Chapter 5. Education

This chapter discusses the performance of higher education systems with regard to education and the many aspects of teaching and learning. The metric benchmarking presented covers all OECD member countries, while the policy and practice benchmarking covers the four jurisdictions participating in the benchmarking higher education system performance exercise: Estonia, the Flemish Community, the Netherlands and Norway. Where possible, the selected indicators are broken down by higher education level (e.g. bachelor's, master's, etc.) and field of study. Where data are available, this chapter also provides an analysis of the university or professional higher education institution (HEI) subsectors, reflecting policy interest in differences in performance of the different subsectors in their higher education systems.

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.

5.1. Introduction

The provision of opportunities for highly specialised education is a central function of higher education (UNESCO Institute for Statistics, 2012[1]), and it entails a wide range of coordinated activities by higher education institutions. This chapter presents data, policies and practices related to the performance of the education function of higher education systems. The discussion covers student access, both as part of initial education or later on as lifelong learning; the digitalisation and internationalisation of higher education; the students' experience within the system and whether they complete their studies; and the skills, labour market and social outcomes of graduates. However, this chapter does not systematically cover pedagogical practices at the teacher and student level due the lack of internationally comparable data on learning practices outcomes.

Higher education needs to continuously adapt to changing student needs. Students play various roles within higher education; they are an input to the system (as applicants and entrants), as well as active co-producers of the teaching and learning process (the activity stage of the education process, as it is labelled in Chapter 1). As graduates, they are also outputs of the system. Finally, their skills and knowledge help to create a range of outcomes as they contribute to society and the economy as citizens and employees (OECD, 2017[2]).

The size and composition of the student body are in continuous flux across OECD member countries. The total number of new entrants to higher education increased by around 30% between 2005 and 2016, on average across 12 OECD countries with available data, but very large variations in growth exist between countries. For example, while the number of new entrants almost tripled in Turkey and almost doubled in Mexico, numbers remained largely unchanged in Finland and the United Kingdom over the same period. Falling numbers are also in evidence in some cases; new entrants decreased by about one-fifth in Lithuania and by around one-third in Poland (OECD calculations from (OECD, 2018[3])).

In most OECD countries and economies, higher education is serving a younger and more internationalised student body than even a few years ago (OECD calculations from (OECD, 2018[3])), though specific national situations are very varied. Overall, among 12 OECD countries with available data, the average proportion of students younger than 25 increased by 4 percentage points between 2005 and 2016. Between 2013 and 2016, the international student body in OECD countries grew around 1%, continuing observed trends over a longer period of increases in the share of foreign students (OECD, 2018[4]).

Part-time student numbers are also fluctuating across countries. In about half of OECD countries, the number of part-time students increased from 2013 to 2016. This may be related to an increase in the number of students with work and family commitments and/or in the provision of part-time programmes in these countries. In other countries, part-time students are decreasing. For example, the proportion of part-time students decreased by over 5 percentage points in Finland, Poland and the Slovak Republic (OECD calculations from (OECD, 2018[3])).

A comprehensive assessment of performance of the education function of higher education systems would require a greater set of metric data than currently available. A discussion of some of the current data gaps is contained in the conclusion of this chapter (Section 5.10). Nevertheless, the analysis in this chapter highlights some important messages about higher education performance. More people than ever now have access to higher education; around 60% of young people are expected to enter a higher education

programmes in their country during their lives. Moreover, those who complete higher education have better basic skills, and they are more likely to find jobs. But the extent to which countries can foster effective systemic outcomes varies across the OECD.

The evidence presented in this chapter also shows that opportunities to enter higher education are not equally distributed: young people whose parents do not have a higher education qualification are between 40% and 60% less likely than other individuals to enter a bachelor's programme at least once. In addition, successful completion of higher education differs across countries. On average, around 30% of new entrants to bachelor's programmes have not completed three years after their expected time of graduation. Completion is particularly low among males and in some fields of study, for example, information and communication technologies (ICT).

Ensuring high quality, equitable and relevant education in the face of a continuously changing student profile is one of the core challenges of higher education. The high-performing systems of the future will be those that are able to anticipate and adapt the educational offering to meet student needs even as they become more diverse. As this chapter will show, a variety of policy responses aim to position higher education systems to overcome challenges related to the education function, including in the four participating jurisdictions. These include initiatives to better match students to suitable programmes for their needs and goals, financially supporting students, improving links between higher education and the world of work, and systematically collecting data on labour market demand and outcomes.

5.2. Access to higher education

The labour market and society of today require advanced knowledge and skills to prosper. A highly skilled workforce is recognised as a crucial ingredient for a strong innovation system which contributes to growth and a more socially inclusive society (OECD, 2015[5]). Further increasing participation in higher education in order to meet societal and labour market needs has been high on the public policy agenda of governments across most OECD countries, particularly in bachelor's and long first-degree higher education programmes (OECD, 2017[6]).

Participation in higher education has already improved dramatically in recent decades (see Chapter 1 and Box 5.8). Despite this improvement, expanding access to higher education remains an important policy goal. In 2017, half of OECD countries had campaigns in place to attract students to higher education. In addition, throughout the OECD area, governments use tuition fee and student financial support policies to improve participation across all demographic groups (OECD, 2017[6]).

5.2.1. Entry rates to higher education

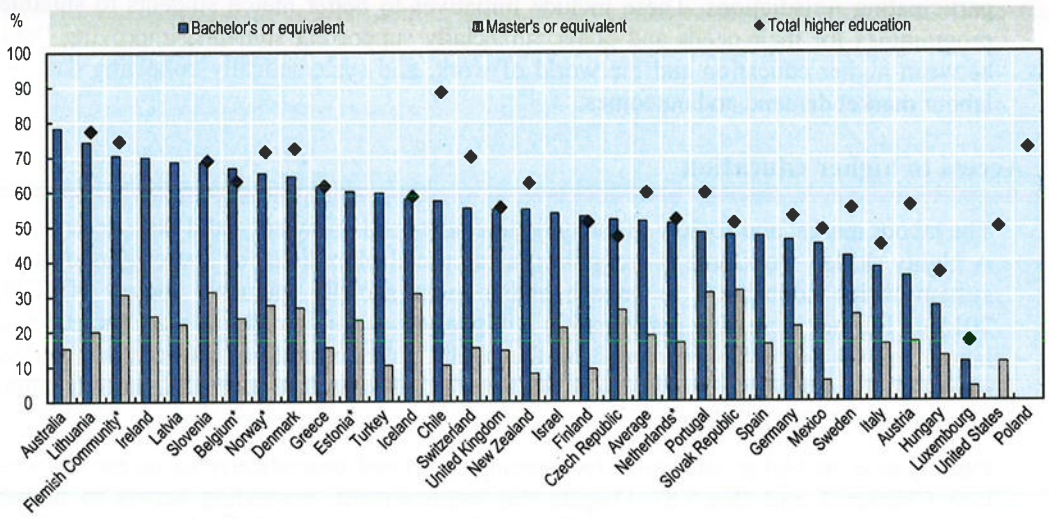
On average across OECD countries, it is estimated that around 60% of young adults will enter higher education (excluding international students) (Figure 5.1).[1] In the Flemish Community and Turkey, almost all adults are expected to enter higher education. In Turkey, many of them enter in short-cycle tertiary education programmes (short-cycle programmes) (Figure 5.2). In Australia and Lithuania, around three-quarters of young adults are expected to enter a bachelor's programme at least once in their lifetime. Over 30% of young adults are expected to enrol in master's programmes in the Flemish Community, Iceland, Portugal, the Slovak Republic and Slovenia, but the rate is lower in all other countries.

Participation in bachelor's programmes in all of the participating jurisdictions is in line with or above the OECD average (Figure 5.1). The Flemish Community and the Netherlands have open admission systems for short-cycle and bachelor's programmes that enable all applicants with the minimum qualification requirement to enter higher education. Entry to higher education in Estonia and Norway is more selective, but qualified applicants are usually able to find a place within the system (see Chapter 2). Throughout the chapter, the data for Estonia include all entrants instead of only new entrants, i.e. students entering a programme at a given higher education level for the second or further time are also included.

Master's programmes are also popular in the participating jurisdictions with the expected entry rate in Estonia, the Flemish Community and Norway higher than the OECD average. For the Netherlands, it is slightly lower than the OECD average, but data for this country exclude new entrants in private institutions.

