72	63	50	55	68	52	40	42	67
	Belgium	97	82	64	63	63	63	46	x(10)	x(10)	48	70
	Canada	x(2)	75[d]	x(2)	x(6)	x(6)	75	m	54	42	49	m
	Chile	99	81	68	58	51	56	a	m	m	m	m
	Czech Republic	100	94	78	63	63	63	39	63	38	38	76
	Denmark	m	m	m	54	m	m	a	m	m	m	m
	Estonia[1, 2]	99	91	83	77	62[d]	70[d]	x(5)	a	49	49	82
	Finland	97	79	74	70	55	60	54	a	52	52	73
	France[3]	89	83	60	59	58	59	x(9)	59	41[d]	44[d]	67
	Germany	96	87	67	56	49	54	59	39	39	39	66
	Greece	99	71	66	56	50	54	53	a	34	34	65
	Hungary	100	97	77	67	51	64	52	39	43	43	76
	Iceland	94	83	83	m	m	m	m	m	m	m	m
	Ireland[4]	99	86	x(4)	70[d]	a	70[d]	m	x(10)	x(10)	44	m
	Israel[4]	99	85	79	x(6)	x(6)	70	m	m	m	m	m
	Italy	99	96	77	71	58	63	m	a	37	37	77
	Japan	97	65	42	x(6)	x(6)	30[d]	x(6, 8, 9)	48[d]	21[d]	27[d]	48
	Korea	99	78	70	53	45	51	a	45	32	35	62
	Latvia	100	93	85	84	71	80	65	64	54	55	84
	Luxembourg	96	76	54	56	53	54[d]	m	x(6)	35	35	m
	Mexico	96	68	53	x(6)	x(6)	48	a	m	m	m	m
	Netherlands	88	87	53	53	53	53	a	45	45	45	66
	New Zealand	m	84	66	61	54	60	54	47	49	48	m
	Norway[5]	92	75	75	53	53	53	53	53	46	46	65
	Poland	98	86	73	70	62	66	68	68	45	45	75
	Portugal	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	97	79	66	66	66	a	48	40	42	77
	Spain	93	76	60	57	51	55	a	49	41	43	64
	Sweden	95	77	77	x(6)	x(6)	53	44	43	45	45	75
	Switzerland	97	83	54	47	43[d]	44[d]	x(5)	a	35	35	61
	Turkey	95	59	59	50	52	51	a	40	44	43	57
	United Kingdom	98	85	64	64	56	61	a	x(10)	x(10)	45	68
	United States	94	87	67	x(6)	x(6)	58	x(10)	x(10)	x(10)	49[d]	70
	OECD average	97	83	69	62	56	59	m	m	41	43	70
	EU22 average	97	86	71	64	58	62	m	m	43	44	73
Partners	Argentina	m	m	m	m	m	m	a	m	m	m	m
	Brazil	95	89	68	61	51	59	47	45	46	46	71
	China	98	64	54	x(6)	x(6)	51	m	m	m	m	m
	Colombia	97	77	53	x(6)	x(6)	46	66	37	37	37	60
	Costa Rica	93	79	57	56	60	57	a	58	44	44	68
	India	m	51	45	x(6)	x(6)	41	61	a	39	39	m
	Indonesia	96	62	49	x(6)	x(6)	50	a	52	41	43	60
	Lithuania	99	97	82	82	71	79	64	a	56	56	81
	Russian Federation[1]	99	99	83[d]	x(3)	x(7, 8)	x(3, 7, 8)	57[d]	73[d]	51	59[d]	83
	Saudi Arabia	100	53	m	m	m	m	a	x(10)	x(10)	41	m
	South Africa[6]	m	79	x(6)	x(6)	x(6)	58[d]	m	m	m	m	m
	G20 average	96	75	61	m	m	54	56	m	40	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 vocational includes lower secondary and post-secondary non-tertiary vocational programmes.
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. Public and government-dependent private institutions only for primary, lower secondary and tertiary education.
6. Year of reference 2015.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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D5

Table D5.3. Gender distribution of teachers by age group (2016) and percentage of female teachers for all ages (2005, 2016)

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	
		2016		2016		2016		2016		2005	2016	2005	2016
		< 30 years	>= 50 years	< 30 years	>= 50 years	< 30 years	>= 50 years	< 30 years	>= 50 years	All ages	All ages	All ages	All ages
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(10)	(9)	(12)	(11)
OECD	Australia	m	m	m	m	m	m	m	m	m	m	m	m
	Austria	94	91	76	72	71	53	53	37	m	73	m	42
	Belgium[1]	85	78	71	59	69	58	65	44	65[d]	70	41	48
	Canada	83[d]	70[d]	x(1)	x(2)	83	70	58	44	73	75	48	49
	Chile	80	80	70	65	61	49	m	m	70	71	m	m
	Czech Republic[1]	93	94	74	82	58	61	m	m	71[d]	77	40	38
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia[2]	84	91	76	84	59[d]	72[d]	48	46	m	83[d]	48	49
	Finland	81	76	77	72	68	56	44	52	69	72	47	52
	France[1, 3]	89	75	64	56	63	55	57[d]	39[d]	65	67	38	44[d]
	Germany	93	84	79	67	73	50	46	29	65	70	32	39
	Greece	87	58	74	61	67	46	48	31	59	66	36	34
	Hungary	94	97	70	76	61	59	51	38	79	78	39	43
	Iceland	70	82	70	82	m	m	m	m	m	m	m	m
	Ireland[4]	84	86	x(5)	x(6)	64[d]	69[d]	m	m	72	80	39	44
	Israel[4]	91	83	86	76	82	66	m	m	79	80	m	m
	Italy	96	96	59	77	57	62	52	32	78	78	34	37
	Japan[5]	65	68	46	38	40[d]	22[d]	47[d]	23[d]	46	49[d]	18	27[d]
	Korea	73	88	73	56	70	29	68	22	61	67	31	35
	Latvia	84	94	70	85	63	82	57	53	m	87	m	55
	Luxembourg[6]	79	77	67	45	66[d]	48[d]	41	27	m	64[d]	m	35
	Mexico	m	m	m	m	m	m	m	m	56	57	m	m
	Netherlands	89	83	62	44	64	46	50	36	66	69	35	45
	New Zealand	87	86	74	66	65	59	49	47	69	72	50	48
	Norway[7]	69	77	69	77	58	47	44	42	m	69	m	46
	Poland	83	87	66	75	62	62	m	m	76	77	41	45
	Portugal[5]	86	79	62	71	54[d]	69[d]	45[d]	39[d]	74	74[d]	42[d]	44[d]
	Slovak Republic	89	91	76	78	79	72	57	41	77	79	42	46
	Slovenia	100	97	80	79	9	99	67	38	78	82	33	42
	Spain	79	75	66	57	62	52	51	37	62	66	39	43
	Sweden	71	77	71	77	53	51	46	43	m	71	m	45
	Switzerland[1]	89	78	68	48	56[d]	40[d]	54	29	62	64[d]	32	35
	Turkey	73	45	65	38	66	34	53	30	m	56	38	43
	United Kingdom	82	88	67	60	65	56	50	41	68	72	40	45
	United States[8]	88	88	69	68	62	56	m	m	74	75	44[d]	49[d]
	OECD average	84	82	70	66	62	56	52	38	68	72	39	43
	Average for countries with available data for both reference years									68	71	39	43
	EU22 average	87	85	70	69	61	61	52	39	70	74	39	44
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	83	92	62	71	55	60	50	42	m	73	m	45
	China	m	m	m	m	m	m	m	m	m	58	m	m
	Colombia	72	77	55	54	49	47	m	m	m	64	m	37
	Costa Rica	68	80	58	60	59	58	47	39	m	69	m	44
	India	m	m	m	m	m	m	m	m	m	47	m	39
	Indonesia	m	m	m	m	m	m	m	m	m	56	m	43
	Lithuania	90	97	74	81	67	79	54	51	84[d]	85	53	56
	Russian Federation[9]	m	m	m	m	m	m	64[d]	53[d]	86	87	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	70	m	m
	G20 average	m	m	m	m	m	m	m	m	m	67	m	41

1. Upper secondary includes post-secondary non-tertiary education (only for 2005 for Belgium, the Czech Republic and France).
2. Upper secondary includes programmes from lower secondary and post-secondary non-tertiary vocational education.
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 Israel, private institutions are included for all levels except for pre-primary and upper secondary levels.
5. Post-secondary non-tertiary education included in upper secondary and in all tertiary.
6. Upper secondary includes short-cycle tertiary education.
7. Public and government-dependent institutions only for primary, lower secondary and tertiary education.
8. All tertiary includes post-secondary non-tertiary education.
9. All tertiary includes part of upper secondary vocational education.

Source: OECD/UIS/Eurostat (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

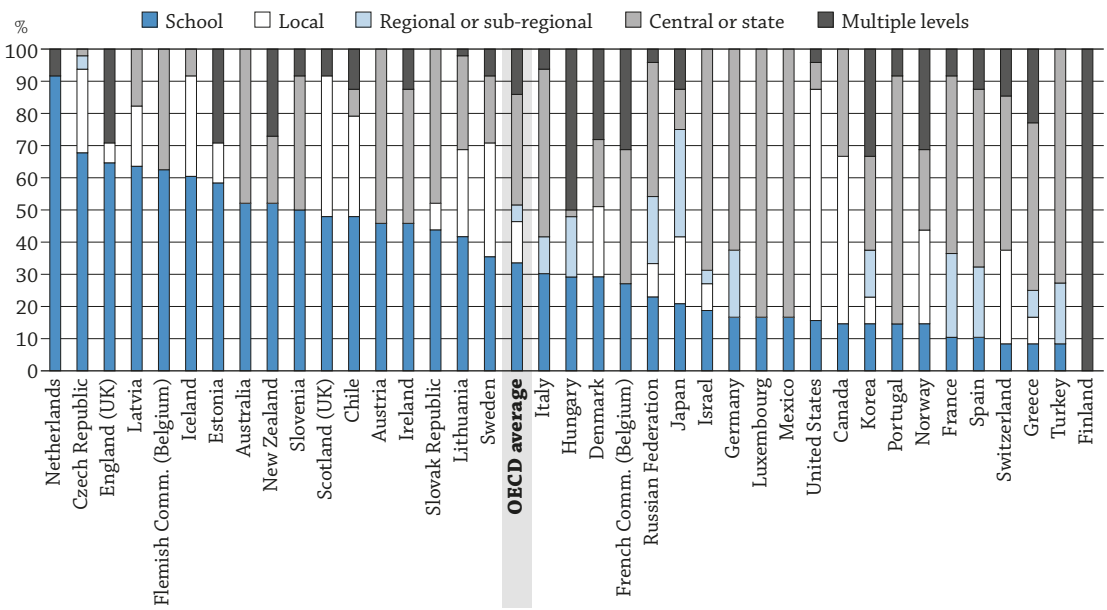
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WHO MAKES KEY DECISIONS IN EDUCATION SYSTEMS?

- Decisions about diverse aspects of public lower secondary education are most commonly made either at the school level or at the central or state level.
- In most countries decisions on the organisation of instruction are predominantly taken at the school level, decisions on resources are more often made at school or local level and decisions related to planning and structures, personnel management are more likely to be made at higher levels of authority, although countries vary widely in this regard.

Figure D6.1. Percentage of decisions taken at each level of government in public lower secondary education (2017)



Countries are ranked in descending order of the percentage of decisions taken at the school level.

Source: OECD (2018), Table D6.1. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Context

The division of responsibility among national, regional and local authorities, and schools is a much-debated topic in education policy. Since the early 1980s, a key aim of education reform has been to place more decision-making authority at lower levels of education systems. At the same time, many countries have strengthened the influence of central authorities in setting standards, curricula and assessments. For example, a loosening of "process" and financial regulations has often been accompanied by an increase in the central-level control of outputs.

There are many reasons for changes in patterns of decision making and responsibility, and they vary from country to country. The most common reasons to decentralise decision making are increased efficiency and improved financial control; reduced bureaucracy; increased responsiveness to local communities; more creative management of human resources; improved potential for innovation; and creating conditions that provide better incentives to improve the quality of schooling (Burns and Köster, 2016[1]).

This indicator shows where key decisions are made in public institutions at the lower secondary level of education. It does not capture the totality of decisions made within a school system. Instead, a set of 23 key decisions, organised across four domains, are considered. These decisions are based on a streamlined version of earlier rounds of data collection in 2003, 2007 and 2011 on levels of decision making in education (see *Methodology* section).

Other findings

- In 16 of 38 countries, decisions are most often taken at the school level. In 10 of these countries, half or more of the decisions are taken at the school level. In the Czech Republic and the Netherlands, two-thirds or more of decisions taken at the school level.
- In 11 of 38 countries, decisions made at the state or central level were the most prevalent. Luxembourg, Mexico and Portugal are the OECD countries and economies with the most centralised decision making, as more than three-quarters of decisions are taken at the central or state level.
- Decisions on the organisation of instruction are predominantly taken by schools or the local level in most countries. However, in Germany, two out of three of these decisions are taken at the central or state level. Most decisions on personnel management and the use of resources are taken at the local or school level in around one-half of countries. Decisions on planning and structures are mostly taken at one of the more centralised tiers of government.
- There are substantial differences between countries in the ways in which decisions are taken. On average across OECD countries, nearly one-third of the decisions taken at the school or local levels are taken in full autonomy, and two-thirds are within a framework set by a higher authority.

D6

Analysis

Levels of decision making in public lower secondary schools

In this indicator, six distinct levels of government or education authority at which decisions can be taken are distinguished: central, state, provincial/regional, sub-regional, local and school levels (see *Definitions* section). As decisions in some countries are not made at one specific level, but rather taken at multiple levels, the category "multiple level" has been included (Box D6.1).

However, the figures group decisions across five different levels of government: school level; local level, regional or sub-regional level; state or central level; and multiple level. This grouping makes it possible to more readily compare federal countries and non-federal countries. For example, the state and national levels are grouped together, since the most central level at which decisions about education are taken in a federal country is typically the state level, and the most central level in a non-federal country is the national level. Similarly, the regional and sub-regional levels refer to the second-most central level in federal and non-federal countries, so it was logical to group these together as well.

The results reveal that the largest share of decisions is taken at the school level among the 38 countries and economies with available data. Across the 36 OECD countries and economies with available data, an average of 34% of all decisions covered in the survey are taken at the school level, about 34% were made centrally (i.e. at the central or state level), some 13% were made at the local level, which is the level just above the school level, and about 5% of the decisions were made at the regional or sub-regional levels. However, in some countries, decisions are taken by a combination of levels, and on average across OECD countries, 14% of the decisions are taken by multiple levels (Table D6.1 and Figure D6.1).

Half of the countries (19 out of 38) reported that the largest proportion of decisions that affect lower secondary education are taken at the school level (16 countries) or local level (3 countries). In the set of decisions taken into account, most are taken at the school level (only) in Australia, the Czech Republic, England (United Kingdom), Estonia, the Flemish Community of Belgium, Iceland, Latvia, the Netherlands and New Zealand. Among the three countries that reported that the largest share of decisions is taken at the local level (i.e. by local school districts or local or municipal education authorities), the local level is the level of authority taking most of the decisions in Canada and the United States (Table D6.1).

The largest proportion of decisions is taken either at the state or central level in more than one-third of the countries (14 countries). Most of the decisions are taken at the state or central level in eight of these countries: France, Germany, Greece, Israel, Italy, Luxembourg, Portugal and Turkey. When central and state levels are combined, most of the decisions are also taken at these levels in Austria, Mexico and Spain (Table D6.1).

In Denmark, Korea, Norway and Sweden, decision making is more evenly distributed among the central, intermediate, and local or school level, and none of these levels makes more than 35% of the decisions taken into account (Table D6.1).

Box D6.1. Multiple levels of decision and influence of non-government entities

Multiple levels of government or an education authority (rather than a single level) can be involved in decision making on specific subjects in the four domains taken into account in the survey (see *Methodology* section).

In a few countries (Denmark, Hungary and Korea), multiple levels are involved in decisions on some or all subjects covered in the four domains. The levels of decisions involved may vary according to the type of decision, but in general some flexibility in the decisions is left to be determined at the lower levels of government. In Finland, all decisions are taken by multiple levels, as local and school levels are involved in all decisions, even when a more general framework is set at a higher level of government for some subjects. For example, in Korea, the central government stipulates a minimum instruction time per group of grades, but schools make decisions on allocation of the instruction time in each grade and can also decide to increase or decrease instruction time within a certain extent (set at the central level).

In other countries, multiple levels of decisions take place in fewer subjects, but usually result from the fact that there is some flexibility given to the school or local level to adapt or adjust the decisions. For example, duties of teachers in Norway are stated in the collective agreement between the employer (local authorities) and teachers,

...

but additional duties might be decided at school level. In some other cases, different levels of government jointly take decisions. For example, in Lithuania, the hiring of school principals results from a competition process between applicants. The committee in charge of the final decision is composed of representatives from the central government, local authorities and the school board.

In addition to recognising the influence of different levels of government on decision making, many countries have noted that non-government entities may also be consulted or involved in establishing a framework for decisions taken at lower levels. The most common non-government participants are teachers' unions. For example, when teachers' unions negotiate with education authorities to set pay scales, they are helping to establish a framework for decisions related to teachers' salaries for specific teachers. In many countries, teachers' unions are involved in decisions relating to duties and conditions of work, salary scales and instruction time. The participation of teachers' unions in decision making on these issues is notable in the Flemish Community of Belgium, Denmark, Finland, Iceland, Israel, Norway and Sweden and also in some Canadian provinces/territories.

In the Flemish Community of Belgium, for example, decisions on minimum and maximum instruction time are taken by the state governments, but in consultation with non-government entities, such as teachers' unions and education networks. This is also the case in the French Community of Belgium, but within this framework, schools can decide about the instruction time and the programmes of study offered in the school. Teachers' unions can influence decisions on professional development of teaching staff and their careers, as happens in Italy. In Norway, employers' associations are involved in decisions about personnel management, including salaries. In the Netherlands, employers' associations and a variety of civil society organisations are involved in decisions regarding education policies in general and those on how schools are run.