Figure 5.1 First-time entry rates, by higher education level (2016)

Sum of age-specific entry rates, excluding international students



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The age-specific entry rates are the entry rates calculated for each age cohort in the population.
Estonia: Data include all entrants instead of only new entrants.
Netherlands: Data refer to public institutions.
Turkey: The data for total higher education are not reported because not consistent with data for the single levels of higher education.
Source: Adapted from OECD (2018[31]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940778

New entrants by higher education level and subsector

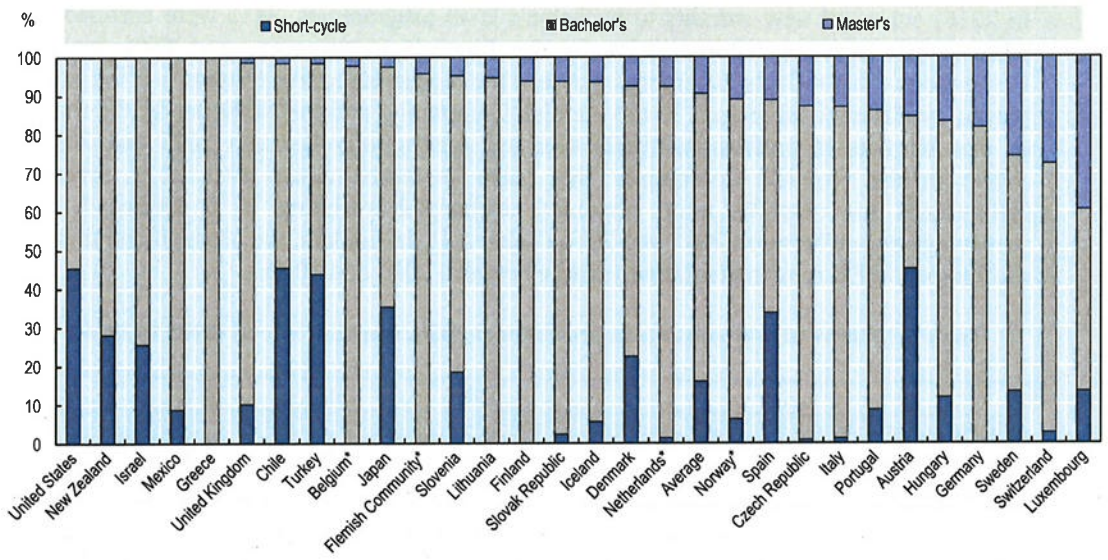
The distribution of new entrants by higher education level, shown in Figure 5.2, sheds some light on the structure of higher education systems. New entrants are those who have entered a study programme at a certain level of education for the first time in their life.

Bachelor's and short-cycle programmes are the point of entrance into higher education for most new entrants. On average across OECD countries, around three-quarters of new entrants enrol in a bachelor's programme, and around one-sixth in a short-cycle education programme.

New entrants can also access higher education at the master's level, typically in long first degrees of at least 5 years that do not require a previous higher education qualification for entry. On average across OECD countries, around 10% of new entrants follow this route into higher education.

Figure 5.2. New entrants to higher education by higher education level (2016)

Share of students entering higher education for their first time through a programme at the short-cycle, bachelor's or master's level



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Countries and economies are ranked in ascending order of the share of new entrants enrolled at the master's level. The share of students entering higher education for the first time through a doctoral programme is negligible in all higher education systems. Data on new entrants to short-cycle programmes are missing for the Flemish Community.
Netherlands: Data refer to public institutions.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940797

In some higher education systems, such as Finland and Germany, the share of new entrants to short-cycle education programmes is zero or negligible. This indicates that this type of programme does not exist in the higher education system or it only plays a marginal role.

Short-cycle education programmes (ISCED 5 level) were offered in Estonia until 2009, but they have since been re-classified as vocational education at lower levels of education. They are a relatively recent development in the Flemish Community and in the Netherlands. Short-cycle programmes at the ISCED 5 level are not recognised as part of

the higher education system in Norway and are offered through vocational colleges (see Chapter 2). However, Norway offers a two-year programme at ISCED 6 level (*høgskolekandidatgrad*) and students who successfully complete the two-year programme can enter into the third year of a bachelor's programme in the same field (see Chapter 2).

The participating jurisdictions also differ in the distribution of new entrants across subsectors. The existence of different subsectors enrolling a substantial share of students is a way to ensure some diversity of institutions and programmes in the higher education system. System diversity is associated with greater participation across countries, as students with diverse education needs can be accommodated (Reimer and Jacob, 2011[7]). Diversification can also lead to lower costs, as the education provided in professional HEIs tends to be less research-based (see Chapter 3) than in universities. Therefore, diversity can potentially contribute to the sustainable expansion of the higher education system.

In 2016, out of all new entrants to bachelor's level programmes, 31% were enrolled in professional HEIs in Estonia, 62% in the Flemish Community, and 69% in the Netherlands. This reflects differences between the higher education systems and the roles played by different subsectors. In the Flemish Community and the Netherlands, the share of new entrants in professional HEIs declined substantially between 2005 and 2011. While in the Flemish Community this share increased again after 2011, in the Netherlands the negative trend remained unchanged, resulting in a decline by 8 percentage points between 2005 and 2016 (Table 5.1). In Estonia, the share of entrants in professional HEIs remained relatively stable between 2011 and 2016.

Table 5.1. Share of new entrants in professional HEIs, bachelor's level (2005 to 2016)

	2005	2011	2014	2016
Estonia		31	29	31
The Flemish Community	64	55	60	62
The Netherlands	77	73	71	69

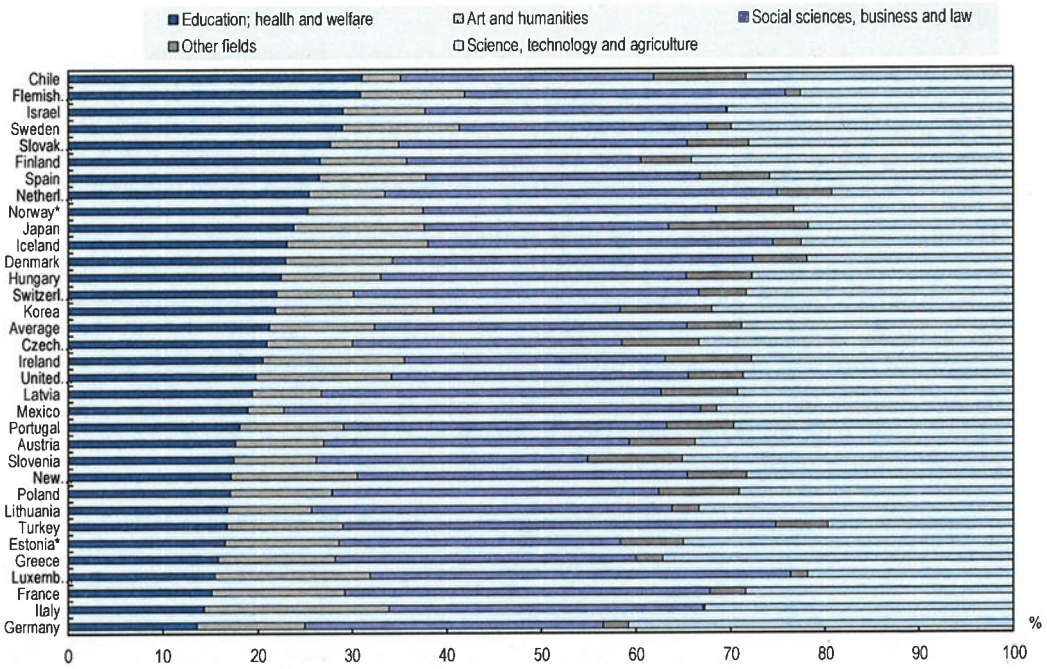
Note: The share of students in professional HEIs is calculated over the total number of new entrants in universities and professional HEIs. Institutions that are not classified in one of these two groups by the national statistical offices are excluded (for example, the Open University in the Netherlands).
Estonia: Data include all entrants instead of only new entrants.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Norway has three main types of higher education institutions: universities, specialised university institutions, and university colleges (see Chapter 2). These institutions were brought under the same legislative framework in 1995 (although the process of harmonising the legislative framework had started even earlier), and the differences between the two subsectors have gradually faded over time. Since 2003, Norwegian university colleges can be accredited as universities if they fulfil the requirements. A recent policy of institutional mergers further reduced the differences between subsectors, as some university colleges were either incorporated into universities or obtained university status as a result of the mergers. The fading distinction between the two subsectors did not diminish the degree of programme differentiation in Norway, where diversity in institutional profiles and missions remains an important policy goal.

New entrants by field of study

The distribution of new entrants across fields of study differs widely by country. Education and health and welfare, for example, account for over 30% of new entrants in Chile and the Flemish Community, and for less than 15% in Italy and Germany. Technical fields of study related to science, technology and agriculture represented over 40% of new entrants in Germany, and less than 20% in the Netherlands and Turkey (Figure 5.3).

Figure 5.3. Share of new entrants at all levels of higher education by field of study (2016)



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Data for all the ten fields of study in the ISCED classification are available in the *statlink* table.
Data refer to the sum of all new entrants to each level of higher education, rather than the sum of new entrants to higher education.
"Social sciences, business and law" refers to the fields of study of social sciences, journalism and information; and business, administration and law.
"Science, technology and agriculture" refers to natural sciences, mathematics and statistics; engineering, manufacturing and construction; ICT; and agriculture, forestry, fisheries and veterinary.
"Other fields" refers to generic programmes and qualifications; services; and field unknown.
Australia: New entrants who enrol in more than one field of study are counted more than once, rather than being pro-rated across fields of study.
Estonia: Data include all entrants instead of only new entrants.
Japan: Data on information and communication technologies are included in other fields.
Netherlands: Data refer only to public institutions, and exclude part of new entrants at the doctoral level.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940816

Among the eleven broad fields of study in the ISCED classification (UNESCO Institute for Statistics, 2014[8]), business, administration and law account for the largest share of

new entrants across all fields of study in most OECD countries, including in Estonia, the Flemish Community, the Netherlands and Norway. On average, over 20% of new entrants were enrolled in this field of study in 2016. This share was similar to that of Estonia and the Flemish Community, while it was about 5 percentage points higher than in Norway and 5 percentage points lower than in the Netherlands.

Some 16% of new entrants were enrolled in engineering, manufacturing and construction programmes, and 13% in health and welfare, on average across OECD countries. Around 10% studied arts and humanities, and about the same proportion choose social sciences, journalism and information. Education; natural sciences, mathematics and statistics; agriculture, forestry, fisheries and veterinary; and services each accounted for less than 10% of new entrants.

In all fields, the variation across countries is considerable. For example, in Estonia, the proportion of entrants in ICT was about 10%, twice as large as the OECD average. In Chile and Mexico, the proportion of new entrants enrolling in arts and humanities was below 5%, while it was well above 15% in Korea. Education was chosen as a field of study by less than 5% of new entrants in Italy, and by about 20% of them in Israel.

The distribution of new entrants by field of study varies substantially by higher education subsector (Table 5.2). Across participating jurisdictions with available data, there are some common trends. For example, natural sciences, mathematics and statistics account for a much larger share of new entrants in universities, possibly due to the more theoretical nature of programmes in this field. In contrast, health and welfare and services students make up a greater share of new entrants at professional HEIs across the jurisdictions with available data. This is linked to the mission of professional HEIs to provide occupationally specific and labour market relevant programmes.

Table 5.2. New entrants to bachelor's programmes by field of study and subsector (2016)

	Estonia			The Flemish Community			The Netherlands			Norway
	Universities	PHEIs	All HEIs	Universities	PHEIs	All HEIs	Universities	PHEIs	All HEIs	All HEIs
Education	6.8	0	6.3	1.2	17.7	7.8	1.3	11.6	9.7	10.5
Arts and humanities	17.5	9.4	12.7	13.3	7.2	11	7.4	7.1	8	12.8
Social sciences, journalism and information	9.6	0.7	7.6	11.7	5.3	10	23.8	5.1	12.5	13.3
Business, administration and law	21.8	20.1	21.3	26.2	21.3	23.9	29.1	27.8	29	17
Natural sciences, mathematics and statistics	8.8	0.6	6.3	5.6	1.7	3.9	13.4	1.8	6	6
Information and Communication Technologies	10.5	11.7	8.9	1.1	5.6	2.8	2.7	4.9	3.1	4.1
Engineering, manufacturing and construction	12.6	19.5	18.3	18.7	8.8	13.8	10.4	10.1	9.1	12.2
Agriculture, forestry, fisheries and veterinary	2.1	0	2.1	2	2.1	2.1	1.1	1	1.1	0.8
Health and welfare	4.5	25.4	10.1	20.3	27.7	23.1	10.8	20.7	15.7	14.8
Services	5.7	12.6	6.4	0.1	2.7	1.5	0.1	9.9	5.7	7.7

Note: PHEIs refers to professional HEIs; HEIs refers to higher education institutions.
Estonia: Data include all entrants instead of only new entrants. Almost all entrants studying ICT have been enrolled in universities since 2017/18, as a professional HEI specialising in this field was merged with a university.

Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

However, there are substantial differences across countries in the distribution of new entrants by field of study in each subsector. For example, the share of new entrants in arts and humanities was about twice as large in universities as in professional HEIs in the Flemish Community, but it was similar across subsectors in the Netherlands. The field of ICT accounted for a much smaller share of enrolment in universities than in professional HEIs in the Flemish Community and the Netherlands, but not in Estonia. In Estonia, the share of new entrants in ICT in universities, compared to professional HEIs, will increase further in the coming years due to the merger of a professional HEI focused on this field of study with a university.

Programmes in the field of education are only delivered in universities in Estonia, whereas they are mainly delivered in professional HEIs in the Flemish Community and the Netherlands. In the Flemish Community, universities only offer teacher education programmes for which a master's degree is required. Some teacher education programmes are taught in institutions called "centres for adult education" in the Flemish Community, but these will be moved to professional HEIs in the near future. In the Netherlands, teacher education has been an almost exclusive responsibility of professional HEIs since their recognition as higher education institutions in the 1980s. However, recently the minister has agreed to a joint proposal by the research universities to enable two-year education master's programmes, with a view to creating teacher education programmes that are more embedded in current research.

Universities and professional HEIs do not only differ by the fields of study they offer, but also in terms of the range of fields of study offered at the institutional level. When professional HEIs began operating in the Flemish Community and the Netherlands in the 1970s and 1980s, they tended to specialise in one or very few subject areas. This has changed due to a number of mergers between professional HEIs. Nonetheless, professional HEIs continue to be more focused on one or a few subject areas, compared to universities (Lepori and Kyvik, 2010[9]).

The programmes that institutions choose to offer and the programmes in which students choose to enrol can be influenced by government action. Governments often use a range of policy levers to encourage higher education institutions to deliver specific programmes that address labour market needs. In addition, they may also use financial incentives and information levers such as labour market information and awareness campaigns to encourage student enrolments in certain fields of study.

Estonia has been experiencing labour market shortages in the ICT sector over recent years and is currently also experiencing shortages in managerial, specialised education, legal and health care professions (OECD, 2017[10]). The proportion of students enrolled in the fields of study of education and health and welfare in Estonia is below the OECD average. Estonia has introduced a number of policies under its Lifelong Learning Strategy for 2014-2020 to encourage enrolment in these fields of study and address the associated labour market needs, including:

- Government-funded scholarships for students in teacher education: around one hundred scholarships were awarded to students in 2017. Higher education institutions select the beneficiaries of these scholarships based on their grades, study progress and on the field of study that they intend to teach after graduation.

- The selective *Noored Kooli* ("Young People to the Schools") scheme: bachelor's graduates from various fields of study can work as teachers for two years and receive training equivalent to one year of full-time study (60 ECTS). They can subsequently have these credits recognised in a teacher education programme.
- Exemption from tuition fees: students in teacher education and nursing do not pay tuition fees, regardless of their study progress.
- Exemption from the "one bachelor, one master" policy (see Chapter 3): this policy is not applied to teacher education and nursing programmes. Students enrolled in these programmes and studying in the Estonian language pay no tuition fees regardless of whether they have already gained a qualification in a different field of study in recent years.

The Digital Agenda 2020 for Estonia (Ministry of Economic Affairs and Communications, 2014[11]) sets out a range of measures to foster the use of ICT and the development of smart solutions in Estonia and thereby increase economic competitiveness, the well-being of people and the efficiency of public administration. As part of this strategy, Estonia is seeking to double the number of people employed in the ICT sector by 2020. It aims to achieve this through activities supported under the Estonian Lifelong Learning Strategy 2020, and has set a target of 29% of graduates in mathematics, science and technology and 800 ICT graduates per year by 2020 to meet labour market needs in the ICT sector. Initiatives under the Lifelong Learning Strategy 2020 are complemented by actions in the Digital Agenda 2020 that seek to promote ICT careers and studies, and raise the quality of higher education in ICT fields of study (Box 5.1).

As noted above, the proportion of entrants to ICT programmes is twice as large as the OECD average, at 10% in 2015. Maintaining this level of enrolments will be necessary to achieve graduate goals by 2020. The proportion of graduates from the "smart specialisation" fields of study (Box 5.1) was around 25% between 2013 and 2016, and the number of graduates in ICT studies (as defined at the national level) has grown from 485 in 2013 to 717 in 2017 (Estonian Ministry of Education and Research, 2018[12]), showing substantial progress towards the Lifelong Learning Strategy 2020 targets.

Box 5.1. Initiatives to encourage enrolments in ICT fields of study in Estonia

Estonia has introduced a range of policies to help achieve its targets for graduates from ICT fields of study:

- Scholarships aimed at encouraging full-time enrolment in the "smart specialisation" fields of study: Scholarships are provided to either 30% or 50% (depending on the field of study) of students in programmes in fields of study such as natural sciences; mathematics and statistics; ICT; and engineering, manufacturing and construction, depending on national priorities. The beneficiaries of the scholarships are chosen by higher education institutions, usually based on their grades and study progress. These scholarships are financed by the European Union through the European Social Fund.
- IT Academy: The Estonian Ministry of Education and Research funds the IT Academy, a joint initiative between higher education institutions, ICT companies and the government, that aims to develop the skills needed for the ICT industry

and build the sector by delivering highly qualified and specialist graduates with strong ICT skills. StudyITin.ee is managed by the Information Technology Foundation for Education (HITSA) and supported by the telecommunication company Skype Technologies. A range of initiatives are funded through the IT Academy including:

- Scholarships for master's students in ICT programmes: Students in computer science, cyber security, computer and systems engineering, and software engineering at Tallinn University of Technology and the University of Tartu are provided a scholarship of EUR 160-300 per month.
- Funding to support research in ICT: In 2018, an annual grant of EUR 3 million was provided to Tallinn University of Technology and the University of Tartu to support R&D in six key ICT areas selected by the IT Academy Steering Committee, which consists of representatives of the Ministry of Education and Research, the Ministry of Economic Affairs and Communications, and ICT companies. The measure is financed from the state budget and runs from 2018 to 2022.
- Grants to help students develop ICT skills: In 2018, grants (maximum of EUR 75 000 per project) were provided to higher education institutions to develop ICT curricula and to develop discipline-specific ICT skills in other curricula. Preference is given to projects that value co-operation and aim to develop higher economic growth and export capabilities.
- Infrastructure funding under the ASTRA programme 2014-2020 to support the delivery of ICT programmes: The government provides capital funding to support the construction of facilities to deliver ICT programmes, e.g. the new IT centre of the University of Tartu. This programme is partly financed by the European Union.