Parents and parents' organisations also have an influence on decision making (see Indicator D6, "How can parents influence the education of their children?" in *Education at a Glance 2010* [OECD, 2010[2]]). In Scotland (United Kingdom), for example, parent councils often participate in the selection of principals and education authorities are required by law to involve parents in matters of education. In Turkey, some decisions, including those on allocation of resources, are taken by the central government with the involvement of parent-teacher associations. Portugal involves teachers' associations, experts and scientific societies in establishing a framework for instruction time and designing programmes of study.

More detailed information on the multiple levels of decision and non-government entities for all participating countries and economies is available in Annex 3.

In a few countries, decisions are taken by a combination of different levels of government. Most of the decisions are taken by multiple levels in Hungary and Finland. In Finland, all decisions covered in the survey are taken by a combination of different levels. Although the local authorities, as education providers, are responsible for most decisions in practice, many decisions in large urban districts are delegated to schools, particularly those related to staffing (Table D6.1).

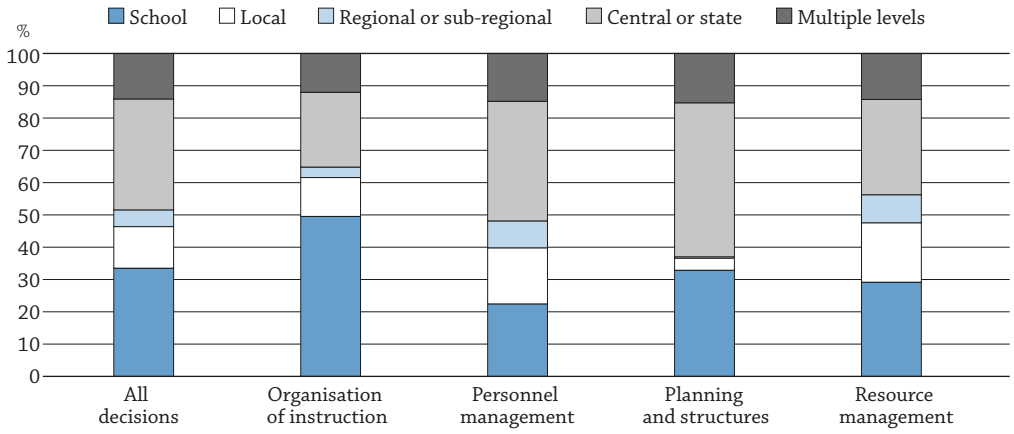
Domains of decision making

Decisions about education systems are organised across four general domains of decision making: organisation of instruction, personnel management, planning and structures, and resource management (Table D6.2).

There are large differences in the levels of government responsible for decisions across these four domains. On average across OECD countries and economies, decisions related to the organisation of instruction are predominantly made at the school level (50%), decisions on resource management are more often made at the local or school level (48%), while decisions about planning and structures are most likely to be made at the central or state level (48%). Decisions on personnel management are more evenly distributed across the levels of decisions (Figure D6.2).

Because a general assessment of the roles played in the decision-making process includes decisions made about different domains, an aggregate measure can mask differences in the degree of centralisation within those areas. For example, a country may centralise almost all decisions about the curriculum, while schools may have nearly complete control over decisions about the programmes of study offered in the school (Figure D6.3b, available on line). The distribution of decisions taken by each administrative level across the four domains of decision making is an indicator of "functional decentralisation", which takes into account the fact that decision making may be decentralised in certain activities and centralised in others (see *Definitions* and *Methodology* sections at the end of this indicator).

Figure D6.2. Percentage of decisions taken at each level of government in public lower secondary education in OECD countries, by domain of decisions (2017)



Source: OECD (2018), Tables D6.1 and D6.2. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
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Organisation of instruction

Three decisions on the organisation of instruction have been considered in the survey: the school that a child should attend; how children are grouped within the school; and the instruction time for children. Combining these decisions as a whole, about half are taken at the school level, but with large variation in the level of authority in charge of the decisions, both between countries and within countries (Table D6.2).

Decisions on these three matters are taken exclusively at the school level in Chile, the Czech Republic and the Netherlands. In other countries, decisions are split between central/state, local and school levels (Figure D6.3b, available on line).

Decisions on the school that children should attend are mostly made at the local or school level. In nearly all countries, parents have also some choice in the school of their children. Only in Brazil, France, Greece, Israel, Norway and Switzerland are these decisions taken by others than parents (when children are enrolled in public institutions) (Table D6.5, available on line).

While decisions about grouping of pupils are taken by schools in nearly nine out of ten countries and economies with available data, decisions about instruction time are made at the state or central level in six out of ten countries and economies, and at school or local levels in most of the remaining countries, but within a centrally established framework. Only in England (United Kingdom) is instruction time decided autonomously by schools (Table D6.5 and Figure D6.3b, both available on line) (see Indicator D1 and Box D1.3 for more information).

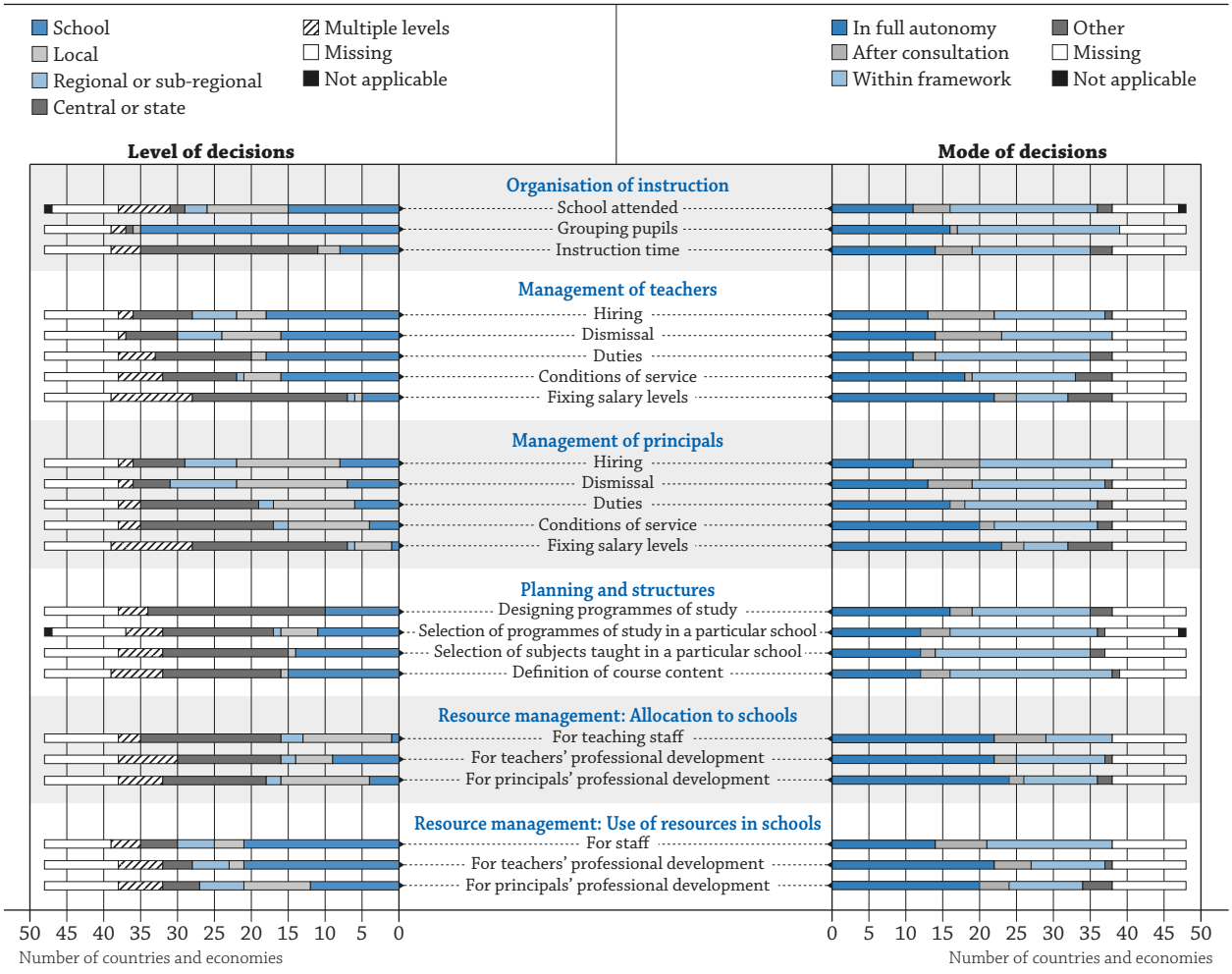
Planning and structure

Decisions related to programmes of study and learning resources (designing programmes of study, selection of programmes of study offered in a particular school, selection of subjects taught in a particular school and definition of course content) are most often made at the state or central level, on average across OECD countries. Otherwise, these decisions are taken at the school level, or at multiple levels when decisions are not made by a single level. Local or regional levels are in charge of decisions in only a few countries (Table D6.2).

In 21 of the 38 countries and economies for which data are available on decision making by domain, at least 50% of decisions related to programmes of study and the subjects taught were taken at the state or central level. In Israel, Luxembourg, Mexico, Norway, Portugal, the Russian Federation, Switzerland and Turkey, all these decisions were made at either state or central level (Table D6.2 and Figure D6.3a).

However, there are variations in the level of authority in charge of decisions according to the type of decision. School and local levels are responsible for decisions on the design of the programme of study in about one-fifth of countries, but they are responsible for decisions on the selection of programmes of study offered in a particular school, of subjects taught in a particular school or, in a larger proportion of countries (up to one-third), for decisions on the definition of course content (Table D6.7 available on line).

Figure D6.3a. Decisions taken at each level of government and mode of decision making in public lower secondary education, by type of decision (2017)



Source: OECD (2018), Tables D6.5, D6.6a, D6.6b, D6.7 and D6.8 available on line. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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Decisions at the school or local levels are not taken in full autonomy at these levels of authority, but within a defined framework set at a higher level or after consultation with other levels. An exception is Sweden, where the local level takes decisions in full autonomy on the selection of programmes of study offered in a particular school (Table D6.7, available on line).

Personnel management

Decisions about personnel management include hiring and dismissal of staff, duties and conditions for staff, and fixing salary levels. The survey distinguished between decisions related to teachers and those related to principals.

Focusing on decisions related to teachers, the responsible level of authority varies according to the type of decision.

Among the five different decisions covered in the survey, those most often taken at the school level are related to four issues: hiring, dismissal, duties, and working conditions of teachers. Among the 38 countries and economies with available information, 40% to 50% of countries report the school as the level of authority for these decisions. All four types of decisions are taken at the school level in nearly one-quarter of the countries with available information: the Czech Republic, Denmark, England (United Kingdom), Estonia, the Flemish Community of Belgium, Latvia, Lithuania, the Netherlands, the Slovak Republic and Slovenia. The state level is responsible for these four types of decisions in Australia and Mexico and the central level in Luxembourg and Turkey. In the remaining countries with available data, various levels of authority are in charge of each of these four types of decisions on teachers (Table D6.6a, available on line).

Decisions on setting salaries for teachers follow a different pattern (see Indicator D3 on and Box D3.2 for variation of salaries at subnational level). In more than half of the countries with available information, these decisions are the responsibility of the central or state level, whereas in more than one-quarter of the countries multiple levels are responsible for these decisions. In all but one of the remaining countries, local or school levels are the responsible authorities for these decisions (Table D6.6a, available on line).

In most countries, the level of authority responsible for decisions related to principals is the same as for decisions related to teachers. However, in a few countries, different levels of authority are in charge of decisions for teachers and school heads. This is the case for each of the five types of decisions on personal management in the Czech Republic, Estonia and Latvia. In these countries, schools are responsible for decisions on teachers, while the local level is responsible for similar decisions on principals. In other countries with different levels of authority responsible for decisions on teachers and principals, only a few of the five types of decisions are taken at different levels of authority for teachers and principals. In most of these cases, decisions related to principals are taken at a more central level than those related to teachers (Tables D6.6a and D6.6b, available on line).

Allocation and use of resources

Compared to other types of decisions, those related to the allocation and use of resources are made less frequently at the central level (30% of decisions made at the central or state level). A clear difference in the level of authority responsible for decisions on the allocation of resources versus their use is also evident.

Central or state authorities take decisions on the allocation of resources for teaching staff and for teachers' and principal's professional development in 14 to 19 countries (according to decisions considered) out of the 38 with available information. Decisions are taken at the school or local level in a slightly lower number of countries (in 13 to 16 countries according to decisions considered). In most countries (20 out of 38 countries), the three types of decisions on the allocation of resources are taken by the same level of authority, but in the remaining countries, these decisions are taken by two levels of authority. These three types of decisions are the responsibility of three different levels of authority only in the Slovak Republic (Table D6.8, available on line).

Although state and central authorities decide on how resources are allocated in nearly half of the countries, the use of resources within schools for staff and for professional development of teachers and principals is more often decided at the school or local level. In more than half of countries, schools decide on the use of resources for staff and professional development of teachers. However, although schools decide on use of resources for professional development of teachers in most of the 38 countries and economies with available information, schools are the decision level for use of resources for professional development of principals in less than a third of countries, as local levels decide in nearly a quarter of these countries (Table D6.8, available on line).

Mode of decisions taken at the school or local levels

Decisions on a specific subject are usually the responsibility of a single level of authority. However, this does not imply that this level of authority decides with full autonomy. Decisions may also be made after consulting with other bodies, or within a framework set by a higher level of authority. The different mode of decisions used could result from the need to ensure consistency of decisions across different subnational entities and avoid disparities within the country.

Combining both local and school levels to analyse decisions made at the lowest levels of decision making, nearly half of all decisions taken into account in the survey are made at the school or local level, on average across OECD countries and economies. Nearly one-third of these decisions (15% of all decisions) are made in full autonomy, whereas most (29% of all decisions) are made within a framework set by a higher authority. Decisions at these levels after consultation with other bodies in the educational system are relatively rare and represent less than 5% of all decisions taken into account. However, in Mexico, all decisions at school or local level (17% of the decisions) are made based on this consultation process. In addition to decisions taken directly by schools or local authorities, some decisions are taken at other levels after consultation with schools or local levels. These represent about 2% of the decisions taken into account (Table D6.3 and Figure D6.4a).

The mode of decision varies largely between the domains of decisions. Planning and structures is the domain with the lowest proportion of decisions made at the school or local level (less than 39% of the decisions), and a negligible proportion is taken in full autonomy (they are taken in full autonomy only in Sweden). Some 50% of all decisions related to resource management are made at the school or local level, with the majority of these decisions in full autonomy. In addition, another 5% of decisions related to resource management are made by higher levels

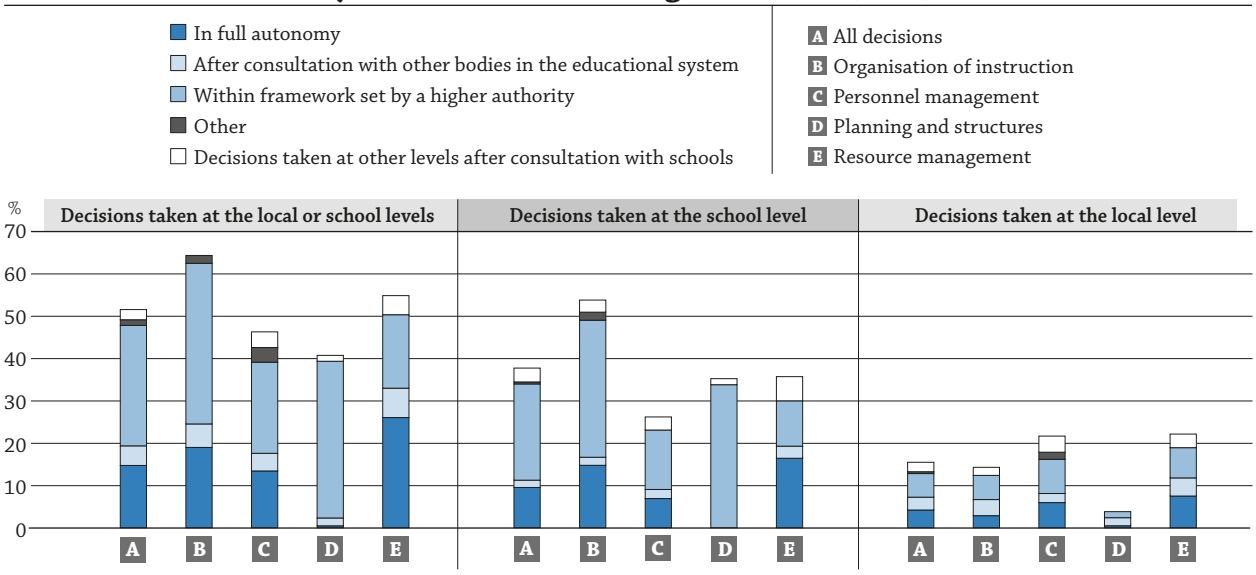
of government, but they are made after consulting with schools or local levels. Organisation of instruction is the domain with the largest proportion of decisions made at the school or local level (nearly two-thirds of decisions). However, in this domain, only 19% of decisions are taken in full autonomy by schools or at the local level, and the largest proportion of decisions made by the school or local level are made within a framework set at a higher level (Table D6.4a and Figure D6.4a).

There are substantial differences among countries in the mode in which decisions are made (Tables D6.3 and D6.4a, and Figure D6.4b, available on line). All domains of decision combined, among the 19 OECD and partner countries and economies in which most decision making is in the hands of school or local levels (at least 50% of decisions made by these levels), most of these decisions are taken within a framework set at a higher level in most of them: in Australia, Canada, Chile, the Czech Republic, Denmark, Estonia, the Flemish Community of Belgium, Latvia, Lithuania, New Zealand, Scotland (United Kingdom) and Slovenia. However, at least half of these decisions are taken in full autonomy in England (United Kingdom), Finland, Iceland, the Slovak Republic and Sweden (Table D6.3).

Perhaps predictably, decisions taken by schools in countries that tend to have the largest proportions of decisions taken more centrally are more likely to be subject to an overarching framework. This is the case in France and Portugal, where 15% or less of decisions are taken at the school level, most or all of them within a framework set at a higher level (Table D6.3).