- A co-operation agreement ("research and technology pact") between interested ministries and other public and private parties. These parties are developing an action plan to popularise the ICT field of study among young people, increase the quality of the education in this field and encourage young people to work in the ICT sector.

The Netherlands is using a range of policies to address shortages of technically trained staff and the growing demand for knowledge and skills related to the application of technology in professions, including those outside of the technology sector (Techniekpact, 2016[13]). In 2012, the Netherlands, in its Science and Technology Master Plan, set a goal of 40% of secondary education and higher education graduates in science and technology programmes by 2025. This builds on an earlier plan (*Deltaplan bèta en techniek*) from 2003, which promoted the participation of both male and female students in science and technology.

The Dutch education community, business sector and government jointly developed the Technology Pact 2020 (*Techniekpact*) in 2013 to improve alignment between education and the technology job market, and address skills shortages in the area. The Pact includes measures that promote science and technology programmes, combat non-completion in higher education programmes, and encourage graduates from relevant programmes to work in science and technology related jobs. Leading firms pledged to provide 1 000 scholarships annually for high-performing science and technology students from 2016-17.

In 2017, twelve scholarship programmes had been established in six of the nine "top sectors" (Chapter 5) and 559 "top sector scholarships" were awarded in 2015-16. The Netherlands also has an agency (*Platform Bèta en Techniek*) in place since 2004 with the aim of promoting participation in study areas related to science and technology. Despite these efforts, the share of new entrants in ICT and in engineering, manufacturing and construction was below the OECD average in 2015 (Figure 5.3). Only 11% of new entrants in ICT programmes were female, and 21% in engineering, manufacturing and construction programmes (this is below the OECD average for both fields).

The Dutch Government has also introduced a package of initiatives to attract young people to enter teacher education programmes, and keep pace with a rising demand for early childhood education and care (ECEC), primary school and secondary school teachers. The "one bachelor, one master" policy (Chapter 3) is not applied in education and health and welfare programmes, thereby ensuring that all students enrolled in these programmes pay lower tuition fees regardless of whether they have already gained a qualification in a different field of study. In addition, the Government has agreed to a joint proposal by the research universities to allow two-year master's programmes in education to attract people into the profession. The proportion of new entrants in the field of study of education is 10% in the Netherlands, slightly above the OECD average.

In **Norway**, to address shortages in the teaching profession, graduates from teaching education programmes working as primary education teachers for at least three of the first six years after graduating can have part of their public loan (up to NOK 55 000) converted into a grant starting in 2025. Until that date, teachers who specialise in science, foreign languages or the Sámi language can receive another NOK 50 000 in debt relief, and those who work in Northern Norway up to NOK 20 000 (OECD, 2018[14]). About 10% of new entrants study education in Norway, above the OECD average.

5.2.2. New entrant profile

Countries can influence the profile of new entrants in higher education in a variety of ways. For example, student financial support can be targeted towards people with low income, and special provisions can make it easier for students with young children, or disabled and special-need students, to study at their own pace. As another example, advertising campaigns are sometimes designed to encourage women to enrol in fields of study related to science and technology, where most new entrants are males. This section explores some of the metric data related to the profile of new entrants, and the policies participating jurisdictions are using to influence the entrant profile, either in terms of student composition or of their programme choice.

Skills on entry

The quality of the potential pool of students is a crucial factor in the functioning of higher education. Incoming students need to have the appropriate foundation to succeed in higher education and acquire advanced skills and knowledge. The prerequisite skills can be developed in the workplace for older learners, but are most commonly developed in schools.

In absence of data on the skills of students entering (or potentially applying to) higher education, the results from the OECD Programme for International Student Assessment (PISA) on the reading proficiency of 15-year-olds can be used as a proxy. PISA results provide some information about the skills of the young students in the late stages of compulsory education, and are relevant as the majority of students still enter higher

education immediately or shortly after completing second level education. At the student level, better results in the PISA assessment are correlated with the intention to enrol in higher education (OECD, 2017[15]) and, in those countries with available evidence, they are also related to better school-to-further education transitions (Borgonovi et al., 2017[16]).

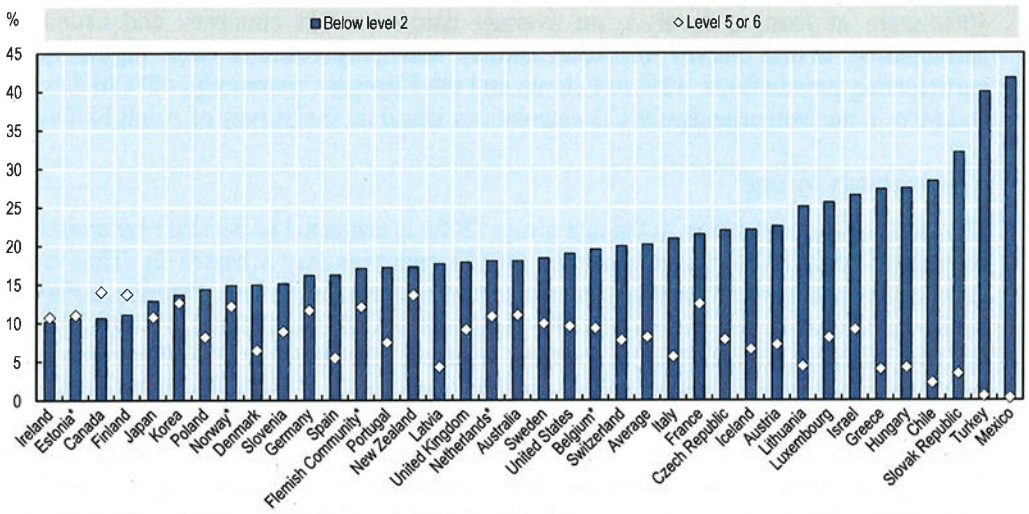
On average across OECD countries, 80% of 15-year-old students reach proficiency level 2 in reading in the PISA assessment (Figure 5.4). Level 2 is considered the baseline level of proficiency to participate effectively and productively in life.

The disparity between education systems is substantial. While in some education systems (e.g. Canada, Estonia, Finland and Ireland) about 90% of students reached proficiency level 2, in Mexico and Turkey less than 60% did. Participating countries in the benchmarking project tend to be among the best-performing countries. In the Flemish Community, the Netherlands and Norway, the proportion of students reaching level 2 in reading was between 80 and 85%.

Some 8% of 15 year-old students across OECD countries reach proficiency level 5 (the highest level of proficiency) in reading. This means that they can fully understand a text whose content or form is unfamiliar, and solve tasks requiring critical evaluation or hypothesis formulation. Over 10% of 15 year-old students reach this level in about one-third of the education systems, including Estonia, the Flemish Community, the Netherlands and Norway.

Figure 5.4. The reading proficiency of fifteen year-old students (2015)

Students at selected levels of proficiency in reading, as a percentage of all 15 year-olds



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Proficiency levels in PISA range from below level 1 (low proficiency) to level 6 (high proficiency).
Source: Adapted from OECD (2018[17]), *OECD Programme for International Student Assessment*, www.oecd.org/pisa/.

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Overall, **Flemish** 15 year-olds have consistently achieved results above the OECD average in PISA tests since they were first administered in 2000. For example, in

mathematics, the Flemish Community performs just below top performers such as Hong Kong (China), Japan or Singapore, and obtains similar scores to students in other leading countries in PISA – Estonia, Korea and Switzerland (OECD, 2016[18]; Nusche et al., 2015[19]).

The performance of **Estonian** students in the PISA assessments has improved substantially since 2006, and in 2015, it was among the best in Europe in reading, mathematics and science proficiency. A students' socio-economic background has a smaller impact on performance in Estonia than in other OECD countries (OECD, 2016[20]).

The performance of 15-year-olds in **the Netherlands** in reading, mathematics and science is above the OECD average. However, the performance of Dutch students has declined substantially since the start of the century. Between 2012 and 2015, the Netherlands experienced a particularly large performance decline in mathematics and science, while other leading education systems, such as Estonia, Japan and Singapore, improved their student performance in these two subjects (OECD, 2016[18]; OECD, 2017[21]).

Norway, meanwhile, is among the best-performing OECD countries in the PISA reading assessment, but it ranks closer to the OECD median in mathematics and science. There has been sustained progress in PISA's reading component over time, and scores for mathematics and science increased between the 2012 and 2015 (OECD, 2016[18]; OECD, 2018[22]).

Another possible source of new entrants to higher education is older adults (aged 25-64). Many of these adults are in the workforce and have an upper secondary or post-secondary non-tertiary education qualification, but no previous higher education qualification. Individuals in this socio-demographic group have relatively good literacy skills: around 40% score at least at level 3, on average across OECD countries and economies participating in the Survey of Adult Skills. This proportion is even higher in the participating jurisdictions: 42% in Estonia and the Flemish Community, 48% in Norway, and 60% in the Netherlands (OECD calculations based on the Survey of Adult Skills).

New entrants by age

The share of the population in the age group 15-24 is projected to decrease by around 2% from 2015 to 2030, on average across OECD countries (see Chapter 2). This rate of decrease is smaller in all participating jurisdictions: Belgium (0.9%), Estonia (0.7%), the Netherlands (1.6%) and Norway (1.7%) (United Nations Population Division, 2018[23]). Without counterbalancing factors, such as an increase of take-up in lifelong learning, a decrease in the size of young cohorts would translate in a decrease in the number of entrants and students (OECD, 2009[24]). This could result in higher education systems operating below their current capacity and an increase in costs per student (Ritzen, 2010[25]). A decrease in student numbers concentrated in specific regions could be particularly detrimental to the regional role played by higher education institutions (see Chapter 7).

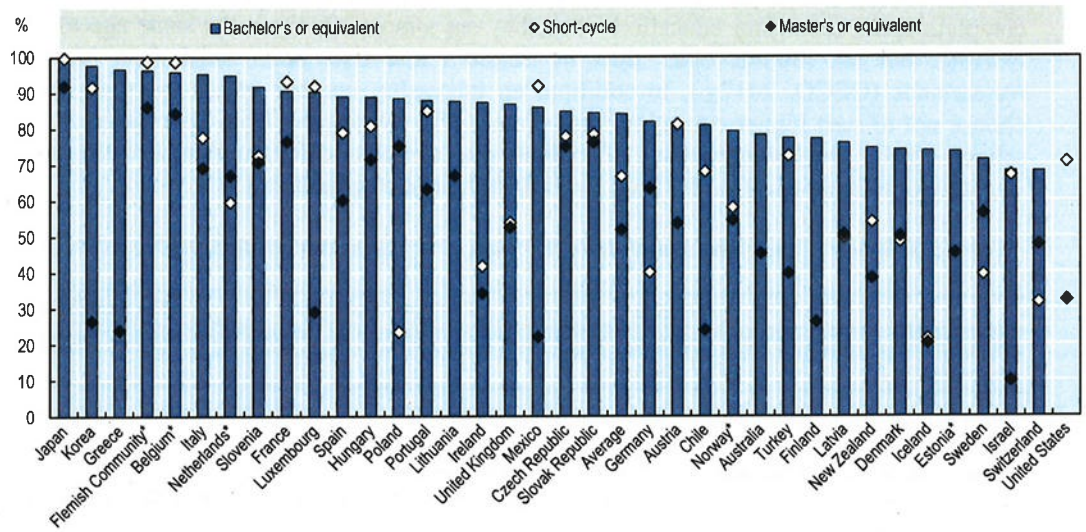
Across OECD countries, over 80% of new entrants to bachelor's programmes were younger than 25 in 2016. In some higher education systems, e.g. in the Flemish Community and the Netherlands, around 95% of new entrants to bachelor's programmes were younger than 25. At the other end of the range, only about two-thirds of bachelor's students in Switzerland were under 25. In Norway, the proportion of new entrants younger than 25 was around 80%, in line with the OECD average, while in Estonia it was

around 75%. The share of new entrants younger than 25 tends to be lower at the short-cycle level (around two-thirds, on average across OECD countries) and at the master's level (around one-half).

The Netherlands has a very high proportion of students younger than 25. Part-time students, and students who enter their programme when they are older than 30, are not eligible for student financial assistance in the Netherlands, which could deter older students from enrolling either part-time or full-time.

Figure 5.5. New entrants younger than 25 in higher education, selected education levels (2016)

New entrants who are younger than 25 as a proportion of all new entrants at the same education level



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The average for bachelor's and master's programmes is calculated across countries with available data for both series, while the average for short-cycle programmes is calculated separately.
Estonia: Data include all entrants instead of only new entrants.
Netherlands: Data refer to public institutions.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940854

The proportion of new entrants under the age of 25 to bachelor's programmes in Norway is just below the OECD average. As noted in Chapter 2, Norway uses a quota system to ensure both first-time students under the age of 21 (often those straight from secondary school) and those older are able to access higher education. Half the quota is reserved for students in the "first-time quota" and these students are admitted on the basis of performance in upper secondary school. The other half is reserved for older applicants who gain extra points for factors such as age, past education experience and military service. Some applicants within the latter quota have to re-sit exams to improve their upper secondary school results. The Norwegian higher education system is flexible and has quite high levels of part-time students who tend to be older (Section 5.3.1).

Data on the age distribution of new entrants by subsector are not generally available across OECD countries, but the age distribution of first-time graduates in the participating jurisdictions suggests that the share of older students is higher at professional HEIs than at universities, at least at the bachelor's level (Table 5.3). In Estonia, about one out of three bachelor's graduates from professional HEIs was 30 or older; nearly twice the proportion as at universities. In the Netherlands and the Flemish Community, between 7% and 8% of first-time graduates from professional HEI bachelor's programmes were in this age group, compared to 2% for university bachelor's programmes.

The higher proportion of older graduates in both universities and professional HEIs in Estonia could be partly due to the fact that Estonian data cover all graduates instead of only first-time graduates (i.e. students graduating at a given higher education level for the second or further time are also included). The higher proportion of older graduates could also be due to the structure of the education system. Estonian students, on average, complete upper secondary education when they are almost 19, about the same age as in Norway, but six months older than in Belgium and two years older than in the Netherlands (OECD, 2017[6]). In addition, an increasing number of Estonian students choose not to start higher education immediately after graduating from upper secondary school. Finally, the low proportion of students who complete their programme within the expected timeframe (Section 5.7) can also affect the age of graduation.

Table 5.3. Share of first-time graduates older than 30 by subsector, bachelor's level (2016)

	Estonia	The Flemish Community	The Netherlands
Universities	18.4	2.0	1.5
Professional HEIs	34.5	7.7	7.1

Note: First-time graduates are students who graduate for the first time at a given level of education during the reference period.
Estonia: Data include all graduates instead of only first-time graduates.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

The higher share of older adults among graduates of professional HEIs is consistent with their tendency to enrol in vocational programmes at lower levels of education (OECD, 2016[26]), and also with past evidence on non-traditional student participation across higher education systems (Schuetze and Slowey, 2002[27]). Many programmes at professional HEIs, including bachelor's programmes, are occupationally oriented with an emphasis on work-based learning. These characteristics may help adults to reintegrate into a learning environment and develop skills that will increase their employability. The cognitive development of adults is linked to the processing and re-organisation of their own experiences, so the connection with life and work experience can facilitate adult learning (Merriam, Caffarella and Baumgartner, 2007[28]).

New entrants by gender

On average across OECD countries, women represent around 55% of new entrants to higher education. They account for the majority of new entrants in all four participating jurisdictions. However, there are large differences in female participation across fields of study. On average across OECD countries, women represent over 75% of new entrants in the fields of study of education and health and welfare, and over 60% in the fields of humanities and art and social sciences, journalism and information. In contrast, they

account for less than 25% of students in engineering, manufacturing and construction and in ICT (OECD, 2018[3]).

These gender imbalances generally hold for the four participating countries as well. However, the degree to which the imbalance exists varies significantly. For example, the share of female new entrants in health and welfare is particularly high (over 80%) in Estonia and Norway. The share of women studying ICT is particularly low in the Flemish Community (7%). In some fields, the gender imbalance is less important in the participating jurisdictions than on average across OECD countries. For example, in Estonia over 25% of the ICT cohort are women (well above the OECD average, even though the gender difference is still considerable) and the Netherlands is one of the few OECD countries to have gender parity among new entrants in the arts and humanities (OECD, 2018[3]).

Several policy initiatives in the participating jurisdictions aim at closing the gender participation gap in the STEM fields of study (natural sciences, mathematics and statistics; engineering, manufacturing and construction; and ICT):

- The **Flemish** government annually monitors the participation of women in STEM programmes, and promotes information campaigns to encourage enrolment of women in this field.
- The **Dutch** government ran a number of information campaigns and targeted initiatives to increase female enrolment in STEM fields of study in the 1980s and 1990s. In the 2000s, the government turned towards more general efforts to enrol more students (including females) in STEM programmes. The share of women in STEM programmes is still relatively low in the Netherlands, but it has increased between 2004 and 2015 from 16% to 24% in professional HEIs and from 31% to 39% in universities (source: background information from the Dutch Ministry for Education, Culture and Science).
- In **Norway**, a recent media campaign was launched to encourage female enrolment in STEM fields of study.