Even when decisions are taken at other levels, a substantial proportion of these decisions can be taken after consultation with the school or local level. In Australia and Luxembourg, at least 10% of all decisions are taken at other levels, but after consultation with schools or local levels (Table D6.3).

Figure D6.4a. Percentage of decisions taken at the local or school levels in public lower secondary education in OECD countries, by mode of decision making and domain (2017)



Source: OECD (2018), Table D6.3 and Tables D6.4a, D6.4b and D6.4c available on line. See *Source* for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933805990

Definitions

Central level: The **central government** consists of all bodies at the national level that make decisions or participate in different aspects of decision making.

Local level: The municipality or community is the smallest territorial unit in the nation with a governing authority. The **local authority** may be the education department within a general-purpose **local government,** or it may be a special-purpose government whose sole area of authority is education.

Multiple levels: Multiple decision-making levels refer to a combination of two or more of the above-mentioned authorities (e.g. the central government and the local authorities).

Regional level: The **province** or **region** is the first territorial unit below the national level in countries that do not have a "federal" or similar type of government structure, and the second territorial unit below the nation in countries with "federal" or similar types of governmental structures. Provincial/regional authorities or governments are the decision-making bodies at this level.

School, school board or committee refers to the individual school level only and includes school administrators and teachers or a school board or committee established exclusively for that individual school. The decision-making body (or bodies) for this school may be: an external school board, which includes residents of the larger community; an internal school board, which could include headmasters, teachers, other school staff, parents, and students; and both an external and an internal school board. "School networks", "networks of schools", "didactic circles" and "groups of schools" should be considered as schools.

State level: The state is the first territorial unit below the nation in "federal" countries or countries with similar types of governmental structures. **State governments** are the governmental units that are the decision-making bodies at this level. For countries other than federal or similar, where the extent of the state is identical with that of the country, this level is non-existent.

Sub-regional level: The **sub-region** is the second territorial unit below the nation in countries that do not have a "federal" or similar type of governmental structure. Sub-regional or **inter-municipal authorities** or governments are the decision-making bodies at this level.

Methodology

This indicator shows decision-making levels in public lower secondary education. Decentralisation is concerned with the division of power between levels of government. This concept has two dimensions: the locus of decision making (i.e. the level of decision-making authority) and the mode of decision making (related to the degree of autonomous or "shared" decision making).

Seven levels of decision making are distinguished: central governments; state governments; provincial/regional authorities or governments; sub-regional or inter-municipal authorities or governments; local authorities or governments; schools or school boards or committees; and multiple levels (see *Definitions* section above). For most of the decisions, there is only one level of decision-making authority, but it is possible to report that there are multiple decision-making levels for specific decisions.

The most important factor in determining the degree of autonomy to take decisions or the mode of decision is "who decides". The following categories were provided in the survey: full autonomy; after consultation with bodies located at another level within the education system; independently but within a framework set by a higher authority; and other.

Some 23 general decisions were included in the survey (compared to 46 in the previous edition). These were separated into four domains:

1. **Organisation of instruction**: focusing on student admissions; instruction time; grouping students.
2. **Personnel management**: hiring and dismissal of teaching staff and principals; duties and conditions of service of teaching staff and principals; salary scales of teaching staff and principals.
3. **Planning and structures**: design of programmes of study; selection of programmes of study taught in a particular school; choice of subjects taught in a particular school; definition of course content.
4. **Resources**: allocation and use of resources for teaching staff and principals.

The number of decisions within each of these domains was not equal, and adjustments were made to give equal weight to each of the four domains. Because there are different numbers of items (i.e. decisions) in each domain, each item is weighted by the inverse of the number of items in its domain. Some items are split up into sub-items. The sum of weights of sub-items is equal to the weight of an item (in the same domain) without sub-items. Missing and not applicable items receive weight zero, causing other weights to change within a domain.

More detailed information on specific countries is provided in Annex 3 at http://dx.doi.org/10.1787/eag-2018-36-en. Information on additional subjects covered in the previous rounds of the data collection is available in *Education at a Glance 2012* (OECD, 2012[3]).

Lithuania was not an OECD member at the time of preparation of this publication. Accordingly, Lithuania does not appear in the list of OECD members and is not included in the zone aggregates.

Source

Data are from the 2017 OECD-INES Survey on Locus of Decision Making and refer to the school year 2016-17. This updates the results of previous survey with a broader coverage which took place in 2011 (results published in *Education at a Glance 2012* [OECD, 2012[3]]).

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 (2010), "How can parents influence the education of their children?", in *Education at a Glance 2010: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2010-30-en. [2]

Indicator D6 Tables

StatLink https://doi.org/10.1787/888933805857

	Table D6.1	Percentage of decisions taken at each level of government in public lower secondary education (2017)
	Table D6.2	Percentage of decisions taken at each level of government in public lower secondary education, by domain (2017)
	Table D6.3	Percentage of decisions taken at the school level in public lower secondary education, by mode of decision making (2017)
WEB	Table D6.4a	Percentage of decisions taken at the local or school levels in public lower secondary education in OECD countries, by mode of decision making and domain (2017)
WEB	Table D6.4b	Percentage of decisions taken at the school level in public lower secondary education, by mode of decision making and domain (2017)
WEB	Table D6.4c	Percentage of decisions taken at the local level in public lower secondary education, by mode of decision making and domain (2017)
WEB	Table D6.5	Level of government at which different types of decisions about organisation of instruction are taken in public lower secondary education (2017)
WEB	Table D6.6a	Level of government at which different types of decisions about personnel management of teachers are taken in public lower secondary education (2017)
WEB	Table D6.6b	Level of government at which different types of decisions about personnel management of principals are taken in public lower secondary education (2017)
WEB	Table D6.7	Level of government at which different types of decisions about planning and structures are taken in public lower secondary education (2017)
WEB	Table D6.8	Level of government at which different types of decisions about resources are taken in public lower secondary education (2017)
WEB	Figure D6.3b	Percentage of decisions taken at each level of government in public lower secondary education, by domain (2017)
WEB	Figure D6.4b	Percentage of decisions taken at the local or school levels in public lower secondary education, by mode of decision making and domain (2017)

Cut-off date for the data: 18 July 2018. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. Data can also be found at http://stats.oecd.org/, Education at a Glance Database.

Table D6.1. Percentage of decisions taken at each level of government in public lower secondary education (2017)

		Central	State	Provincial/ regional	Sub-regional	Local	School	Multiple levels	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	**Countries**								
	Australia	0	48	a	a	a	52	0	**100**
	Austria	32	22	0	0	0	46	0	**100**
	Canada	0	33	0	0	52	15	0	**100**
	Chile	8	0	0	0	31	48	13	**100**
	Czech Republic	2	0	4	0	26	68	0	**100**
	Denmark	21	a	0	a	22	29	28	**100**
	Estonia	0	0	0	0	13	58	29	**100**
	Finland	x(7)	a	0	0	x(7)	x(7)	100	**100**
	France	55	a	16	10	0	10	8	**100**
	Germany	0	63	10	10	0	17	0	**100**
	Greece	52	a	4	4	8	8	23	**100**
	Hungary	2	a	a	19	0	29	50	**100**
	Iceland	8	a	a	a	31	60	0	**100**
	Ireland	42	a	a	a	0	46	13	**100**
	Israel	69	a	4	a	8	19	0	**100**
	Italy	52	a	11	a	0	30	6	**100**
	Japan	13	a	33	a	21	21	13	**100**
	Korea	29	a	15	a	8	15	33	**100**
	Latvia	18	a	a	a	19	64	0	**100**
	Luxembourg	83	0	0	0	0	17	0	**100**
	Mexico	49	34	0	0	0	17	0	**100**
	Netherlands	0	0	0	0	0	92	8	**100**
	New Zealand	21	0	0	0	0	52	27	**100**
	Norway	25	a	a	a	29	15	31	**100**
	Poland	m	m	m	m	m	m	m	**m**
	Portugal	77	0	0	0	0	15	8	**100**
	Slovak Republic	48	a	0	a	8	44	0	**100**
	Slovenia	42	a	a	a	0	50	8	**100**
	Spain	8	47	22	0	0	10	13	**100**
	Sweden	21	a	a	a	35	35	8	**100**
	Switzerland	0	48	a	a	29	8	15	**100**
	Turkey	73	0	19	0	0	8	0	**100**
	United States	0	8	a	a	72	16	4	**100**
	Economies								
	Flemish Comm. (Belgium)	0	38	0	0	0	63	0	**100**
	French Comm. (Belgium)	0	42	0	a	0	27	31	**100**
	England (UK)	0	a	a	a	6	65	29	**100**
	Scotland (UK)	0	a	a	a	44	48	8	**100**
	OECD average	24	11	4	1	13	34	14	**100**
	EU22 average	24	9	3	2	8	38	16	**100**
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**
	Colombia	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	m	m	m	m	m	m	m	**m**
	Lithuania	29	a	a	0	27	42	2	**100**
	Russian Federation	42	a	21	a	10	23	4	**100**
	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: See *Definitions* and *Methodology* sections for more information.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933805876

Table D6.2. [1/2] Percentage of decisions taken at each level of government in public lower secondary education, by domain (2017)

		Organisation of instruction								Personnel management							
		Central	State	Provincial/ regional	Sub-regional	Local	School	Multiple levels	Total	Central	State	Provincial/ regional	Sub-regional	Local	School	Multiple levels	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	**Countries**																
	Australia	0	33	a	a	a	67	0	**100**	0	100	a	a	a	0	0	**100**
	Austria	33	0	0	0	0	67	0	**100**	50	33	0	0	0	17	0	**100**
	Canada	0	33	0	0	33	33	0	**100**	0	33	0	0	58	8	0	**100**
	Chile	0	0	0	0	0	100	0	**100**	33	0	0	0	58	8	0	**100**
	Czech Republic	0	0	0	0	0	100	0	**100**	8	0	0	0	42	50	0	**100**
	Denmark	33	a	0	a	0	33	33	**100**	0	a	0	a	33	33	33	**100**
	Estonia	0	0	0	0	0	67	33	**100**	0	0	0	0	50	50	0	**100**
	Finland	x(7)	a	0	0	x(7)	x(7)	100[d]	**100**	0	a	0	0	x(15)	x(15)	100[d]	**100**
	France	33	a	0	33	0	33	0	**100**	83	a	0	8	0	8	0	**100**
	Germany	0	67	0	0	0	33	0	**100**	0	67	17	17	0	0	0	**100**
	Greece	33	a	0	0	33	33	0	**100**	42	a	17	17	0	0	25	**100**
	Hungary	0	a	a	0	0	0	100	**100**	8	a	a	25	0	8	58	**100**
	Iceland	33	a	a	a	33	33	0	**100**	0	a	a	a	67	33	0	**100**
	Ireland	33	a	a	a	0	67	0	**100**	50	a	a	a	0	50	0	**100**
	Israel	33	a	0	a	33	33	0	**100**	67	a	17	a	0	17	0	**100**
	Italy	33	a	0	a	0	67	0	**100**	58	a	33	a	0	8	0	**100**
	Japan	0	a	0	a	67	33	0	**100**	0	a	83	a	17	0	0	**100**
	Korea	0	a	0	a	33	33	33	**100**	58	a	33	a	0	0	8	**100**
	Latvia	33	a	a	a	0	67	0	**100**	0	a	a	a	50	50	0	**100**
	Luxembourg	33	0	0	0	0	67	0	**100**	100	0	0	0	0	0	0	**100**
	Mexico	33	0	0	0	0	67	0	**100**	33	67	0	0	0	0	0	**100**
	Netherlands	0	0	0	0	0	100	0	**100**	0	0	0	0	0	67	33	**100**
	New Zealand	33	0	0	0	0	67	0	**100**	33	0	0	0	0	58	8	**100**
	Norway	0	a	a	a	0	33	67	**100**	0	a	a	a	42	0	58	**100**
	Poland	m	m	m	m	m	m	m	**m**	m	m	m	m	m	m	m	**m**
	Portugal	33	0	0	0	0	33	33	**100**	75	0	0	0	0	25	0	**100**
	Slovak Republic	50	a	0	a	0	50	0	**100**	50	a	0	a	8	42	0	**100**
	Slovenia	33	a	a	a	0	67	0	**100**	17	a	a	a	0	50	33	**100**
	Spain	0	33	33	0	0	33	0	**100**	0	42	17	0	0	8	33	**100**
	Sweden	0	a	a	a	33	67	0	**100**	0	a	a	a	42	25	33	**100**
	Switzerland	0	33	a	a	33	33	0	**100**	0	58	a	a	33	0	8	**100**
	Turkey	33	0	33	0	0	33	0	**100**	83	0	17	0	0	0	0	**100**
	United States	0	0	a	a	67	33	0	**100**	0	0	a	a	67	17	17	**100**
	Economies																
	Flemish Comm. (Belgium)	0	33	0	0	0	67	0	**100**	0	33	0	0	0	67	0	**100**
	French Comm. (Belgium)	0	33	0	a	0	67	0	**100**	0	50	0	a	0	0	50	**100**
	England (UK)	0	a	a	a	0	67	33	**100**	0	a	a	a	0	100	0	**100**
	Scotland (UK)	0	a	a	a	67	33	0	**100**	0	a	a	a	58	8	33	**100**
	OECD average	15	7	2	1	12	50	12	**100**	24	13	6	2	17	22	15	**100**
	EU22 average	17	7	1	1	6	53	14	**100**	24	10	4	3	12	29	19	**100**
Partners	Argentina	m	m	m	m	m	m	m	**m**	m	m	m	m	m	m	m	**m**
	Brazil	33	0	a	a	0	67	0	**100**	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**
	Colombia	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**
	Lithuania	33	a	a	0	33	33	0	**100**	33	a	a	0	25	33	8	**100**
	Russian Federation	33	a	0	a	33	33	0	**100**	33	a	8	a	8	33	17	**100**
	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: See *Definitions* and *Methodology* sections for more information.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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D6

Table D6.2. [2/2] Percentage of decisions taken at each level of government in public lower secondary education, by domain (2017)

		Planning and structures								Resource management							
		Central	State	Provincial/ regional	Sub-regional	Local	School	Multiple levels	Total	Central	State	Provincial/ regional	Sub-regional	Local	School	Multiple levels	Total
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
OECD	**Countries**																
	Australia	0	33	a	a	a	67	0	**100**	0	25	a	a	a	75	0	**100**
	Austria	33	17	0	0	0	50	0	**100**	13	38	0	0	0	50	0	**100**
	Canada	0	67	0	0	17	17	0	**100**	0	0	0	0	100	0	0	**100**
	Chile	0	0	0	0	17	83	0	**100**	0	0	0	0	50	0	50	**100**
	Czech Republic	0	0	17	0	0	83	0	**100**	0	0	0	0	63	38	0	**100**
	Denmark	50	a	0	a	17	0	33	**100**	0	a	0	a	38	50	13	**100**
	Estonia	0	0	0	0	0	67	33	**100**	0	0	0	0	0	50	50	**100**
	Finland	x(23)	a	0	0	0	x(23)	100[d]	**100**	0	a	0	0	x(31)	x(31)	100[d]	**100**
	France	67	a	0	0	0	0	33	**100**	38	a	63	0	0	0	0	**100**
	Germany	0	67	0	0	0	33	0	**100**	0	50	25	25	0	0	0	**100**
	Greece	83	a	0	0	0	0	17	**100**	50	a	0	0	0	0	50	**100**
	Hungary	0	a	a	0	0	83	17	**100**	0	a	a	50	0	25	25	**100**
	Iceland	0	a	a	a	0	100	0	**100**	0	a	a	a	25	75	0	**100**
	Ireland	33	a	a	a	0	17	50	**100**	50	a	a	a	0	50	0	**100**
	Israel	100	a	0	a	0	0	0	**100**	75	a	0	a	0	25	0	**100**
	Italy	67	a	0	a	0	33	0	**100**	50	a	13	a	0	13	25	**100**
	Japan	50	a	0	a	0	50	0	**100**	0	a	50	a	0	0	50	**100**
	Korea	33	a	0	a	0	0	67	**100**	25	a	25	a	0	25	25	**100**
	Latvia	0	a	a	a	0	100	0	**100**	38	a	a	a	25	38	0	**100**
	Luxembourg	100	0	0	0	0	0	0	**100**	100	0	0	0	0	0	0	**100**
	Mexico	67	33	0	0	0	0	0	**100**	63	38	0	0	0	0	0	**100**
	Netherlands	0	0	0	0	0	100	0	**100**	0	0	0	0	0	100	0	**100**
	New Zealand	17	0	0	0	0	33	50	**100**	0	0	0	0	0	50	50	**100**
	Norway	100	a	a	a	0	0	0	**100**	0	a	a	a	75	25	0	**100**
	Poland	m	m	m	m	m	m	m	**m**	m	m	m	m	m	m	m	**m**
	Portugal	100	0	0	0	0	0	0	**100**	100	0	0	0	0	0	0	**100**
	Slovak Republic	67	a	0	a	0	33	0	**100**	25	a	0	a	25	50	0	**100**
	Slovenia	67	a	a	a	0	33	0	**100**	50	a	a	a	0	50	0	**100**
	Spain	33	50	0	0	0	0	17	**100**	0	63	38	0	0	0	0	**100**
	Sweden	83	a	a	a	17	0	0	**100**	0	a	a	a	50	50	0	**100**
	Switzerland	0	100	a	a	0	0	0	**100**	0	0	a	a	50	0	50	**100**
	Turkey	100	0	0	0	0	0	0	**100**	75	0	25	0	0	0	0	**100**
	United States	0	33	a	a	67	0	0	**100**	0	0	a	a	88	13	0	**100**
	Economies																
	Flemish Comm. (Belgium)	0	33	0	0	0	67	0	**100**	0	50	0	0	0	50	0	**100**
	French Comm. (Belgium)	0	33	0	a	0	17	50	**100**	0	50	0	a	0	25	25	**100**
	England (UK)	0	a	a	a	0	17	83	**100**	0	a	a	a	25	75	0	**100**
	Scotland (UK)	0	a	a	a	0	100	0	**100**	0	a	a	a	50	50	0	**100**
	OECD average	35	13	0	0	4	33	15	**100**	21	9	7	2	18	29	14	**100**
	EU22 average	34	9	1	0	1	36	19	**100**	22	11	6	3	12	33	13	**100**
Other G20	Argentina	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**
	China	m	m	m	m	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	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**
	Lithuania	50	a	a	0	0	50	0	**100**	0	a	a	0	50	50	0	**100**
	Russian Federation	100	a	0	a	0	0	0	**100**	0	a	75	a	0	25	0	**100**
	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: See *Definitions* and *Methodology* sections for more information.
Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
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Table D6.3. Percentage of decisions taken at the local and school levels in public lower secondary education, by mode of decision making (2017)