New entrants from under-represented groups

Effective higher education systems guarantee high quality provision while ensuring equitable participation in and outcomes of higher education (OECD, 2017[2]). Inequality is on the rise across OECD countries, but education can play a fundamental role in bridging social gaps while ensuring sustainable economic growth (OECD, 2015[29]). Numerous background and circumstantial factors can jointly affect the outcomes of a person's life (Aaberge and Brandolini, 2015[30]). Key factors that can affect access, participation and outcomes across demographic groups in higher education include socio-economic background, race and ethnicity, gender, age and disability. However, demographic groups under-represented in higher education can vary across countries, and they are measured in different ways and to different extents. As a result, there are limited internationally comparable data on under-represented groups of students in higher education. This report focuses on socio-economic background, using parental education and immigrant background of entrants to higher education. In addition, circumstantial factors such as disabilities or the presence of dependent children are discussed within this section.

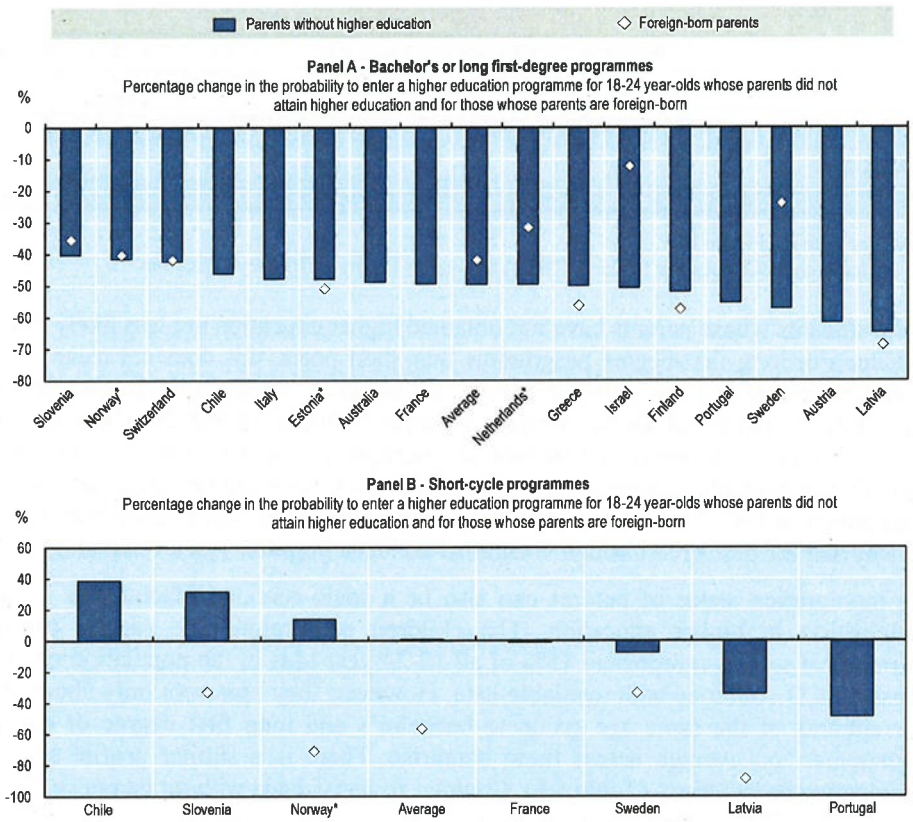
In countries with available data, there is substantial inequality of access to higher education based on the aforementioned factors (Figure 5.6). Young people with no family

background in higher education are much less likely than average to enter a bachelor's programme (or a long first degree). For example, in 2015, young people aged between 18 and 24 whose parents do not have a higher education qualification were between 40% (Slovenia) and 60% (Latvia) less likely than other individuals to enter a bachelor's programme at least once. Young Norwegians whose parents do not have a higher education qualification were about 40% less likely than other individuals to enrol in a bachelor's programme. In Estonia and the Netherlands, they were around 50% less likely.

Flemish data are not directly comparable with the data presented in Figure 5.6, but they show that parental education has an impact on youth participation in higher education. Overall, 66% of Flemish students leaving upper secondary education in 2015 (either with a diploma or not) entered a higher education programme in the Flemish Community within three years. That figure rises to 83% for graduates whose mother had a higher education degree and falls to 55% for students whose mother did not (OECD calculation based on Flemish administrative data).

In all countries with available data, the proportion of 18-24 year-olds without parents with higher education is substantially lower among new entrants in bachelor's or long first-degree programmes than in the overall population. On average across OECD countries with data, while about two-thirds of the population does not have parents with higher education, the share of this group among entrants to these programmes drops to around one-half. This profile is similar in the participating jurisdictions (Table 5.4).

Figure 5.6. Access rate gaps for 18-24 year-olds in selected critical demographic groups, relative to other individuals (2015)



How to read this chart: Panel A: In Slovenia, 18-24 year-olds without parents with higher education are about 40% less likely to enter a bachelor's or long first-degree programme than other 18-24 year-olds. Panel B: In Chile, 18-24 year-olds without parents with higher education are about 40% more likely to enter a short-cycle programme than other 18-24 year-olds.

Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.

The percentage change in the probability to enter higher education is derived as the distance from 100% of the ratio between: the share of individuals entering a programme at the specified level of education for the first time among the total population in the critical demographic group; and the share of individuals entering a programme at the specified level of education for the first time among the total population in the complementary demographic group. Students whose parents are foreign-born exclude international students. The average is calculated separately for the two series "parents without higher education" and "foreign-born parents".

Australia, Austria, Estonia, France, Greece, Lithuania, Portugal, and Switzerland: The year of reference is not 2015 for all series. Australia, Austria, Finland, Italy, Slovenia, and Switzerland: Data on international students are included in population data.

Estonia, Lithuania: Data do not refer to new entrants but to first-year students.

Finland, Greece, Italy, and Portugal: Data on international students are included among new entrants.

France, Italy: Data refer to a specific cohort of new entrants.

Greece: Population data include only students living with their parents.

Israel: In most cases, parental education has been inferred on the basis of mother's number of years in education.

Netherlands: For a large proportion of new entrants (about 40%), parental education is unknown.

Switzerland: Data include all, and not only new, entrants.

Source: Indicators of Education Systems (INES) Survey on Equity in Tertiary Education.

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Table 5.4. Proportion of 18-24 year-old new entrants to bachelor's and long first-degree programmes by parental education (2015)

	Proportion of new entrants whose parents do not have a higher education qualification	Proportion of overall population whose parents do not have a higher education qualification
Estonia	31%	46%
The Netherlands	56%	72%
Norway	39%	52%

Notes: See notes to Figure 5.6.
Source: Indicators of Education Systems (INES) Survey on Equity in Tertiary Education.

While students whose parents have not obtained higher education are less likely to enter a bachelor's or long first-degree programme than their peers, this does not mean that they do not participate in some form of education and skills development. In some countries (e.g. Chile, Norway and Slovenia), young people between 18 and 24 whose parents do not have a higher education qualification are more likely to enter short-cycle programmes than other individuals in the same age group. However, it should be noted that short-cycle programmes at ISCED level 5 are not considered part of the higher education system in Norway and are delivered through vocational colleges (*fagskole*) (see Chapter 2).

The immigration status of parents can also be a socio-economic factor that influences participation in higher education. The children of foreign-born parents (excluding international students) represent 15% of all 18-24 year-olds in the population on average across OECD countries with available data. However, they represent only about 10% of new entrants of the same age group to bachelor's and long first degree or equivalent programmes, on average across these countries. There is a similar profile among the participating jurisdictions (Table 5.5). Contrary to individuals without parents with higher education, children from foreign parents are not over-represented in short-cycle programmes (when compared to their share in the population) in any of the four countries with available data (Figure 5.6).

However, there is more variability across countries with regard to students from immigrant backgrounds, with the bachelor's entry rate gap for these students ranging from about 10% in Israel to over 60% in Finland in 2015. In Norway and the Netherlands, the gap was around 40%, and in Estonia it was around 50% (Figure 5.6).

Table 5.5. Proportion of 18-24 year-old new entrants to bachelor's and long first-degree programmes by parental immigrant background (2015)

	Proportion of new entrants with foreign-born parents	Proportion of overall population with foreign-born parents
Estonia	5%	9%
The Netherlands	13%	19%
Norway	10%	15%

Notes: See notes to Figure 5.6.
Source: Indicators of Education Systems (INES) Survey on Equity in Tertiary Education.

The differences in the results obtained with the two measures of socio-economic background could be partly explained by the heterogeneity of second-generation immigrants. In general, individuals with two foreign-born parents have been shown to be

at a disadvantage with regard to accessing higher education. However, some second-generation immigrants, for example those whose families come from certain regions, are equally likely or more likely than children from native-born parents to access higher education (Mühleck, 2013[31]).

The aspirations of students from an immigrant background are also an important factor to consider. Many migrants leave their country of origin with the intention of improving the economic conditions and well-being of themselves and their families. Their ambition to succeed is likely to have an impact on their children, who tend to be more strongly motivated to succeed than their peers. After accounting for socio-economic status and academic proficiency, immigrant 15-year-old students are eight percentage points more likely to expect to complete higher education than their native peers, on average across OECD countries and economies. However, many immigrant children are unlikely to realise their academic ambitions because they lack the necessary foundation of skills (OECD, 2018[32]).

In addition to socio-economic background, other characteristics can influence access to higher education. For a variety of reasons, disability can be a barrier to higher education. Disabled and special-needs students are less likely than other students to have the necessary entry requirements (typically, an upper secondary qualification) and they may be less prepared at the end of secondary education. Those who succeed in entering higher education may need special support and arrangements, even though they may be reluctant to report their special education needs to higher education institutions. In addition, they may lack the self-assurance needed to interact with other students and to succeed in academic work. Despite the difficulties to overcome, enrolling in and completing higher education is very important for disabled and special-needs people, as it substantially increases their employability and reduces the risk of being left out of the labour market and education system and becoming marginalised (OECD, 2011[33]).

Other life circumstances can also affect individuals' probability to enrol in and complete higher education. Having children to take care of makes it more difficult to balance time between child care, study and, in some cases, paid work. In some cases, staff and other students may have difficulties in adapting their behaviour to include students with children in the learning and social environment of the classroom, and institutions may not be able to accommodate their need for flexibility (Brooks, 2012[34]; Marandet and Wainwright, 2010[35]). Students with children also have different financial requirements than other students (Hauschildt, Vögtle and Gwosć, 2018[36]). This can reduce their willingness to enrol in higher education. The share of students with children tends to be very small at entry, and it increases slightly at graduation. For example, in Estonia, 4% of first-year 18-29 year-old students have at least one dependent child, compared to around 30% of all people in the same age group. In Norway, 3% of new entrants have children, compared to 5% of first-time graduates and 11% of all 18-29 year-olds (Table 5.6).

Table 5.6. Proportion of individuals with dependent children among new entrants, first-time graduates, and among all 18-29 year-olds (2015)

Bachelor's and long first-degree programmes, 18-29 year-old age group

	Canada	Estonia	Finland	Germany	Israel	Lithuania	Norway	Slovenia	Sweden	Switzerland	United States
New entrants		4.4	4.2		4.8	1.5	2.7	0.3	3.0	1.5	
First-time graduates	8.3		6.6	4.5	14.5		5.1	4.4	5.7	1.4	13.0
Overall population	13.5	31.0	14.8	16.5	19.4		11.0	12.4	14.1	8.2	20.7

Notes: Data include international students for Finland (all series), Germany (first-time graduates), Canada, Slovenia, Switzerland and the United States (population).
Canada: Year of reference is 2010.
Estonia and Lithuania: Data refer to first-year students instead of new entrants and to all graduates instead of only first-time graduates. Year of reference for new entrants is 2013 for Estonia and 2016 for Lithuania; for population it is 2011 for Lithuania.
Finland and Switzerland: Data include all graduates and new entrants (not only first-time graduates and new entrants); year of reference for new entrants is 2016 for Finland, and 2013 for Switzerland.
Germany: Data include only academic programmes and refers to 2013.
Slovenia: Data for population refer to 2011
United States: Data refer to 2012 for new entrants and population, and to 2008 for first-time graduates
Source: Indicators of Education Systems (INES) Survey on Equity in Tertiary Education.

A variety of policies have been put in place in the participating jurisdictions to support equity in higher education, ranging from targeted student financial support to provisions allowing students in particular conditions to proceed at their own pace (Table 5.7). For example, each of the participating jurisdictions offers means-tested or special grants to students in particular conditions. In addition, in Estonia, the Netherlands and Norway, disabled and special-needs students and students with children are granted exemptions from some academic obligations, allowing them to progress at their own pace.

Jurisdictions also vary in their overall approach to tackling this issue (Table 5.7). For example, Norway takes a "mainstreaming" approach to equity in higher education, where financial support in the form of grants and loans is provided to all students, rather than targeted at special groups. This could contribute to Norway's relatively high share of disadvantaged students among new entrants to bachelor's programmes. In contrast, the Netherlands monitors access to opportunities and various services (including higher education) by identified socio-demographic characteristics such as migrant status, but also gender, age, disability, or sexual orientation (OECD, 2018[37]).

Governments may also have a range of other policies to require or encourage higher education institutions to broaden participation and address equity issues through various initiatives such as admissions policies; recognition of prior learning; the provision of higher education in regional and remote areas, and to meet cultural needs.

Table 5.7. Selected policies to improve equity in higher education (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
Universal system of loans or grants	Yes		Yes	Yes
Means-tested grants	Yes	Yes (combined with reduced or no tuition fees)	Yes	
Tuition fees	No tuition for full-time students in Estonian-taught programmes	Capped tuition fees (dependent on student or parental income)	Capped tuition fees	No tuition fees in public institutions
Special provisions for disabled and special-needs students	Special grants; no tuition fees, independently of study progress	Reserved quota of international mobility grants	Special grants, exceptions to BSA	Special grants and loans
Special provisions for students with children	No tuition fees (independent of study progress); right to study during their academic leave		Special grants, exceptions to BSA, special funding arrangements for single parents	Special grants; academic leave for up to 49 weeks
Alternative ways of access to higher education for individuals who may not meet the usual admissions requirements (Chapter 2)		Yes	Yes	Yes
Special provisions for Indigenous minorities	Scholarships for young expatriate Estonians (Compatriots Programme) and Finno-Ugric people (Kindred Peoples Programme), covering tuition fees, living and travel costs			Study programmes in the three Sámi languages, and one specialised institution providing higher education responding to the needs of the Indigenous Sámi community (Sámi University of Applied Sciences, 2018[381])

Notes: BSA stands for Binding Study Advice (see Section 5.7).
See Chapter 3 for more information on tuition fees and student financial support.
In the Flemish Community, the reserved quota for mobility grants also applies to those who are beneficiaries of the means-tested grant. In this jurisdiction, there are no grants for students in short-cycle programmes (other than nursing), but certain categories of these students may be exempt from registration fees or only have to pay reduced fees. However, all students in short-cycle programmes will be eligible for a grant once these programmes are integrated in the professional HEIs on 1 September 2019.
In Norway, refugees also receive special grants and loans and students with a long, certified period of illness are able to convert their loans into grants.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

5.3. Lifelong learning

Higher education can support lifelong learning by providing opportunities for adults to continue to develop and gain new knowledge and skills throughout their lives. Supporting lifelong learning entails making higher education accessible for all adults, either to build upon their initial higher education qualifications, or to acquire new skills and

competencies. It also supports adults to gain an initial higher education qualification later in life. Lifelong learning can therefore help adults adapt to changes in their working careers (OECD, 2017[39]), join the labour force or improve their skills and knowledge to participate more actively in social life (Jamieson, 2016[40]).

Adult learning takes many forms, including formal and non-formal education, on-the-job training and informal education. This section deals with lifelong learning, i.e. learning that:

- happens in the context of formal higher education – institutionalised, intentional and planned education, which is provided by public organisations or recognised private bodies
- is not part of initial education – initial education refers to the education of individuals who are regarded by their society as children, youth and young adults, and is normally designed as a continuous educational pathway for full-time students before their first entrance to the labour market.

Chapter 6 complements this perspective with a view of the role of higher education in the provision of continuing education, including informal and non-formal education.

The majority of students in most OECD countries enter higher education straight from or soon after upper secondary school, and are therefore less than 25 years old. On average across countries with available data, over one-third of young people (excluding international students) are expected to obtain a higher education qualification before the age of 30 (OECD, 2018[4]). Despite these high participation rates, in all OECD countries there remains a large proportion of the population that could potentially access higher education later in life. This is important as people change careers over their working lives and seek new or higher level qualifications.

Governments have a number of policy options to stimulate participation of adults in higher education at different ages and phases of their lives, such as encouraging institutions to provide education on a modular or part-time basis. Policies directly or potentially affecting lifelong learning in the participating jurisdictions will be discussed in the second part of this section.

Government subsidies for student financial assistance can also have an influence on the uptake of study opportunities in higher education at all stages of life. For example, some countries do not differentiate between full-time and part-time students in terms of the subsidy they provide to institutions (i.e. the subsidy allocated is based on student load), for tuition fees or access to student loans or grants.

5.3.1. Part-time studying across OECD countries

Many adults who are interested in participating in higher education have family and work commitments which make it difficult to follow the traditional, weekday, full-time student schedule. Systems that provide options for flexible and part-time education provision can therefore be more successful in increasing participation in lifelong learning.