		Decisions taken at the local or school levels							Decisions taken at the school level							Decisions taken at the local level						
		In full autonomy	After consultation with other bodies in the educational system	Within framework set by a higher authority	Other	Total decisions taken at the local or school levels	Decisions taken at other levels after consultation with local or school levels[1]	Total decisions taken at the local or school levels or after consultation with the local or school levels	In full autonomy	After consultation with other bodies in the educational system	Within framework set by a higher authority	Other	Total decisions taken at the school level	Decisions taken at other levels after consultation with school level[1]	Total decisions taken at the local or school levels or after consultation with the school level	In full autonomy	After consultation with other bodies in the educational system	Within framework set by a higher authority	Other	Total decisions taken at the local level	Decisions taken at other levels after consultation with the local level[1]	Total decisions taken at the local or school levels or after consultation with the local level
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
OECD	**Countries**																					
	Australia	6	0	46	0	**52**	15	**67**	6	0	46	0	**52**	15	**67**	0	0	0	0	**0**	0	**0**
	Austria	3	11	31	0	**46**	0	**46**	3	11	31	0	**46**	0	**46**	0	0	0	0	**0**	0	**0**
	Canada	23	0	44	0	**67**	0	**67**	0	0	15	0	**15**	0	**15**	23	0	29	0	**52**	0	**52**
	Chile	8	0	71	0	**79**	0	**79**	8	0	40	0	**48**	0	**48**	0	0	31	0	**31**	0	**31**
	Czech Republic	29	0	65	0	**94**	0	**94**	16	0	52	0	**68**	0	**68**	14	0	13	0	**26**	0	**26**
	Denmark	2	17	32	0	**51**	0	**51**	0	8	21	0	**29**	8	**38**	2	8	11	0	**22**	8	**30**
	Estonia	21	0	50	0	**71**	0	**71**	15	0	44	0	**58**	0	**58**	6	0	6	0	**13**	0	**13**
	Finland	50	0	33	17	**100**	0	**100**	x(1)	x(2)	x(3)	x(4)	**x(5)**	x(6)	**x(7)**	x(1)	x(2)	x(3)	x(4)	**x(5)**	x(6)	**x(7)**
	France	2	0	8	0	**10**	3	**14**	2	0	8	0	**10**	3	**14**	0	0	0	0	**0**	0	**0**
	Germany	0	0	17	0	**17**	0	**17**	0	0	17	0	**17**	0	**17**	0	0	0	0	**0**	0	**0**
	Greece	0	8	8	0	**17**	0	**17**	0	0	8	0	**8**	0	**8**	0	8	0	0	**8**	0	**8**
	Hungary	3	0	26	0	**29**	2	**31**	3	0	26	0	**29**	2	**31**	0	0	0	0	**0**	0	**0**
	Iceland	50	0	29	13	**92**	0	**92**	31	0	29	0	**60**	0	**60**	19	0	0	13	**31**	0	**31**
	Ireland	0	0	46	0	**46**	0	**46**	0	0	46	0	**46**	0	**46**	0	0	0	0	**0**	0	**0**
	Israel	6	10	10	0	**27**	4	**31**	6	2	10	0	**19**	10	**29**	0	8	0	0	**8**	2	**10**
	Italy	11	0	19	0	**30**	0	**30**	11	0	19	0	**30**	0	**30**	0	0	0	0	**0**	0	**0**
	Japan	8	0	33	0	**42**	8	**50**	0	0	21	0	**21**	0	**21**	8	0	13	0	**21**	8	**29**
	Korea	8	0	15	0	**23**	0	**23**	8	0	6	0	**15**	0	**15**	0	0	8	0	**8**	0	**8**
	Latvia	0	0	82	0	**82**	6	**89**	0	0	64	0	**64**	0	**64**	0	0	19	0	**19**	6	**25**
	Luxembourg	8	0	0	8	**17**	13	**29**	8	0	0	8	**17**	13	**29**	0	0	0	0	**0**	0	**0**
	Mexico	0	17	0	0	**17**	0	**17**	0	17	0	0	**17**	0	**17**	0	0	0	0	**0**	17	**17**
	Netherlands	44	0	40	8	**92**	0	**92**	44	0	40	8	**92**	0	**92**	0	0	0	0	**0**	0	**0**
	New Zealand	15	0	38	0	**52**	0	**52**	15	0	38	0	**52**	0	**52**	0	0	0	0	**0**	0	**0**
	Norway	18	3	23	0	**44**	0	**44**	0	0	15	0	**15**	3	**18**	18	3	8	0	**29**	0	**29**
	Poland	m	m	m	m	**m**	m	**m**	m	m	m	m	**m**	m	**m**	m	m	m	m	**m**	m	**m**
	Portugal	4	0	10	0	**15**	4	**19**	4	0	10	0	**15**	4	**19**	0	0	0	0	**0**	0	**0**
	Slovak Republic	35	8	8	0	**52**	6	**58**	29	6	8	0	**44**	2	**46**	6	2	0	0	**8**	13	**21**
	Slovenia	6	4	40	0	**50**	6	**56**	6	4	40	0	**50**	6	**56**	0	0	0	0	**0**	0	**0**
	Spain	8	0	2	0	**10**	6	**17**	8	0	2	0	**10**	6	**17**	0	0	0	0	**0**	0	**0**
	Sweden	47	0	24	0	**71**	0	**71**	25	0	10	0	**35**	0	**35**	22	0	14	0	**35**	0	**35**
	Switzerland	6	19	13	0	**38**	2	**40**	0	0	8	0	**8**	19	**27**	6	19	4	0	**29**	2	**31**
	Turkey	0	0	8	0	**8**	0	**8**	0	0	8	0	**8**	0	**8**	0	0	0	0	**0**	0	**0**
	United States	8	54	23	2	**88**	2	**90**	0	7	8	0	**16**	13	**28**	8	47	15	2	**72**	9	**81**
	Economies																					
	Flemish Comm. (Belgium)	21	0	42	0	**63**	0	**63**	21	0	42	0	**63**	0	**63**	0	0	0	0	**0**	**0**	**0**
	French Comm. (Belgium)	0	0	27	0	**27**	0	**27**	0	0	27	0	**27**	0	**27**	0	0	0	0	**0**	**0**	**0**
	England (UK)	54	4	13	0	**71**	0	**71**	48	4	13	0	**65**	0	**65**	6	0	0	0	**6**	**4**	**10**
	Scotland (UK)	23	10	58	0	**92**	8	**100**	15	0	33	0	**48**	10	**58**	8	10	25	0	**44**	**8**	**52**
	OECD average	15	5	29	1	**49**	2	**52**	10	2	23	0	**35**	3	**38**	4	3	6	0	**13**	**2**	**15**
	EU22 average	16	3	30	1	**50**	2	**52**	11	1	24	1	**38**	2	**40**	3	1	4	0	**8**	**2**	**9**
Partners	Argentina	m	m	m	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	**m**	**m**	**m**
	China	m	m	m	m	**m**	m	**m**	m	m	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**	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	**m**	**m**	**m**
	India	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**
	Lithuania	23	0	46	0	**69**	0	**69**	23	0	19	0	**42**	0	**42**	0	0	27	0	**27**	**0**	**27**
	Russian Federation	31	2	0	0	**33**	0	**33**	23	0	0	0	**23**	0	**23**	8	2	0	0	**10**	**0**	**10**
	Saudi Arabia	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**
	G20 average	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.

1. Number of decisions taken at other levels but in consultation with local or schools levels as a percentage of all decisions.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Annex

1

Characteristics of Education Systems

All tables in Annex 1 are available on line at:

StatLink https://doi.org/10.1787/888933806009

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. [1/2] Typical graduation ages, by level of education (2016)

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 level		Post-secondary non-tertiary level		Tertiary level	
						Short-cycle tertiary (ISCED 5)	
		General programmes	Vocational programmes	General programmes	Vocational programmes	General programmes	Vocational programmes
		(1)	(2)	(3)	(4)	(5)	(6)
OECD	Australia	17-18	18-32	a	18-37	19-24	18-30
OECD	Austria	17-18	16-18	a	19-32	a	18-19
OECD	Belgium	18-18	18-19	a	20-22	a	21-24
OECD	Canada	17-18	19-33	m	m	a	20-24
OECD	Chile	17-17	17-17	a	a	a	21-26
OECD	Czech Republic	19-20	19-20	20-22	19-20	a	21-23
OECD	Denmark	18-19	19-25	a	23-35	a	20-25
OECD	Estonia	18-18	18-19	a	19-25	a	a
OECD	Finland	19-19	19-23	a	32-46	a	a
OECD	France	17-18	16-19	m	m	m	m
OECD	Germany	18-19	19-21	20-23	21-24	a	22-26
OECD	Greece	18-18	19-19	a	20-22	a	a
OECD	Hungary	17-19	17-19	a	19-21	a	20-22
OECD	Iceland	18-19	17-24	20-30	21-33	27-28	20-35
OECD	Ireland	18-19	18-24	a	20-26	20-35	20-35
OECD	Israel	17-17	17-17	m	m	m	m
OECD	Italy	18-19	18-19	a	20-20	a	20-22
OECD	Japan	17-17	17-17	18-18	18-18	19-19	19-19
OECD	Korea	18-18	18-18	a	a	a	20-22
OECD	Latvia	18-18	20-21	a	20-23	a	21-25
OECD	Luxembourg	18-18	18-20	a	24-29	a	21-23
OECD	Mexico	17-18	17-18	a	a	a	20-24
OECD	Netherlands	17-18	18-21	a	22-32	a	21-27
OECD	New Zealand	17-18	16-29	17-26	17-27	18-24	18-24
OECD	Norway	18-18	18-22	a	19-29	22-29	21-26
OECD	Poland	19-19	19-20	a	21-25	a	22-25
OECD	Portugal	17-17	17-18	a	20-23	a	20-27
OECD	Slovak Republic	18-19	18-19	a	19-23	a	20-22
OECD	Slovenia	18-18	18-20	a	a	a	21-27
OECD	Spain	17-17	17-21	a	23-38	a	20-23
OECD	Sweden	18-19	18-19	a	19-31	21-28	22-29
OECD	Switzerland	19-20	19-21	20-23	a	a	25-41
OECD	Turkey	17-17	17-17	a	22-20	a	19-22
OECD	United Kingdom	15-15	16-19	a	a	19-25	18-29
OECD	United States	17-17	17-17	19-22	19-22	20-21	20-21
Partners	Argentina[1]	17-18	17-20	a	a	20-22	20-24
Partners	Brazil	16-17	16-18	a	18-26	19-27	19-26
Partners	China	17-18	17-20	a	a	20-22	20-24
Partners	Colombia	16-17	16-17	18-20	m	19-24	19-24
Partners	Costa Rica	16-17	17-18	a	a	18-20	m
Partners	India	17-17	18-18	a	21-21	a	a
Partners	Indonesia	17-19	17-19	a	a	a	21-29
Partners	Lithuania	18-18	19-24	a	21-22	a	a
Partners	Russian Federation	17-18	17-18	a	18-19	a	19-20
Partners	Saudi Arabia	17-18	17-20	a	a	20-22	20-24
Partners	South Africa[1]	17-18	17-20	a	a	20-22	20-20

1. Year of reference 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X1.1a. [2/2] Typical graduation ages, by level of education (2016)

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.

		Tertiary level						
		Bachelor's or equivalent (ISCED 6)			Master's or equivalent (ISCED 7)			
		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)
		(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD	Australia	20-23	22-25	22-32	a	22-30	29-44	26-35
OECD	Austria	21-24	a	a	23-27	24-28	a	28-32
	Belgium	21-23	a	22-24	a	22-24	23-32	27-31
	Canada	22-24	23-25	23-28	22-24	24-29	26-29	29-34
	Chile	22-27	23-29	23-26	25-26	26-35	a	29-35
	Czech Republic	22-24	a	24-26	25-26	24-26	26-28	29-33
	Denmark	22-25	a	32-45	25-27	25-28	a	27-39
	Estonia	21-23	a	a	24-25	23-26	a	28-33
	Finland	23-26	a	a	26-28	25-30	30-41	30-37
	France	m	m	m	m	m	m	26-30
	Germany	22-25	a	24-30	24-27	24-27	24-27	28-32
	Greece	m	m	m	a	m	m	m
	Hungary	21-24	a	27-41	23-26	23-26	a	27-34
	Iceland	22-25	a	27-40	25-26	a	24-32	28-35
	Ireland	21-23	23-25	23-31	22-30	22-30	22-30	27-32
	Israel	24-28	27-29	24-32	m	27-34	m	31-37
	Italy	22-24	m	m	24-27	24-27	m	27-35
	Japan	21-21	m	m	23-23	23-23	m	26-26
	Korea	23-25	x(7)	a	a	25-31	a	28-37
	Latvia	22-24	23-25	24-33	25-29	24-27	a	28-36
	Luxembourg	22-24	a	a	a	24-27	25-30	28-32
	Mexico	20-24	x(7)	a	a	23-26	a	24-28
	Netherlands	21-23	a	a	a	23-26	24-27	28-31
	New Zealand	20-23	22-24	21-27	a	23-30	a	27-35
	Norway	21-24	a	26-30	24-26	24-28	24-27	28-35
	Poland	22-24	a	25-34	24-25	24-25	a	29-32
	Portugal	21-23	a	33-39	23-24	23-26	a	27-36
	Slovak Republic	21-22	a	a	24-25	23-25	24-28	26-29
	Slovenia	21-24	a	a	25-31	24-27	a	32-40
	Spain	21-23	a	a	22-25	22-26	29-32	28-35
	Sweden	22-26	a	a	24-28	24-30	a	28-34
	Switzerland	23-26	a	31-41	23-25	24-29	25-32	29-33
	Turkey	21-24	a	a	23-25	26-27	a	29-34
	United Kingdom	20-22	22-24	x(8)	x(11)	23-28	x(11)	25-32
	United States	21-23	a	a	a	24-31	24-31	26-32
Partners	Argentina[1]	20-23	21-24	a	22-25	22-25	a	25-29
Partners	Brazil	20-27	a	m	a	25-31	a	29-37
Partners	China	20-23	21-24	a	22-25	22-25	a	25-29
Partners	Colombia	a	22-27	22-27	a	26-36	26-36	30-41
Partners	Costa Rica	18-21	22-23	a	24-26	a	a	27-30
Partners	India	21-22	23-23	22-22	22-23	22-23	23-24	24-28
Partners	Indonesia	23-32	23-32	a	a	26-36	a	32-45
Partners	Lithuania	21-22	a	23-29	23-24	24-25	27-29	28-31
Partners	Russian Federation	21-23	a	a	22-25	22-25	a	25-27
Partners	Saudi Arabia	20-23	21-24	a	22-25	22-25	a	25-29
Partners	South Africa[1]	20-23	21-24	a	22-25	22-25	a	25-29

1. Year of reference 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X1.1b. Typical age of entry, by level of education (2016)

The typical age refers to the age of the students at the beginning of the school year.

		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	21-26	22-30
OECD	Austria	17-18	19-21	19-24	25-29
OECD	Belgium	18-20	18-19	21-22	24-27
OECD	Canada	m	m	m	m
OECD	Chile	18-21	18-19	18-30	25-31
OECD	Czech Republic	19-21	19-20	22-24	24-28
OECD	Denmark	19-26	20-22	23-25	25-29
OECD	Estonia	a	19-22	22-27	24-28
OECD	Finland	a	19-21	22-30	26-32
OECD	France	18-19	18-19	20-23	23-26
OECD	Germany	22-26	19-21	19-24	25-29
OECD	Greece	m	18-18	22-28	24-32
OECD	Hungary	19-21	19-20	19-23	24-27
OECD	Iceland	20-31	20-22	23-31	25-33
OECD	Ireland	18-29	18-19	21-26	22-27
OECD	Israel	18-24	21-25	25-34	26-34
OECD	Italy	19-21	19-19	20-24	25-28
OECD	Japan	18-18	18-18	22-23	24-28
OECD	Korea	18-18	18-18	22-27	23-32
OECD	Latvia	19-23	19-22	22-25	24-30
OECD	Luxembourg	19-21	19-21	22-27	25-28
OECD	Mexico	18-19	18-19	21-34	25-39
OECD	Netherlands	20-24	18-20	22-24	23-27
OECD	New Zealand	17-25	18-20	21-28	22-30
OECD	Norway	20-24	19-20	19-24	25-31
OECD	Poland	19-30	19-20	19-23	24-26
OECD	Portugal	18-20	18-19	18-23	23-33
OECD	Slovak Republic	19-20	19-20	22-23	24-25
OECD	Slovenia	19-21	19-19	22-24	24-28
OECD	Spain	18-20	18-18	18-23	23-30
OECD	Sweden	19-26	19-21	19-24	24-30
OECD	Switzerland	18-25	19-23	22-25	25-28
OECD	Turkey	18-20	18-20	23-27	25-29
OECD	United Kingdom	17-29	18-21	21-30	22-28
OECD	United States	18-22	18-20	22-28	22-27
Partners	Argentina[1]	18-19	18-20	21-24	23-26
Partners	Brazil	m	m	m	m
Partners	China	18-19	18-20	21-24	23-26
Partners	Colombia	17-21	17-21	22-33	25-36
Partners	Costa Rica	17-18	17-18	m	m
Partners	India	a	18-18	21-22	23-23
Partners	Indonesia	20-23	20-26	24-32	27-33
Partners	Lithuania	a	19-19	23-26	25-28
Partners	Russian Federation	17-18	17-20	21-24	23-26
Partners	Saudi Arabia	18-19	18-20	21-24	23-26
Partners	South Africa[1]	18-19	18-20	21-24	23-26

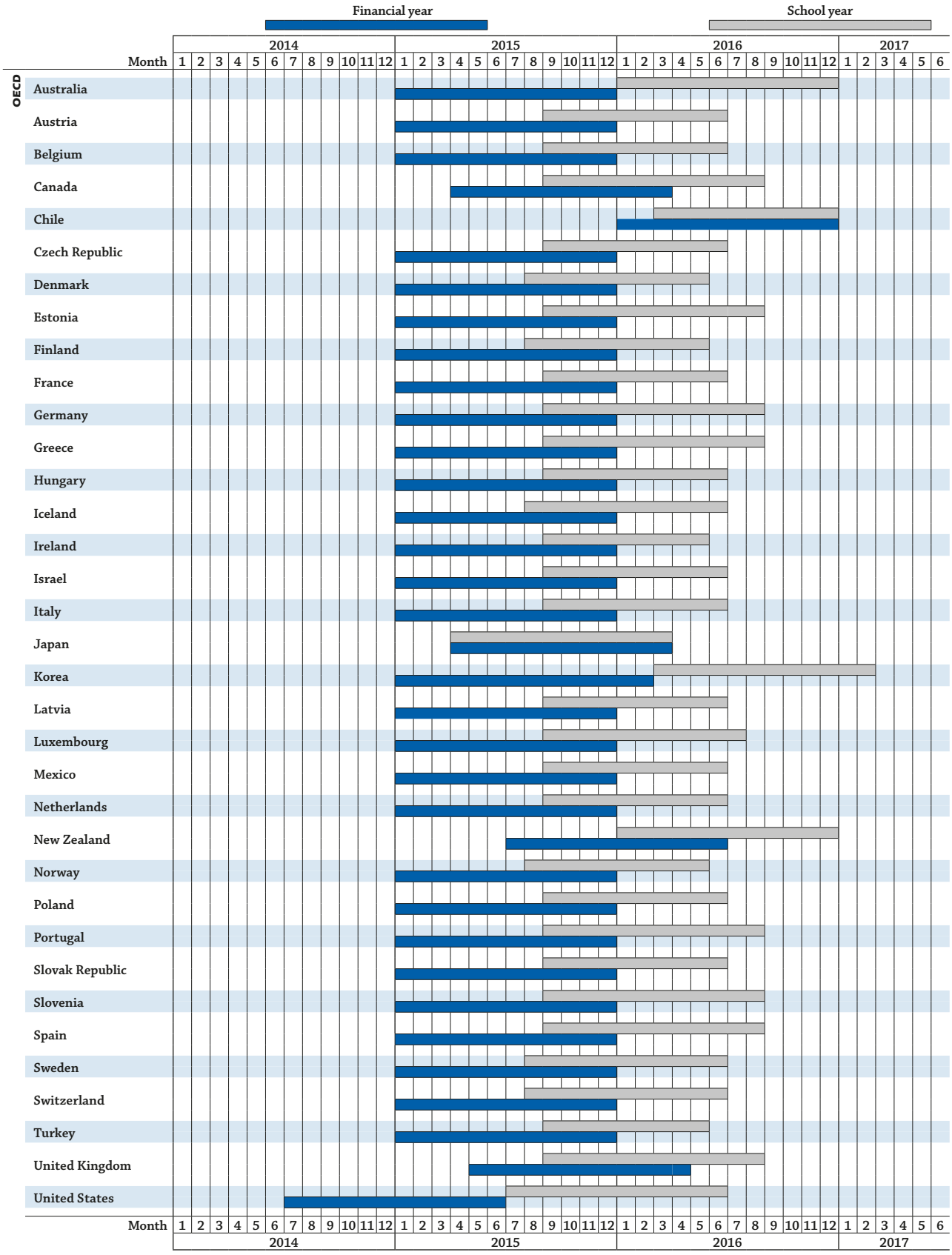
1. Year of reference 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806047

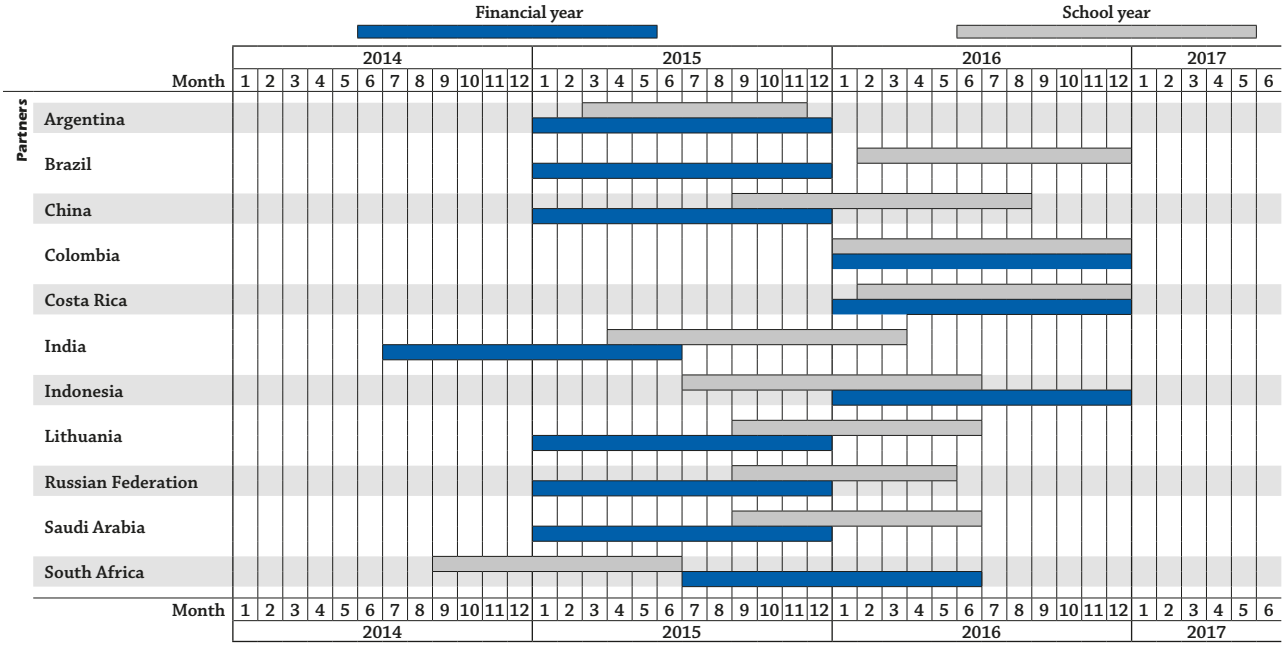
Table X1.2a. School year and financial year used for the calculation of indicators, OECD countries



Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

StatLink https://doi.org/10.1787/888933806066

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 (http://dx.doi.org/10.1787/eag-2018-36-en).

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Table X1.3. Starting and ending age for students in compulsory education and starting age for students in primary education (2016)

The typical age refers to the age of the students at the beginning of the school year.

		Compulsory education		Primary (ISCED 1)
		Starting age	Ending age	Starting age
		(1)	(2)	(3)
OECD	Australia	6	17	5
OECD	Austria	6	15	6
OECD	Belgium	6	18	6
OECD	Canada	6	16-18	6
OECD	Chile	6	18	6
OECD	Czech Republic	6	15	6
OECD	Denmark	6	16	6
OECD	Estonia	7	16	7
OECD	Finland	7	16	7
OECD	France	6	16	6
OECD	Germany	6	18	6
OECD	Greece	5	14-15	6
OECD	Hungary	3	16	7
OECD	Iceland	6	16	6
OECD	Ireland	6	16	5
OECD	Israel	3	17	6
OECD	Italy	6	16	6
OECD	Japan	6	15	6
OECD	Korea	6	14	6
OECD	Latvia	5	16	7
OECD	Luxembourg	4	16	6
OECD	Mexico	3	17	6
OECD	Netherlands	5	18	6
OECD	New Zealand	5	16	5
OECD	Norway	6	16	6
OECD	Poland	5	16	7
OECD	Portugal	6	18	6
OECD	Slovak Republic	6	16	6
OECD	Slovenia	6	14	6
OECD	Spain	6	16	6
OECD	Sweden	7	16	7
OECD	Switzerland	4-5	15	6
OECD	Turkey	5-6	17	6
OECD	United Kingdom	4-5	16	5
OECD	United States	4-6	17	6
Partners	Argentina[1]	5	17	m
Partners	Brazil	4	17	6
Partners	China	m	m	6
Partners	Colombia	5	15	m
Partners	Costa Rica	m	m	m
Partners	India	m	m	6
Partners	Indonesia	7	15	m
Partners	Lithuania	7	16	7
Partners	Russian Federation	7	17	7
Partners	Saudi Arabia	6	11	m
Partners	South Africa[1]	7	15	m

Notes: Age refers to the age at the beginning of the school year.

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.

1. Year of reference 2015.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806104

Annex

2

Reference Statistics

All tables in Annex 2 are available on line at:

StatLink https://doi.org/10.1787/888933806123

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 (reference period: calendar year 2015 and 2016)

		2015							2016
		Total government expenditure (in millions of local currency, current prices)	Gross domestic product (in millions of local currency, current prices)	Gross domestic product (adjusted to financial year)[1]	Total population in thousands on 1st January	GDP deflator (2010 = 100, constant prices)	Purchasing power parity for GDP (PPP) (USD = 1)	Gross domestic product per capita (in equivalent USD converted using PPPs)[2]	Gross domestic product per capita (in equivalent USD converted using PPPs)[2]
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Australia	592 151	1 659 604	1 640 504	23 778	102	1.5	47 454	48 789
OECD	Austria	175 632	344 493	344 493	8 576	110	0.8	50 269	50 792
OECD	Belgium	220 858	410 435	410 435	11 237	107	0.8	45 580	46 541
OECD	Canada	724 310	1 994 911	2 005 060	35 886	107	1.2	44 581	44 825
OECD	Chile[3]	42 811 545	167 227 448	167 227 448	18 192	122	402.6	22 834	22 834
OECD	Czech Republic	1 916 390	4 595 783	4 595 783	10 538	107	13.0	33 493	34 790
OECD	Denmark	1 110 402	2 027 108	2 027 108	5 660	106	7.3	48 879	49 207
OECD	Estonia	8 185	20 348	20 348	1 315	116	0.5	28 701	29 740
OECD	Finland	119 759	209 604	209 604	5 472	112	0.9	42 131	43 441
OECD	France	1 243 414	2 194 243	2 194 243	66 488	105	0.8	40 551	41 425
OECD	Germany	1 334 874	3 043 650	3 043 650	81 198	109	0.8	48 099	49 046
OECD	Greece	94 885	176 312	176 312	10 858	95	0.6	26 606	26 746
OECD	Hungary	17 226 168	34 324 110	34 324 110	9 856	115	133.4	26 114	26 656
OECD	Iceland	949 126	2 232 362	2 232 362	329	120	142.2	47 691	51 103
OECD	Ireland	75 572	262 037	262 037	4 629	110	0.8	69 658	71 851
OECD	Israel	462 289	1 162 530	1 162 530	8 297	112	3.9	36 249	37 622
OECD	Italy	830 126	1 652 622	1 652 622	60 796	106	0.7	36 601	38 356
OECD	Japan	209 545 400	531 985 800	533 600 800	127 083	101	102.8	40 736	42 248
OECD	Korea	505 139 400	1 564 123 900	1 564 123 900	51 015	107	870.9	35 204	36 532
OECD	Latvia	9 022	24 320	24 320	1 986	114	0.5	24 404	25 465
OECD	Luxembourg	21 604	52 102	52 102	563	113	0.9	103 727	103 414
OECD	Mexico	4 917 247	18 536 531	18 536 531	119 713	120	8.5	18 129	18 729
OECD	Netherlands	306 759	683 457	683 457	16 901	104	0.8	49 643	50 691
OECD	New Zealand	73 929	251 755	255 245	4 596	108	1.5	37 426	38 565
OECD	Norway[4]	1 521 635	2 621 032	2 621 032	5 166	110	9.7	52 121	51 501
OECD	Poland	747 949	1 799 392	1 799 392	38 006	107	1.8	26 581	27 385
OECD	Portugal	86 669	179 809	179 809	10 375	104	0.6	29 485	30 612
OECD	Slovak Republic	35 692	78 896	78 896	5 421	103	0.5	29 535	30 486
OECD	Slovenia	18 541	38 837	38 837	2 063	105	0.6	31 478	32 737
OECD	Spain	472 740	1 079 998	1 079 998	46 450	101	0.7	34 815	36 340
OECD	Sweden	2 084 437	4 199 860	4 199 860	9 747	107	8.9	48 146	49 262
OECD	Switzerland	222 498	653 735	653 735	8 238	99	1.2	63 994	64 236
OECD	Turkey	804 987	2 338 647	2 338 647	77 696	143	1.2	25 029	25 495
OECD	United Kingdom	800 404	1 888 737	1 907 381	64 875	108	0.7	41 742	42 795
OECD	United States	6 814 719	18 120 714	17 774 162	319 528	109	1.0	56 711	57 920
Partners	Argentina	2 315 082	5 854 014	5 854 014	43 417	328	6.6	20 338	m
Partners	Brazil	1 914 809	6 000 570	6 000 570	204 860	145	1.9	15 699	15 301
Partners	China	21 896 915	68 550 575	68 550 575	1 376 049	114	3.5	14 323	m
Partners	Colombia[3]	262 484 880	799 312 000	799 312 000	48 203	117	1 198.7	13 833	13 833
Partners	Costa Rica[3]	9 619 594	29 281 362	29 281 362	4 832	125	384.0	15 781	15 781
Partners	India	37 557 086	135 760 859	135 760 859	1 311 051	130	17.1	6 070	m
Partners	Indonesia	2 002 221 328	11 526 332 800	11 526 332 800	257 564	128	4 046.5	11 059	m
Partners	Lithuania	13 058	37 427	37 427	2 921	111	0.4	28 622	29 652
Partners	Russian Federation	28 690 533	83 232 618	83 232 618	146 267	155	23.0	24 715	24 811
Partners	Saudi Arabia	m	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m	m

1. 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.

2. These data are used in Indicator C7 in order to calculate salary costs of teachers per student as a percentage of GDP per capita.

3. Year of reference 2016 instead of 2015.

4. The GDP Mainland market value is used for Norway.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806142

Table X2.2. [1/2] GDP and total public expenditure (reference period: calendar year 2005, 2010 to 2015, current prices)

		Gross domestic product (in millions of local currency, current prices)						
		2005	2010	2011	2012	2013	2014	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	Australia	958 536	1 356 649	1 455 510	1 515 341	1 564 829	1 608 590	1 640 504
	Austria	254 075	295 897	310 129	318 653	323 910	333 063	344 493
	Belgium	311 481	365 101	379 106	387 500	392 340	400 288	410 435
	Canada	1 435 823	1 689 078	1 783 143	1 841 489	1 920 694	1 991 365	2 005 060
	Chile[1]	68 831 705	111 508 611	122 006 090	129 947 342	137 876 216	148 855 347	158 636 806
	Czech Republic	3 264 931	3 962 464	4 033 755	4 059 912	4 098 128	4 313 789	4 595 783
	Denmark	1 585 984	1 810 926	1 846 854	1 895 002	1 929 677	1 981 165	2 027 108
	Estonia	11 262	14 717	16 668	17 935	18 932	19 766	20 348
	Finland	164 387	187 100	196 869	199 793	203 338	205 474	209 604
	France	1 771 978	1 998 481	2 059 284	2 086 929	2 115 256	2 147 609	2 194 243
	Germany	2 300 860	2 580 060	2 703 120	2 758 260	2 826 240	2 932 470	3 043 650
	Greece	199 242	226 031	207 029	191 204	180 654	178 656	176 312
	Hungary	22 559 880	27 224 599	28 304 938	28 781 064	30 247 077	32 591 713	34 324 110
	Iceland	1 051 258	1 627 108	1 708 315	1 787 684	1 899 680	2 019 038	2 232 362
	Ireland	170 188	167 583	171 939	175 561	180 298	194 537	262 037
	Israel	639 333	873 466	936 134	992 110	1 056 119	1 103 485	1 162 530
	Italy	1 489 726	1 604 515	1 637 463	1 613 265	1 604 599	1 621 827	1 652 622
	Japan	524 819 525	498 117 550	492 295 675	497 011 800	505 850 700	518 403 450	533 600 800
	Korea	919 797 300	1 265 308 000	1 332 681 000	1 377 456 700	1 429 445 400	1 486 079 300	1 564 123 900
	Latvia	13 597	17 938	20 303	21 886	22 787	23 618	24 320
	Luxembourg	30 031	40 178	43 165	44 112	46 500	49 993	52 102
	Mexico	9 562 648	13 366 377	14 665 576	15 817 755	16 277 187	17 471 467	18 536 531
	Netherlands	545 609	631 512	642 929	645 164	652 748	663 008	683 457
	New Zealand	165 230	205 885	214 299	221 185	234 725	244 385	255 245
	Norway[2]	1 514 363	2 077 603	2 161 616	2 298 445	2 423 242	2 539 596	2 621 032
	Poland	990 468	1 445 298	1 566 824	1 629 425	1 656 895	1 719 769	1 799 392
	Portugal	158 653	179 930	176 167	168 398	170 269	173 079	179 809
	Slovak Republic	50 415	67 577	70 627	72 704	74 170	76 088	78 896
	Slovenia	29 227	36 252	36 896	36 076	36 239	37 615	38 837
	Spain	930 566	1 080 935	1 070 449	1 039 815	1 025 693	1 037 820	1 079 998
	Sweden	2 907 352	3 519 994	3 656 577	3 684 800	3 769 909	3 936 840	4 199 860
	Switzerland	508 900	608 831	621 256	626 414	638 177	649 718	653 735
	Turkey	673 703	1 160 014	1 394 477	1 569 672	1 809 713	2 044 466	2 338 647
	United Kingdom	1 405 648	1 593 673	1 647 603	1 702 057	1 773 681	1 849 981	1 907 381
	United States	12 684 327	14 691 556	15 241 149	15 836 590	16 423 386	17 059 563	17 774 162
Partners	Argentina	582 538	1 661 721	2 179 024	2 637 914	3 348 308	4 579 086	5 854 014
	Brazil	2 170 585	3 885 847	4 376 382	4 814 760	5 331 619	5 778 953	6 000 570
	China	18 731 890	41 303 031	48 930 057	54 036 743	59 524 441	64 397 405	68 550 575
	Colombia[1]	340 156 000	544 924 000	619 894 000	664 240 000	710 497 000	757 065 000	799 312 000
	Costa Rica[1]	9 532 875	19 596 937	21 370 733	23 371 406	24 860 944	27 226 883	29 281 362
	India	36 924 856	75 476 617	87 360 392	99 513 443	112 727 645	124 882 048	135 760 859
	Indonesia	3 035 611 121	6 864 133 100	7 831 726 000	8 615 704 500	9 546 134 000	10 569 705 300	11 526 332 800
	Lithuania	21 002	28 028	31 275	33 348	34 960	36 568	37 427
	Russian Federation	23 275 971	49 879 129	60 282 540	68 163 883	73 133 895	79 199 659	83 232 618
	Saudi Arabia	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m

1. Year of reference 2016 instead of 2015.
2. The GDP Mainland market value is used for Norway.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http:/http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806161

Table X2.2. [2/2] GDP and total public expenditure (reference period: calendar year 2005, 2010 to 2015, current prices)

		Total government expenditure (in millions of local currency, current prices)						
		2005	2010	2011	2012	2013	2014	2015
		(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	324 216	473 572	505 042	531 994	552 731	574 014	592 151
OECD	Austria	129 973	156 351	157 846	163 192	167 292	174 305	175 632
OECD	Belgium	160 811	194 749	206 433	216 479	219 062	220 981	220 858
OECD	Canada	m	641 141	665 215	675 081	689 601	703 778	724 310
OECD	Chile[1]	15 312 072	26 053 547	27 837 793	30 050 204	31 845 155	35 343 504	39 747 891
OECD	Czech Republic	1 380 188	1 724 241	1 735 916	1 805 836	1 745 908	1 821 984	1 916 390
OECD	Denmark	812 682	1 026 310	1 042 167	1 098 247	1 077 153	1 093 954	1 110 402
OECD	Estonia	3 827	5 962	6 238	7 049	7 280	7 597	8 185
OECD	Finland	81 002	102 446	107 066	112 291	116 922	119 399	119 759
OECD	France	936 988	1 128 022	1 152 416	1 185 751	1 206 724	1 225 643	1 243 414
OECD	Germany	1 062 999	1 219 219	1 208 565	1 221 782	1 263 000	1 298 801	1 334 874
OECD	Greece	90 778	118 616	111 973	105 923	112 318	89 629	94 885
OECD	Hungary	11 132 600	13 404 755	13 996 199	13 950 163	14 902 529	16 132 659	17 226 168
OECD	Iceland	437 351	799 305	777 342	807 229	830 530	908 485	949 126
OECD	Ireland	56 746	109 088	79 623	73 603	72 533	73 042	75 572
OECD	Israel	294 161	361 871	380 492	412 854	436 214	451 097	462 289
OECD	Italy	702 315	800 494	808 562	818 874	819 381	825 565	830 126
OECD	Japan	186 135 200	198 184 200	201 021 000	201 405 100	205 447 200	207 024 900	209 545 400
OECD	Korea	271 192 000	392 264 100	431 075 500	450 811 900	453 991 400	475 250 100	505 139 400
OECD	Latvia	4 662	8 034	7 927	8 112	8 427	8 854	9 022
OECD	Luxembourg	13 087	17 729	18 287	19 440	20 145	20 895	21 604
OECD	Mexico	1 979 808	3 355 288	3 655 757	3 942 261	4 206 351	4 566 809	4 917 247
OECD	Netherlands	230 867	304 107	302 010	303 865	302 036	306 204	306 759
OECD	New Zealand	49 084	70 099	68 939	69 962	71 174	72 363	73 929
OECD	Norway[2]	836 626	1 165 722	1 223 268	1 273 053	1 352 217	1 440 795	1 521 635
OECD	Poland	439 719	662 055	687 518	698 362	705 750	726 797	747 949
OECD	Portugal	74 054	93 237	88 112	81 719	85 032	89 598	86 669
OECD	Slovak Republic	20 053	28 480	28 828	29 539	30 737	31 983	35 692
OECD	Slovenia	13 127	17 858	18 448	17 503	21 568	18 656	18 541
OECD	Spain	356 547	493 202	490 592	500 177	467 326	465 424	472 740
OECD	Sweden	1 522 630	1 788 594	1 839 764	1 892 405	1 960 578	2 012 799	2 084 437
OECD	Switzerland	171 949	200 808	204 384	208 135	218 434	219 440	222 498
OECD	Turkey	m	442 178	490 770	550 332	623 671	689 007	804 987
OECD	United Kingdom	573 271	754 886	755 024	774 632	773 965	793 200	800 404
OECD	United States	4 772 092	6 425 237	6 492 089	6 466 040	6 465 937	6 633 256	6 814 719
Partners	Argentina	142 219	527 111	722 171	919 573	1 192 696	1 668 167	2 315 082
Partners	Brazil	605 877	1 211 373	1 308 035	1 453 358	1 772 570	1 886 133	1 914 809
Partners	China	3 427 928	10 251 183	13 128 594	15 178 679	17 034 245	18 745 463	21 896 915
Partners	Colombia[1]	87 471 638	164 741 238	188 068 418	205 412 910	224 872 398	243 490 503	262 484 880
Partners	Costa Rica[1]	m	m	m	7 302 493	8 148 822	8 910 394	9 619 594
Partners	India	9 761 839	21 365 301	24 147 724	27 210 645	29 881 105	32 810 323	37 557 086
Partners	Indonesia	526 114 278	1 159 098 284	1 387 241 117	1 622 837 246	1 821 515 839	1 966 625 285	2 002 221 328
Partners	Lithuania	7 157	11 855	13 284	12 040	12 408	12 667	13 058
Partners	Russian Federation	6 820 645	17 616 656	21 283 675	23 824 124	26 179 360	30 546 927	28 690 533
Partners	Saudi Arabia	m	m	m	m	m	m	m
Partners	South Africa	m	m	m	m	m	m	m

1. Year of reference 2016 instead of 2015.
2. The GDP Mainland market value is used for Norway.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http:/http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806161

Table X2.3. [1/2] Basic reference statistics (reference period: calendar year 2005, 2010 to 2015, in 2010 constant prices)

		Gross domestic product (in millions of local currency, constant prices)						
		2005	2010	2011	2012	2013	2014	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	Australia	1 187 601	1 356 649	1 428 729	1 489 812	1 516 627	1 570 474	1 609 007
	Austria	277 307	295 897	304 545	306 617	306 696	309 237	312 614
	Belgium	340 164	365 101	371 666	372 539	373 286	378 331	383 645
	Canada	1 591 344	1 689 078	1 727 148	1 762 140	1 809 254	1 839 571	1 866 327
	Chile[1]	92 687 960	111 508 611	118 322 811	124 615 961	129 656 682	132 132 727	135 109 066
	Czech Republic	3 512 515	3 962 464	4 032 910	4 000 653	3 981 303	4 089 400	4 306 516
	Denmark	1 791 959	1 810 926	1 835 134	1 839 290	1 856 457	1 886 520	1 916 829
	Estonia	15 018	14 717	15 835	16 517	16 836	17 323	17 613
	Finland	179 646	187 100	191 910	189 173	187 739	186 553	186 805
	France	1 923 243	1 998 481	2 040 034	2 043 761	2 055 538	2 075 016	2 097 166
	Germany	2 426 546	2 580 060	2 674 490	2 687 649	2 700 807	2 752 924	2 800 913
	Greece	229 784	226 031	205 389	190 395	184 223	185 586	185 046
	Hungary	27 521 109	27 224 599	27 677 049	27 222 099	27 792 734	28 967 736	29 943 122
	Iceland	1 545 404	1 627 108	1 659 049	1 680 935	1 753 353	1 790 562	1 866 912
	Ireland	161 843	167 583	172 586	172 650	175 479	190 094	238 677
	Israel	706 218	873 466	919 027	939 210	978 692	1 012 731	1 039 346
	Italy	1 629 932	1 604 515	1 613 766	1 568 274	1 541 172	1 542 924	1 557 612
	Japan	498 566 759	498 117 550	500 678 668	509 354 112	520 145 516	523 909 132	527 962 389
	Korea	1 034 337 497	1 265 308 000	1 311 892 696	1 341 966 504	1 380 832 595	1 426 972 405	1 466 788 298
	Latvia	18 380	17 938	19 083	19 852	20 335	20 713	21 328
	Luxembourg	35 606	40 178	41 198	41 053	42 553	45 009	46 297
	Mexico	12 417 875	13 366 377	13 855 989	14 360 668	14 555 125	14 969 260	15 458 825
	Netherlands	592 793	631 512	642 018	635 232	634 023	643 024	657 561
	New Zealand	191 302	205 885	209 949	217 792	220 429	227 140	235 555
	Norway[2]	1 882 830	2 077 603	2 024 913	2 083 154	2 141 763	2 237 224	2 376 009
	Poland	1 145 116	1 445 298	1 517 813	1 542 218	1 563 684	1 615 022	1 677 113
	Portugal	174 509	179 930	176 643	169 527	167 611	169 108	172 190
	Slovak Republic	53 590	67 577	69 482	70 634	71 687	73 658	76 494
	Slovenia	33 274	36 252	36 488	35 514	35 112	36 158	36 975
	Spain	1 025 389	1 080 935	1 070 139	1 038 808	1 021 089	1 035 180	1 070 710
	Sweden	3 253 794	3 519 994	3 613 781	3 603 434	3 648 160	3 743 170	3 912 435
	Switzerland	546 591	608 831	619 137	625 366	636 948	652 548	660 551
	Turkey	989 036	1 160 014	1 288 932	1 350 671	1 465 361	1 541 071	1 634 859
	United Kingdom	1 575 072	1 593 673	1 615 120	1 642 816	1 679 964	1 722 682	1 768 065
	United States	13 957 599	14 691 556	14 932 841	15 235 590	15 549 000	15 866 554	16 353 832
Partners	Argentina	1 308 651	1 661 721	1 761 490	1 743 410	1 785 344	1 740 485	1 786 561
	Brazil	3 127 392	3 885 847	4 037 996	4 122 713	4 251 305	4 311 976	4 146 837
	China	24 169 867	41 303 031	45 242 986	48 797 624	52 583 542	56 419 444	60 321 214
	Colombia[1]	436 551 119	544 924 000	580 831 828	604 320 345	633 775 311	661 620 916	681 813 696
	Costa Rica[1]	15 532 812	19 596 937	20 440 997	21 421 535	21 907 595	22 677 722	23 501 306
	India	52 200 696	75 476 617	80 487 029	85 009 244	90 652 848	97 219 261	104 572 311
	Indonesia	5 181 384 704	6 864 133 100	7 287 635 302	7 727 083 416	8 156 497 772	8 564 866 594	8 982 517 102
	Lithuania	26 436	28 028	29 721	30 859	31 938	33 068	33 741
	Russian Federation	41 911 235	49 879 129	52 006 063	53 907 353	54 869 791	55 275 060	53 711 748
	Saudi Arabia	1 488 298	1 975 543	2 172 286	2 289 252	2 350 373	2 444 841	2 545 236
	South Africa	2 359 095	2 748 004	2 838 252	2 901 073	2 973 288	3 023 820	3 063 096

1. Year of reference 2016 instead of 2015.
2. The GDP Mainland market value is used for Norway.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http:/http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.3. [2/2] Basic reference statistics (reference period: calendar year 2005, 2010 to 2015, in 2010 constant prices)

		Total government expenditure (in millions of local currency, constant prices)						
		2005	2010	2011	2012	2013	2014	2015
		(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Australia	401 695	473 572	495 749	523 031	535 705	560 412	580 781
OECD	Austria	141 858	156 351	155 004	157 028	158 401	161 837	159 379
OECD	Belgium	175 619	194 749	202 382	208 121	208 424	208 859	206 442
OECD	Canada	m	641 141	644 326	645 992	649 590	650 132	674 194
OECD	Chile[1]	20 619 055	26 053 547	26 997 389	28 817 327	29 946 696	31 372 965	33 852 802
OECD	Czech Republic	1 484 849	1 724 241	1 735 552	1 779 478	1 696 138	1 727 210	1 795 769
OECD	Denmark	918 227	1 026 310	1 035 553	1 065 959	1 036 281	1 041 693	1 049 994
OECD	Estonia	5 103	5 962	5 926	6 491	6 474	6 658	7 085
OECD	Finland	88 521	102 446	104 369	106 322	107 952	108 404	106 733
OECD	France	1 016 974	1 128 022	1 141 643	1 161 224	1 172 656	1 184 214	1 188 403
OECD	Germany	1 121 066	1 219 219	1 195 765	1 190 504	1 206 946	1 219 279	1 228 415
OECD	Greece	104 693	118 616	111 086	105 475	114 537	93 105	99 585
OECD	Hungary	13 580 812	13 404 755	13 685 721	13 194 534	13 693 291	14 338 817	15 027 491
OECD	Iceland	642 929	799 305	754 924	759 027	766 557	805 680	793 749
OECD	Ireland	53 964	109 088	79 922	72 383	70 595	71 374	68 835
OECD	Israel	324 935	361 871	373 539	390 841	404 234	413 998	413 304
OECD	Italy	768 414	800 494	796 861	796 037	786 992	785 400	782 401
OECD	Japan	176 824 259	198 184 200	204 444 060	206 406 600	211 252 925	209 223 599	207 331 192
OECD	Korea	304 962 903	392 264 100	424 351 214	439 196 723	438 551 989	456 347 638	473 704 520
OECD	Latvia	6 302	8 034	7 450	7 358	7 521	7 765	7 912
OECD	Luxembourg	15 517	17 729	17 454	18 092	18 435	18 812	19 197
OECD	Mexico	2 570 941	3 355 288	3 453 947	3 579 112	3 761 336	3 912 765	4 100 814
OECD	Netherlands	250 832	304 107	301 582	299 187	293 371	296 974	295 136
OECD	New Zealand	56 829	70 099	67 540	68 889	66 839	67 257	68 226
OECD	Norway[2]	1 040 190	1 165 722	1 145 907	1 153 808	1 195 146	1 269 249	1 379 388
OECD	Poland	508 375	662 055	666 012	660 986	666 047	682 529	697 121
OECD	Portugal	81 455	93 237	88 350	82 267	83 705	87 542	82 996
OECD	Slovak Republic	21 316	28 480	28 361	28 699	29 707	30 962	34 605
OECD	Slovenia	14 945	17 858	18 244	17 230	20 897	17 933	17 652
OECD	Spain	392 878	493 202	490 450	499 693	465 228	464 240	468 674
OECD	Sweden	1 704 068	1 788 594	1 818 232	1 850 618	1 897 261	1 913 781	1 941 785
OECD	Switzerland	184 684	200 808	203 687	207 786	218 013	220 395	224 817
OECD	Turkey	m	442 178	453 625	473 550	504 999	519 358	562 736
OECD	United Kingdom	642 368	754 886	740 139	747 671	733 071	738 619	741 942
OECD	United States	5 251 122	6 425 237	6 360 763	6 220 653	6 121 688	6 169 379	6 270 156
Partners	Argentina	319 490	527 111	583 792	607 750	635 955	634 061	706 530
Partners	Brazil	872 952	1 211 373	1 206 897	1 244 460	1 413 405	1 407 341	m
Partners	China	4 423 075	10 251 183	12 139 303	13 707 034	15 047 952	16 423 156	19 268 234
Partners	Colombia[1]	112 259 791	164 741 238	176 217 423	186 883 055	200 589 973	212 793 366	223 899 786
Partners	Costa Rica[1]	m	m	m	6 693 248	7 180 786	7 421 614	7 720 714
Partners	India	13 800 319	21 365 301	22 247 823	23 244 662	24 029 663	25 542 465	28 929 040
Partners	Indonesia	898 007 144	1 159 098 284	1 290 865 811	1 455 458 317	1 556 356 728	1 593 600 080	1 560 339 063
Partners	Lithuania	9 009	11 855	12 624	11 141	11 336	11 454	11 772
Partners	Russian Federation	12 281 406	17 616 656	18 361 538	18 841 289	19 641 454	21 319 325	18 514 600
Partners	Saudi Arabia	418 967	670 985	724 629	762 801	837 613	983 120	1 036 353
Partners	South Africa	664 631	864 157	876 365	909 994	939 433	961 656	1 007 104

1. Year of reference 2016 instead of 2015.
2. The GDP Mainland market value is used for Norway.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http:/http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4a. [1/2] Teachers' statutory salaries at different points in their careers, for teachers with the most prevalent qualifications defined at different points in the teachers' career (2017)

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	67 029	94 683	95 524	95 524	67 029	94 683	95 524	95 524
	Austria	m	m	m	m	34 595	38 080	42 626	62 710
	Canada[1]	m	m	m	m	53 163	85 202	88 746	88 746
	Chile	10 662 024	13 199 333	15 578 131	19 914 696	10 662 024	13 199 333	15 578 131	19 914 696
	Czech Republic	255 936	261 912	268 584	299 412	270 564	287 220	300 024	353 988
	Denmark	347 704	392 168	392 168	392 168	378 411	420 063	433 903	433 903
	Estonia	a	a	a	a	11 832	a	a	a
	Finland[2]	28 811	31 116	31 116	31 116	32 542	37 668	39 928	42 324
	France[3]	25 626	29 188	31 223	45 472	25 626	29 188	31 223	45 472
	Germany	m	m	m	m	46 984	55 640	58 750	62 331
	Greece	13 104	15 390	17 584	25 498	13 104	15 390	17 584	25 498
	Hungary	2 125 410	2 869 304	3 081 845	4 038 279	2 125 410	2 869 304	3 081 845	4 038 279
	Iceland	5 554 658	5 768 185	6 153 881	6 153 881	5 774 574	6 004 410	6 375 566	6 375 566
	Ireland	m	m	m	m	33 806	53 558	59 186	68 397
	Israel	101 611	131 894	148 645	271 412	88 579	119 526	133 954	227 496
	Italy	23 051	25 358	27 845	33 884	23 051	25 358	27 845	33 884
	Japan	m	m	m	m	3 282 000	4 698 000	5 528 000	6 854 000
	Korea[1]	30 509 040	45 917 280	53 605 200	85 160 520	30 509 040	45 917 280	53 605 200	85 160 520
	Latvia	7 440	a	a	a	8 160	a	a	a
	Luxembourg[4]	70 671	91 401	103 204	124 881	70 671	91 401	103 204	124 881
	Mexico	201 191	255 471	320 453	404 493	201 191	255 471	320 453	404 493
	Netherlands	34 760	43 558	51 829	54 726	34 760	43 558	51 829	54 726
	New Zealand	m	m	m	m	49 588	75 949	75 949	75 949
	Norway	373 700	435 800	435 800	440 200	415 800	500 900	500 900	537 900
	Poland	29 368	39 395	48 105	50 145	29 368	39 395	48 105	50 145
	Portugal	22 224	27 059	28 713	44 207	22 224	27 059	28 713	44 207
	Slovak Republic[5]	6 978	7 680	8 028	8 658	7 806	9 372	10 974	11 832
	Slovenia[5]	18 087	21 523	26 225	30 136	18 087	22 320	27 210	32 480
	Spain	28 709	31 087	33 187	40 783	28 709	31 087	33 187	40 783
	Sweden[1, 5, 6]	346 830	368 310	378 000	409 560	351 600	396 000	414 000	475 200
	Switzerland[7]	74 563	93 308	m	113 684	79 663	99 029	m	121 229
	Turkey	42 056	43 667	46 252	53 395	42 056	43 667	46 252	53 395
	United States[5, 6]	38 635	52 853	64 279	71 280	39 183	53 826	61 028	67 197
	Economies								
	Flemish Comm. (Belgium)[5]	31 673	39 719	44 717	54 713	31 673	39 719	44 717	54 713
	French Comm. (Belgium)	30 744	38 444	43 283	52 962	30 744	38 444	43 283	52 962
	England (UK)	22 467	a	38 250	38 250	22 467	a	38 250	38 250
	Scotland (UK)	26 895	35 763	35 763	35 763	26 895	35 763	35 763	35 763
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	30 651	m	m	m	30 651	m	m	m
	China	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	m	m	m	m
	Costa Rica	8 915 725	10 512 285	11 310 565	13 705 405	8 915 725	10 512 285	11 310 565	13 705 405
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Lithuania	6 358	6 843	7 000	7 298	9 803	9 897	9 960	10 054
	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 qualification is based on a broad concept, including the typical ISCED level of attainment and other criteria. Please see Box D3.2 and Annex 3 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 average of fixed bonuses for overtime hours (for lower and upper secondary teachers) and accomodation allowance.
4. Includes the social security contributions and pension-scheme contributions paid by the employers.
5. At the upper secondary level includes teachers working in vocational programmes. In Slovenia, includes only those teachers teaching general subjects within vocational programmes.
6. Actual base salaries.
7. Salaries after 11 years of experience for Columns 2, 6, 10 and 14.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4a. [2/2] Teachers' statutory salaries at different points in their careers, for teachers with the most prevalent qualifications defined at different points in the teachers' career (2017)

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
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	**Countries**								
	Australia	67 032	94 683	95 524	95 524	67 029	94 683	95 524	95 524
	Austria	34 478	40 070	44 824	66 970	34 519	43 410	49 086	71 377
	Canada[1]	53 163	85 202	88 746	88 746	53 163	85 202	88 746	88 746
	Chile	10 662 024	13 199 333	15 578 131	19 914 696	10 934 868	13 563 307	15 978 448	20 460 384
	Czech Republic	270 696	287 748	300 636	355 644	270 948	288 000	300 552	355 092
	Denmark	380 228	425 144	439 604	439 604	360 909	469 025	469 025	469 025
	Estonia	11 832	a	a	a	11 832	a	a	a
	Finland[2]	35 145	40 682	43 122	45 710	37 268	44 759	46 549	49 342
	France[3]	26 917	30 479	32 515	46 892	26 917	30 479	32 515	46 892
	Germany	52 818	60 964	63 857	69 353	53 076	64 506	67 532	76 778
	Greece	13 104	15 390	17 584	25 498	13 104	15 390	17 584	25 498
	Hungary	2 353 176	2 869 304	3 081 845	4 038 279	2 353 176	3 176 788	3 412 105	4 471 034
	Iceland	5 774 574	6 004 410	6 375 566	6 375 566	4 901 080	5 136 556	5 282 008	6 688 420
	Ireland	33 806	55 505	59 777	68 988	33 806	55 505	59 777	68 988
	Israel	89 057	127 633	147 740	237 014	91 296	120 258	135 094	217 788
	Italy	24 849	27 527	30 340	37 211	24 849	28 196	31 189	38 901
	Japan	3 282 000	4 698 000	5 528 000	6 854 000	3 282 000	4 698 000	5 528 000	7 035 000
	Korea[1]	30 569 040	45 977 280	53 665 200	85 220 520	29 849 040	45 257 280	52 945 200	84 500 520
	Latvia	8 160	a	a	a	8 160	a	a	a
	Luxembourg[4]	80 094	100 117	110 482	139 222	80 094	100 117	110 482	139 222
	Mexico	256 889	326 021	410 549	517 194	498 450	576 774	615 769	665 902
	Netherlands	36 891	56 570	64 994	75 435	36 891	56 570	64 994	75 435
	New Zealand	50 394	76 975	76 975	76 975	51 200	78 000	78 000	78 000
	Norway	415 800	500 900	500 900	537 900	495 900	548 000	548 000	606 500
	Poland	29 368	39 395	48 105	50 145	29 368	39 395	48 105	50 145
	Portugal	22 224	27 059	28 713	44 207	22 224	27 059	28 713	44 207
	Slovak Republic[5]	7 806	9 372	10 974	11 832	7 806	9 372	10 974	11 832
	Slovenia[5]	18 087	22 320	27 210	32 480	18 087	22 320	27 210	32 480
	Spain	32 080	34 787	37 007	45 318	32 080	34 787	37 007	45 318
	Sweden[1, 5, 6]	360 000	405 570	420 000	488 400	360 000	419 460	430 200	500 400
	Switzerland[7]	89 499	113 137	m	137 125	100 725	129 235	m	154 434
	Turkey	42 056	43 667	46 252	53 395	42 056	43 667	46 252	53 395
	United States[5, 6]	39 707	54 566	63 046	68 052	40 517	54 609	63 006	70 900
	Economies								
	Flemish Comm. (Belgium)[5]	31 673	39 719	44 717	54 713	39 516	50 365	57 436	69 220
	French Comm. (Belgium)	30 744	38 444	43 283	52 962	38 247	48 753	55 599	67 009
	England (UK)	22 467	a	38 250	38 250	22 467	a	38 250	38 250
	Scotland (UK)	26 895	35 763	35 763	35 763	26 895	35 763	35 763	35 763
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	30 651	m	m	m	30 651	m	m	m
	China	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	m	m	m	m
	Costa Rica	9 291 100	10 954 860	11 786 740	14 282 380	9 291 100	10 954 860	11 786 740	14 282 380
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Lithuania	9 803	9 897	9 960	10 054	9 803	9 897	9 960	10 054
	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 qualification is based on a broad concept, including the typical ISCED level of attainment and other criteria. Please see Box D3.2 and Annex 3 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 average of fixed bonuses for overtime hours (for lower and upper secondary teachers) and accomodation allowance.
4. Includes the social security contributions and pension-scheme contributions paid by the employers.
5. At the upper secondary level includes teachers working in vocational programmes. In Slovenia, includes only those teachers teaching general subjects within vocational programmes.
6. Actual base salaries.
7. Salaries after 11 years of experience for Columns 2, 6, 10 and 14.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

StatLink https://doi.org/10.1787/888933806199

Table X2.4c. [1/2] Teachers' statutory salaries at different points in their careers, for teachers with minimum qualifications (2017)

Annual salaries in public institutions for teachers with minimum 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	67 029	94 683	95 524	95 524	67 029	94 683	95 524	95 524
	Austria	m	m	m	m	34 595	38 080	42 626	62 710
	Canada[1]	m	m	m	m	50 300	74 878	78 322	78 322
	Chile	10 662 024	13 199 333	15 578 131	19 914 696	10 662 024	13 199 333	15 578 131	19 914 696
	Czech Republic	255 936	261 912	268 584	299 412	270 564	287 220	300 024	353 988
	Denmark	347 704	392 168	392 168	392 168	378 411	420 063	433 903	433 903
	Estonia	a	a	a	a	11 832	a	a	a
	Finland[2]	28 811	31 116	31 116	31 116	32 542	37 668	39 928	42 324
	France[3]	25 626	29 188	31 223	45 472	25 626	29 188	31 223	45 472
	Germany	m	m	m	m	46 984	55 640	58 750	62 331
	Greece	13 104	15 390	17 584	25 498	13 104	14 424	15 744	24 324
	Hungary	2 125 410	2 869 304	3 081 845	4 038 279	2 125 410	2 869 304	3 081 845	4 038 279
	Iceland	5 554 658	5 768 185	6 153 881	6 153 881	5 774 574	6 004 410	6 375 566	6 375 566
	Ireland	m	m	m	m	33 806	50 482	56 110	65 321
	Israel	101 611	131 894	148 645	221 968	88 579	119 526	133 954	186 236
	Italy	23 051	25 358	27 845	33 884	23 051	25 358	27 845	33 884
	Japan	m	m	m	m	3 282 000	4 698 000	5 528 000	6 854 000
	Korea	29 273 520	43 166 760	50 572 080	85 160 520	30 509 040	45 917 280	53 605 200	85 160 520
	Latvia	7 440	a	a	a	8 160	a	a	a
	Luxembourg[4]	70 671	91 401	103 204	124 881	70 671	91 401	103 204	124 881
	Mexico	201 191	255 471	320 453	404 493	201 191	255 471	320 453	404 493
	Netherlands	34 760	43 558	51 829	54 726	34 760	43 558	51 829	54 726
	New Zealand	m	m	m	m	47 980	59 621	59 621	59 621
	Norway	373 700	435 800	435 800	440 200	415 800	469 400	469 400	487 000
	Poland	23 076	30 402	36 897	38 450	23 076	30 402	36 897	38 450
	Portugal	22 224	27 059	28 713	44 207	22 224	27 059	28 713	44 207
	Slovak Republic[5]	6 978	7 680	8 028	8 658	7 806	9 372	10 974	11 832
	Slovenia[5]	18 087	21 523	26 225	30 136	18 087	22 320	27 210	32 480
	Spain	28 709	31 087	33 187	40 783	28 709	31 087	33 187	40 783
	Sweden[1, 5, 6]	346 830	368 310	378 000	409 560	351 600	396 000	414 000	475 200
	Switzerland[7]	74 563	93 308	m	113 684	79 663	99 029	m	121 229
	Turkey	42 056	43 667	46 252	53 395	42 056	43 667	46 252	53 395
	United States[5, 6]	38 635	47 256	48 855	59 588	39 183	44 796	48 893	59 020
	Economies								
	Flemish Comm. (Belgium)[5]	31 673	39 719	44 717	54 713	31 673	39 719	44 717	54 713
	French Comm. (Belgium)	30 744	38 444	43 283	52 962	30 744	38 444	43 283	52 962
	England (UK)	16 461	a	a	26 034	16 461	a	a	26 034
	Scotland (UK)	26 895	35 763	35 763	35 763	26 895	35 763	35 763	35 763
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	30 651	m	m	m	30 651	m	m	m
	China	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	m	m	m	m
	Costa Rica	4 934 475	5 880 035	6 352 815	7 771 155	4 934 475	5 880 035	6 352 815	7 771 155
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Lithuania	6 358	6 843	7 000	7 298	9 803	9 897	9 960	10 054
	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: See *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 average of fixed bonuses for overtime hours for lower and upper secondary teachers.
4. Includes the social security contributions and pension-scheme contributions paid by the employers.
5. At the upper secondary level includes teachers working in vocational programmes. In Slovenia, includes only those teachers teaching general subjects within vocational programmes.
6. Actual base salaries.
7. Salaries after 11 years of experience for Columns 2, 6, 10 and 14.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4c. [2/2] Teachers' statutory salaries at different points in their careers, for teachers with minimum qualifications (2017)

Annual salaries in public institutions for teachers with minimum 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
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	**Countries**								
	Australia	67 032	94 683	95 524	95 524	67 029	94 683	95 524	95 524
	Austria	34 478	40 070	44 824	66 970	34 519	43 410	49 086	71 377
	Canada[1]	50 300	74 878	78 322	78 322	50 300	74 878	78 322	78 322
	Chile	10 662 024	13 199 333	15 578 131	19 914 696	10 934 868	13 563 307	15 978 448	20 460 384
	Czech Republic	270 696	287 748	300 636	355 644	270 948	288 000	300 552	355 092
	Denmark	380 228	425 144	439 604	439 604	360 909	469 025	469 025	469 025
	Estonia	11 832	a	a	a	11 832	a	a	a
	Finland[2]	35 145	40 682	43 122	45 710	37 268	44 759	46 549	49 342
	France[3]	26 917	30 479	32 515	46 892	26 917	30 479	32 515	46 892
	Germany	52 818	60 964	63 857	69 353	53 076	64 506	67 532	76 778
	Greece	13 104	14 424	15 744	24 324	13 104	14 424	15 744	24 324
	Hungary	2 353 176	2 869 304	3 081 845	4 038 279	2 353 176	3 176 788	3 412 105	4 471 034
	Iceland	5 774 574	6 004 410	6 375 566	6 375 566	4 901 080	5 136 556	5 282 008	6 688 420
	Ireland	33 806	52 429	56 701	65 912	33 806	52 429	56 701	65 912
	Israel	89 057	127 633	143 100	185 669	91 296	119 759	134 624	198 075
	Italy	24 849	27 527	30 340	37 211	24 849	28 196	31 189	38 901
	Japan	3 282 000	4 698 000	5 528 000	6 854 000	3 282 000	4 698 000	5 528 000	7 035 000
	Korea	29 947 320	44 602 680	52 147 200	85 220 520	29 227 320	43 882 680	51 427 200	84 500 520
	Latvia	8 160	a	a	a	8 160	a	a	a
	Luxembourg[4]	80 094	100 117	110 482	139 222	80 094	100 117	110 482	139 222
	Mexico	256 889	326 021	410 549	517 194	498 450	576 774	615 769	665 902
	Netherlands	36 891	56 570	64 994	75 435	36 891	56 570	64 994	75 435
	New Zealand	49 590	66 636	60 061	60 061	51 200	73 650	60 500	60 500
	Norway	415 800	469 400	469 400	487 000	415 800	469 400	469 400	487 000
	Poland	25 987	34 476	42 040	43 816	29 368	39 395	48 105	50 145
	Portugal	22 224	27 059	28 713	44 207	22 224	27 059	28 713	44 207
	Slovak Republic[5]	7 806	9 372	10 974	11 832	7 806	9 372	10 974	11 832
	Slovenia[5]	18 087	22 320	27 210	32 480	18 087	22 320	27 210	32 480
	Spain	32 080	34 787	37 007	45 318	32 080	34 787	37 007	45 318
	Sweden[1, 5, 6]	360 000	405 570	420 000	488 400	360 000	419 460	430 200	500 400
	Switzerland[7]	89 499	113 137	m	137 125	100 725	129 235	m	154 434
	Turkey	42 056	43 667	46 252	53 395	42 056	43 667	46 252	53 395
	United States[5, 6]	39 707	46 751	50 847	56 687	40 517	46 342	51 542	60 823
	Economies								
	Flemish Comm. (Belgium)[5]	31 673	39 719	44 717	54 713	31 673	39 719	44 717	54 713
	French Comm. (Belgium)	30 744	38 444	43 283	52 962	35 965	43 756	48 595	58 274
	England (UK)	16 461	a	a	26 034	16 461	a	a	26 034
	Scotland (UK)	26 895	35 763	35 763	35 763	26 895	35 763	35 763	35 763
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	30 651	m	m	m	30 651	m	m	m
	China	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	m	m	m	m
	Costa Rica	5 142 258	6 087 818	6 560 598	7 978 938	5 142 258	6 087 818	6 560 598	7 978 938
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Lithuania	9 803	9 897	9 960	10 054	9 803	9 897	9 960	10 054
	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: See *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 average of fixed bonuses for overtime hours for lower and upper secondary teachers.
4. Includes the social security contributions and pension-scheme contributions paid by the employers.
5. At the upper secondary level includes teachers working in vocational programmes. In Slovenia, includes only those teachers teaching general subjects within vocational programmes.
6. Actual base salaries.
7. Salaries after 11 years of experience for Columns 2, 6, 10 and 14.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4f. [1/2] Reference statistics used in calculating teachers' salaries (2000, 2005 to 2017)

		Purchasing power parity for private consumption (PPP)[1]				
		2015	2016	2017	Jan 2016	Jan 2017
		(1)	(2)	(3)	(4)	(5)
OECD	**Countries**					
	Australia	1.56	1.60	1.60	1.58	1.60
	Austria	0.85	0.85	0.85	0.85	0.85
	Canada	1.34	1.36	1.36	1.35	1.36
	Chile	445.77	455.09	455.09	450.43	455.09
	Czech Republic	14.25	14.28	14.28	14.26	14.28
	Denmark	8.33	8.42	8.42	8.38	8.42
	Estonia	0.61	0.61	0.61	0.61	0.61
	Finland	0.98	0.97	0.97	0.98	0.97
	France[2]	0.88	0.87	0.87	0.87	0.87
	Germany	0.84	0.83	0.83	0.83	0.83
	Greece	0.69	0.68	0.68	0.68	0.68
	Hungary	148.55	149.39	149.39	148.97	149.39
	Iceland	155.60	161.50	161.50	158.55	161.50
	Ireland	1.00	1.00	1.00	1.00	1.00
	Israel	4.48	4.42	4.42	4.45	4.42
	Italy	0.83	0.81	0.81	0.82	0.81
	Japan	109.24	107.15	107.15	108.19	107.15
	Korea	999.59	1 003.75	1 003.75	1 001.67	1 003.75
	Latvia	0.57	0.57	0.57	0.57	0.57
	Luxembourg	1.01	1.01	1.01	1.01	1.01
	Mexico	9.84	10.11	10.11	9.98	10.11
	Netherlands	0.89	0.89	0.89	0.89	0.89
	New Zealand	1.63	1.64	1.64	1.64	1.64
	Norway	10.20	10.50	10.50	10.35	10.50
	Poland	1.89	1.88	1.88	1.88	1.88
	Portugal	0.68	0.68	0.68	0.68	0.68
	Slovak Republic	0.55	0.55	0.55	0.55	0.55
	Slovenia	0.67	0.67	0.67	0.67	0.67
	Spain	0.74	0.74	0.74	0.74	0.74
	Sweden	9.43	9.58	9.58	9.51	9.58
	Switzerland	1.42	1.41	1.41	1.42	1.41
	Turkey	1.49	1.60	1.60	1.55	1.60
	United States	1.00	1.00	1.00	1.00	1.00
	Economies					
	Flemish Comm. (Belgium)[3]	0.87	0.88	0.88	0.87	0.88
	French Comm. (Belgium)[3]	0.87	0.88	0.88	0.87	0.88
	England (UK)[4]	0.81	0.80	0.80	0.80	0.80
	Scotland (UK)[4]	0.81	0.80	0.80	0.80	0.80
Partners	Argentina	m	m	m	m	m
	Brazil	2.04	2.19	2.19	1.88	2.19
	China	m	m	m	m	m
	Colombia	1 291.74	1 371.54	1 371.54	1 331.64	1 371.54
	Costa Rica	377.96	373.24	373.24	375.60	373.24
	India	m	m	m	m	m
	Indonesia	m	m	m	m	m
	Lithuania	0.50	0.51	0.51	0.50	0.51
	Russian Federation	23.86	24.88	24.88	24.37	24.88
	Saudi Arabia	m	m	m	m	m
	South Africa	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 for PPP for January 2016 refers to January 2015.
3. Data on PPPs and deflators refer to Belgium.
4. Data on PPPs and deflators refer to the United Kingdom.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4f. [2/2] Reference statistics used in calculating teachers' salaries (2000, 2005 to 2017)

		Private consumption deflators (2005 = 100)														Reference year for statutory salary data	Reference year for actual salary data
		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		
		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
	Countries																
OECD	Australia	88	100	103	106	110	113	116	118	121	124	127	130	131	132	2017	2016
OECD	Austria	91	100	102	105	107	108	110	112	115	118	121	123	124	125	2016/17	2015/16
OECD	Canada	91	100	101	103	105	105	106	108	110	111	113	115	116	117	2016/17	m
OECD	Chile	86	100	104	107	113	118	121	125	129	133	138	146	153	157	2017	2016
OECD	Czech Republic	90	100	101	104	108	111	112	113	115	117	117	118	118	118	2016/17	2015/16
OECD	Denmark	92	100	102	104	106	109	111	113	116	118	119	120	120	120	2016/17	2015/16
OECD	Estonia	82	100	105	112	121	126	128	134	141	145	148	148	149	149	2016/17	2015/16
OECD	Finland	93	100	101	103	106	108	110	113	116	119	121	122	123	123	2017	2015/16
OECD	France[2]	92	100	102	104	107	107	107	109	111	112	112	112	112	112	2016/17	2015
OECD	Germany	93	100	101	103	104	105	106	108	110	111	112	113	114	114	2016/17	2015/16
OECD	Greece	87	100	103	107	111	114	116	120	121	121	118	115	114	114	2016/17	2015/16
OECD	Hungary	73	100	103	108	115	121	125	130	136	142	144	144	144	144	2016/17	2016
OECD	Iceland	82	100	104	110	121	139	150	154	161	169	174	177	179	180	2016/17	2016
OECD	Ireland	83	100	102	105	107	105	100	100	101	102	104	105	106	107	2016/17	2015/16
OECD	Israel	93	100	102	104	107	111	114	118	121	123	124	124	123	123	2016/17	2015/16
OECD	Italy	87	100	102	105	108	109	110	112	115	117	118	118	118	118	2016/17	2015/16
OECD	Japan	105	100	100	99	99	98	96	94	94	93	94	95	95	94	2016/17	2015
OECD	Korea	84	100	102	104	107	111	114	117	121	123	124	125	126	127	2017	2017
OECD	Latvia	77	100	110	122	137	143	139	141	148	150	152	153	152	153	2016/17	2015/16
OECD	Luxembourg	90	100	103	105	108	109	110	112	115	117	118	118	118	118	2016/17	2015/16
OECD	Mexico	80	100	104	109	115	121	127	132	137	142	147	153	159	161	2016/17	2016/17
OECD	Netherlands	88	100	102	105	107	107	107	109	111	113	115	115	116	116	2016/17	2015/16
OECD	New Zealand	92	100	102	105	108	111	113	116	118	119	119	120	121	121	2017	2016
OECD	Norway	91	100	101	103	106	109	111	113	114	116	118	121	125	127	2016/17	2015/16
OECD	Poland	84	100	102	104	107	111	113	118	122	125	125	124	123	123	2016/17	2015/16
OECD	Portugal	85	100	104	107	111	111	111	113	115	116	117	118	119	119	2016/17	2015/16
OECD	Slovak Republic	76	100	104	108	111	114	115	117	122	125	125	125	125	125	2016/17	2015/16
OECD	Slovenia	76	100	102	106	111	114	116	117	119	121	121	121	120	120	2016/17	2015/16
OECD	Spain	85	100	104	107	111	112	113	115	118	120	121	121	121	120	2016/17	2016/17
OECD	Sweden	93	100	101	102	105	108	110	111	113	113	114	115	117	117	2016	2016
OECD	Switzerland	97	100	101	102	104	105	105	105	105	104	103	103	102	102	2017	2017
OECD	Turkey	28	100	109	118	128	138	147	160	174	186	199	212	227	235	2016/17	2015/16
OECD	United States	90	100	103	105	108	110	111	113	116	117	119	120	121	122	2016/17	2015/16
	Economies																
	Flemish Comm. (Belgium)[3]	90	100	103	106	109	111	111	114	117	119	120	120	121	122	2016/17	2015/16
	French Comm. (Belgium)[3]	90	100	103	106	109	111	111	114	117	119	120	120	121	122	2016/17	2017
	England (UK)[4]	95	100	102	105	108	111	112	115	119	121	124	125	126	126	2016/17	2015/16
	Scotland (UK)[4]	95	100	102	105	108	111	112	115	119	121	124	125	126	126	2016/17	2015/16
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Brazil	65	100	106	112	118	126	135	144	156	168	179	194	213	223	2017	2014
Partners	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Colombia	72	100	104	109	115	120	124	128	133	136	140	147	156	162	m	m
Partners	Costa Rica	56	100	115	129	144	154	159	167	173	178	185	189	188	188	2017	2016
Partners	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Lithuania	99	100	104	109	118	127	131	134	139	142	142	142	142	143	2016/17	2016/17
Partners	Russian Federation	48	100	110	120	132	148	160	172	185	196	210	235	264	276	m	m
Partners	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	South Africa	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 for PPP for January 2016 refers to January 2015.
3. Data on PPPs and deflators refer to Belgium.
4. Data on PPPs and deflators refer to the United Kingdom.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4g. [1/2] Trends in average teachers' actual salaries, in national currency (2000, 2005, 2010 to 2016)

Average annual salary (including bonuses and allowances) of teachers aged 25-64

		Pre-primary				Primary			
		2000	2005	2010	2016	2000	2005	2010	2016
		(1)	(2)	(3)	(9)	(10)	(11)	(12)	(18)
OECD	**Countries**								
	Australia	m	m	77 641	86 445	m	m	78 352	86 856
	Austria[1]	m	m	m	m	m	m	m	48 335
	Canada	m	m	m	m	m	m	m	m
	Chile	m	m	m	13 359 310	m	m	m	12 792 300
	Czech Republic	m	m	228 603	288 610	m	m	290 682	343 200
	Denmark[2]	m	m	372 336	372 319[b]	m	m	452 337	445 044[b]
	Estonia	m	m	m	9 606	m	m	m	14 283
	Finland[3]	m	m	29 759	32 736	28 723	35 654	40 458	44 278
	France	m	m	31 448	33 775	m	m	30 876	32 931
	Germany	m	m	m	m	m	m	m	54 747
	Greece	m	m	m	16 897	m	m	m	16 897
	Hungary	m	m	2 217 300	3 400 080	m	m	2 473 800	3 593 496
	Iceland	m	m	m	5 730 000	m	m	m	6 274 000
	Ireland	m	m	m	m	m	m	m	m
	Israel	m	m	110 959	156 585	m	m	123 151	164 323
	Italy	m	m	25 774	28 041	m	m	25 774	28 041
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	m	m	m	7 026	m	m	m	7 139
	Luxembourg	m	m	88 315	97 456	m	m	88 315	97 456
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	m	m	43 374	47 427	m	m	43 374	47 427
	New Zealand	m	m	m	m	m	m	m	69 588
	Norway	m	289 548	368 580	456 640	m	348 877	422 930	514 941
	Poland	m	m	40 626	49 555	m	m	46 862	57 477
	Portugal	m	m	m	31 995	m	m	m	29 401
	Slovak Republic	m	m	m	9 589	m	m	m	12 813
	Slovenia[4]	m	m	m	19 267[b]	m	m	m	24 315[b]
	Spain	m	m	m	m	m	m	m	m
	Sweden[5]	204 516	252 268	296 997	358 334	239 887	288 154	323 621	405 490
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	m	m	m	34 242	m	m	m	34 242
	United States	38 028	40 268	48 103	51 295	38 746	41 059	49 133	52 197
	Economies								
	Flemish Comm. (Belgium)	m	m	41 046	44 833	m	m	41 543	45 192
	French Comm. (Belgium)	m	m	m	43 622	m	m	m	42 865
	England (UK)	22 968	29 418	33 680	32 635	22 968	29 418	33 680	32 635
	Scotland (UK)[6]	m	m	31 884	33 534	m	m	31 884	33 534
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	41 278	m	m	m	42 661
	China	m	m	m	m	m	m	m	m
	Colombia	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	m	m	m	m	m	m	m	m
	Lithuania	m	m	m	10 617	m	m	m	10 617
	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 2014 (i.e. Columns 4 to 8, 13 to 17, 22 to 26 and 31 to 35) 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 headmasters, 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.4g. [2/2] Trends in average teachers' actual salaries, in national currency (2000, 2005, 2010 to 2016)

Average annual salary (including bonuses and allowances) of teachers aged 25-64

		Lower secondary				Upper secondary			
		2000	2005	2010	2016	2000	2005	2010	2016
		(19)	(20)	(21)	(27)	(28)	(29)	(30)	(36)
OECD	**Countries**								
	Australia	m	m	78 221	87 487	m	m	78 225	87 487
	Austria[1]	m	m	m	56 559	m	m	m	61 326
	Canada	m	m	m	m	m	m	m	m
	Chile	m	m	m	13 017 993	m	m	m	14 093 804
	Czech Republic	m	m	289 771	341 870	m	m	313 534	355 020
	Denmark[2]	m	m	457 728	449 917[b]	m	m	m	514 715[b]
	Estonia	m	m	m	14 283	m	m	m	14 283
	Finland[3]	32 919	39 519	44 421	48 796	37 728	44 051	49 808	55 020
	France	m	m	37 198	38 418	m	m	41 789	43 265
	Germany	m	m	m	60 476	m	m	m	64 000
	Greece	m	m	m	18 212	m	m	m	18 212
	Hungary	m	m	2 473 800	3 593 496	m	m	2 814 100	3 859 716
	Iceland	m	m	m	6 274 000	m	m	5 172 300	8 565 000
	Ireland	m	m	m	m	m	m	m	m
	Israel	m	m	126 309	177 428	m	m	133 790	166 928
	Italy	m	m	27 170	28 370	m	m	28 986	29 860
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	m	m	m	8 647	m	m	m	10 075
	Luxembourg	m	m	101 471	109 315	m	m	101 471	109 315
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	m	m	52 831	59 445	m	m	52 831	59 445
	New Zealand	m	m	m	70 997	m	m	m	76 423
	Norway	m	348 877	422 930	514 941	m	372 694	449 704	560 205
	Poland	m	m	47 410	59 473	m	m	46 147	57 988
	Portugal	m	m	m	28 909	m	m	m	31 489
	Slovak Republic	m	m	m	12 813	m	m	m	12 841
	Slovenia[4]	m	m	m	24 816[b]	m	m	m	26 220[b]
	Spain	m	m	m	m	m	m	m	m
	Sweden[5]	247 793	290 058	324 639	418 415	265 488	315 592	347 967	431 081
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	m	m	m	34 242	m	m	m	34 242
	United States	39 500	41 873	50 158	54 000	41 124	43 588	52 188	55 992
	Economies								
	Flemish Comm. (Belgium)	m	m	41 277	43 754	m	m	54 381	56 758
	French Comm. (Belgium)	m	m	m	41 820	m	m	m	53 183
	England (UK)	25 347	32 355	36 173	36 490	25 347	32 355	36 173	36 490
	Scotland (UK)[6]	m	m	31 884	33 534	m	m	31 884	33 534
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	43 621	m	m	m	45 242
	China	m	m	m	m	m	m	m	m
	Colombia	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	m	m	m	m	m	m	m	m
	Lithuania	m	m	m	10 617	m	m	m	10 617
	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 2014 (i.e. Columns 4 to 8, 13 to 17, 22 to 26 and 31 to 35) 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 headmasters, 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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).

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

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Table X2.5. Proportion of teachers, by level of qualification (2017)

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 2017	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2017	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 2017	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2017	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 2017	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2017	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 2017	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2017
		(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	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
	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	67	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	46	a	No	96	a	No	96	a	No	86	a
	Ireland	No	m	m	No	16	a	No	17	a	No	17	a
	Israel	No	72	a	No	63	a	No	50	a	No	49	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	2	33	No	55	a	Yes	11	37	Yes	9	33
	Latvia	No	100	a	No	100	a	No	100	a	No	100	a
	Luxembourg	No	76	a	No	83	a	No	69	a	No	84	a
	Mexico	No	m	a	No	m	a	No	m	a	No	m	a
	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	0
	Norway	No	m	m	Yes	39	37	Yes	39	37	Yes	9	53
	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	95	a	No	88	a	Yes	9	82
	England (UK)	Yes	0	99	Yes	0	99	Yes	0	100	Yes	0	100
	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
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	Yes	0	93	Yes	0	77	Yes	0	43	Yes	0	43
	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
	Lithuania	No	m	a	No	m	a	No	m	a	No	m	a
	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 (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
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Table X2.6. Percentage of pre-primary, primary, lower secondary and upper secondary teachers, by level of attainment (2017)

		Pre-primary			Primary			Lower secondary			Upper secondary		
		Attainment at ISCED level 5 or lower	Attainment at ISCED level 6	Attainment at ISCED level 7 or 8	Attainment at ISCED level 5 or lower	Attainment at ISCED level 6	Attainment at ISCED level 7 or 8	Attainment at ISCED level 5 or lower	Attainment at ISCED level 6	Attainment at ISCED level 7 or 8	Attainment at ISCED level 5 or lower	Attainment at ISCED level 6	Attainment at ISCED level 7 or 8
		(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	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
	Chile	1	99[d]	x(2)	1	99[d]	x(5)	1	99[d]	x(8)	0	100[d]	x(11)
	Czech Republic	77	15	8	7	4	89	6	5	89	3	3	94
	Denmark	m	m	m	m	m	m	m	m	m	0	0	100
	Estonia	33	43	24	9	20	71	5	16	79	3	13	84
	Finland	27	67	6	3	7	90	3	5	92	0	1	99
	France[1]	19	67	14	19	67	14	7	67	26	7	67	26
	Germany	m	m	m	0	0	100	0	0	100	0	0	100
	Greece	a	m	m	a	m	m	a	m	m	a	m	m
	Hungary	6	93	1	1	84	16	1	84	16	1	24	75
	Iceland	6	92	2	2	87	11	2	87	11	m	m	m
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	8	73	19	5	64	31	3	51	46	9	48	43
	Italy	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
	Korea	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	19	81[d]	x(2)	14	86[d]	x(5)	6	94[d]	x(8)	2	98[d]	x(11)
	Luxembourg	a	m	m	a	m	m	a	a	m	a	a	m
	Mexico	13	79	8	3	88	9	7	80	13	m	m	m
	Netherlands	a	83	17	a	83	17	a	62	38	a	62	38
	New Zealand	m	m	m	11	86	3	11	86	3	3	87	10
	Norway	4	95	1	3	91	6	3	91	6	1	47	52
	Poland	3	8	88	1	3	96	0	2	98	0	1	99
	Portugal	a	13	88	a	9	91	a	4	96	a	3	97
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	26	58	16	24	3	73	28	2	70	2	1	97
	Spain	0	100	0	0	100	0	0	0	100	0	0	100
	Sweden	45	52	3	5	71	24	4	24	71	3	14	83
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	m	m	m	m	m	m	m	m	m	m	m	m
	United States	2	47	51	2	42	56	2	39	59	4	34	62
	Economies												
	Flemish Comm. (Belgium)	1	99	0	1	98	1	0	100	0	0	0	100
	French Comm. (Belgium)	0	99	1	1	95	3	1	84	15	1	10	89
	England (UK)	m	m	m	m	m	m	m	m	m	m	m	m
	Scotland (UK)	m	100[d]	x(2)	a	100[d]	x(5)	a	100[d]	x(8)	a	100[d]	x(11)
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	28	72	0	23	77	1	11	87	2	5	92	2
	China	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
	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
	Lithuania	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.

1. Data for pre-primary level refer to pre-primary and primary level teachers combined. Data for lower secondary level refer to lower secondary and upper secondary combined.

Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2018-36-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:

http://dx.doi.org/10.1787/eag-2018-36-en

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Many people have contributed to the development of this publication.

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The OECD wishes to thank them all for their valuable efforts.

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Education at a Glance 2018

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Education at a Glance: OECD Indicators is the authoritative source for information on the state of education around the world. It provides data on the structure, finances and performance of education systems in the 35 OECD and a number of partner countries.

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