On average across the 28 countries participating in the EUROSTUDENT survey, 70% of students pursue paid work. While about 20% of these students only pursue paid work during periods without classes, the remaining 50% do so during the class period. The proportion of students pursuing paid work during the class period is about three times higher among students who are 30 or older than among students younger than 22, reflecting the fact that older students tend to be more likely to work while studying

(Hauschildt, Vögtle and Gwosć, 2018[36]). In addition, 7% of students have interrupted their studies in the past for various reasons and about 35% of students identify themselves primarily as workers and not as students (Hauschildt, Vögtle and Gwosć, 2018[36]), which highlights the need for flexibility in higher education systems.

Part-time students are a very heterogeneous group in terms of their aims, expectations and attitudes, as well as their reasons for studying (Callender, Hopkin and Wilkinson, 2010[41]). The incidence of part-time study varies across OECD countries and there are also substantial differences in part-time enrolment across levels of study. Part-time courses might be delivered during the day, evening or in intensive study sessions of a duration of a few days. Part-time study is also defined differently across countries. In some countries, students' intended study load determines their status (students with an intended study load lower than 75% of a full-time load are considered part-time, by the international definition). Other countries classify students as part-time only if they attend specific programmes for part-time students.

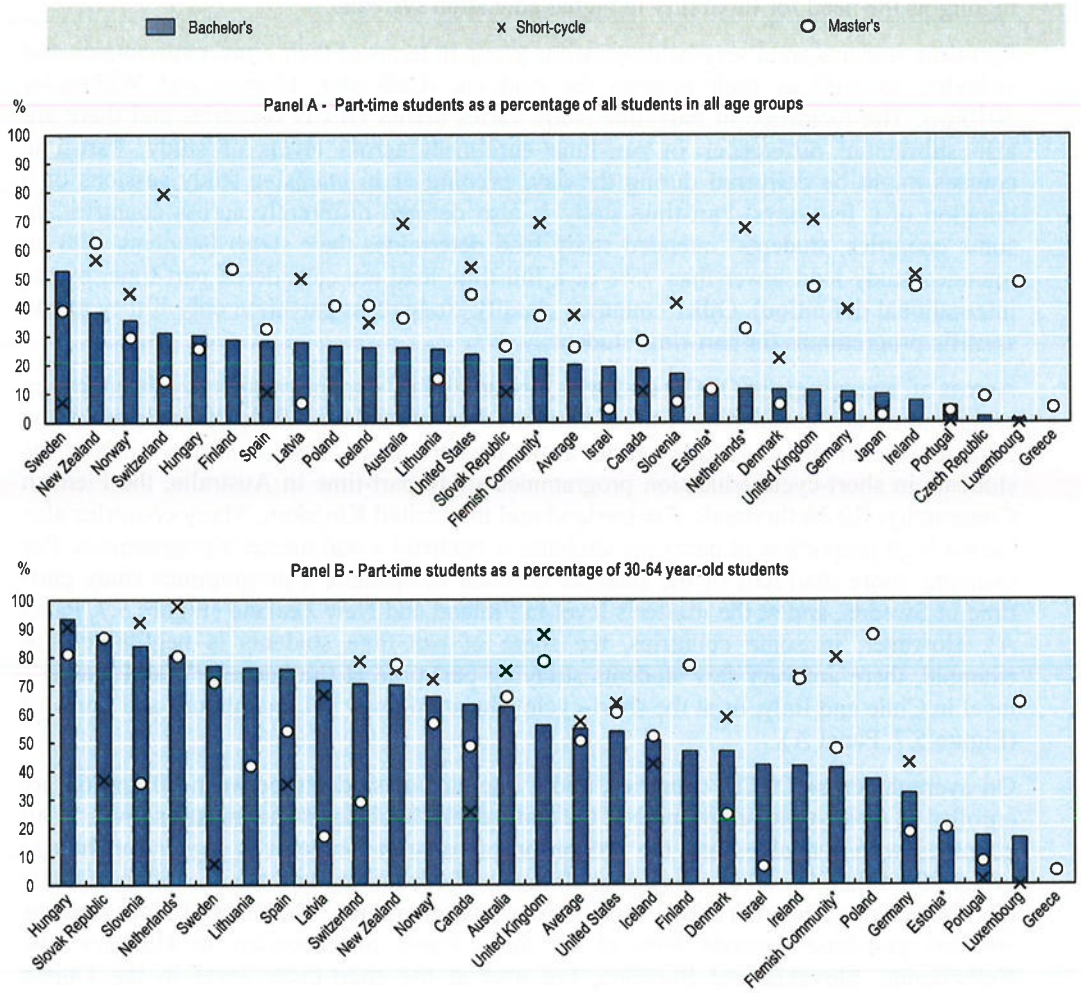
Across all age groups in OECD countries, about 40% of students in short-cycle education programmes are enrolled part-time, compared to around one-fifth of students at the bachelor's level and about one-quarter at the master's level. More than two-thirds of the students in short-cycle education programmes study part-time in Australia, the Flemish Community, the Netherlands, Switzerland and the United Kingdom. Many countries also have a high proportion of part-time students in bachelor's and master's programmes. For example, more than half of the students enrolled in bachelor's programmes study part-time in Sweden, and at the master's level in Finland and New Zealand (Figure 5.7, Panel A). However, in some countries, the share of part-time students is negligible. For example, there are very few students studying part-time at the bachelor's and master's level in Chile and Italy, or at the short-cycle education level in Luxembourg and Portugal (Figure 5.7, Panel A).

On average across OECD countries, about one-half of students between 30 and 64 are enrolled in a part-time programme at the short-cycle, bachelor's and master's level. In all countries with available data, the proportion of part-time students is higher for the age group 30-64 than for all age groups at all levels of education, with the exception of Chile (short-cycle programmes) and Greece (master's programmes). The share of older students enrolled part-time exceeds 80% at all three levels of education in Hungary, the Netherlands, Slovakia and Slovenia, but also at the short-cycle level in the United Kingdom, and at the master's level in Poland.

In Estonia and the Netherlands, the proportion of students studying part-time in bachelor's programmes is between 10% and 15%, below the OECD average. However, the two countries differ substantially in the proportion of 30-64 year-old students in part-time programmes, which is below 25% in Estonia and over 80% in the Netherlands.

The proportion of students studying part-time in bachelor's programmes is around 20% in the Flemish Community, just above the OECD average, and it is around 35% in Norway. For the 30-64 year-old age group, this proportion is 65% in Norway, over 20 percentage points higher than in the Flemish Community.

Figure 5.7. Proportion of part-time students in higher education, by age and ISCED level (2016)



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The average for bachelor's and master's programmes is calculated across countries with available data for both series, while the average for short-cycle programmes is calculated separately.
Belgium: Data are not included in the chart because they follow a different statistical definition and therefore they are not comparable with those for the Flemish Community and for other jurisdictions.
Chile: Year of reference 2013.
Italy: Year of reference 2015.
Netherlands: Data refer to public institutions.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940892

In the participating jurisdictions with available data, the share of bachelor's part-time students is larger in professional HEIs than in universities. The relative difference is particularly large in the Netherlands, where the share of part-time students is very low (1%) in universities, and it is eight times higher in professional HEIs.

Table 5.8. Proportion of part-time students in bachelor's programmes, by subsector (2016)

	Estonia	The Flemish Community	The Netherlands
Universities	8.9	27.8	1.1
Professional HEIs	11.4	36.9	8.3

Note: Students are considered part-time in the Flemish Community if their intended study load is smaller than 90% of a full-time equivalent. Therefore, the data by subsector for the Flemish Community are not directly comparable with the data by subsector for Estonia and the Netherlands and with the data presented in Figure 5.7 (which are based on the international definition of 75% of a full-time equivalent).
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Lifelong learning is a priority for **Estonia**, which introduced the Estonian Lifelong Learning Strategy 2020 in 2014. The Strategy aims at ensuring everyone has access to learning opportunities that are tailored to their needs and capabilities throughout their lives (Estonian Ministry of Education and Research, 2014[42]). Through implementing the range of measures in the Strategy, Estonia aims to have 20% of adults (25-64 year-olds) participating in lifelong learning at all levels of education by 2020. (Estonian Ministry of Education and Research, 2014[42]). In 2015, only 12% of adults participated in lifelong learning, but by 2017 this had increased to 17% (Estonian Ministry of Education and Research, 2018[12]).

However, the proportion of part-time students in Estonia is relatively low, as shown in Figure 5.7. While higher education is free for full-time students studying in the Estonian language in Estonia, part-time students usually have to pay tuition fees. Full-time students who do not gain at least 75% of the credits corresponding to a full-time workload during the academic year are considered part-time, and can be required to partially reimburse study costs. Part-time students have access to a student loan. Nonetheless, as noted in Chapter 3, the interest rate on loans in Estonia is quite high and the uptake is very low (11% of higher education students benefited from a public loan in 2016).

The **Flemish Community** is the only jurisdiction in the European Union which requires all higher education institutions to offer part-time studies, and all degree programmes must be provided in the form of flexible learning pathways. The Flexible Learning Paths Act (2004) provides the framework to supports flexible pathways, based on a definition of study programmes as an aggregate of modules, each of which is a well-defined unit of learning, teaching and assessment activities. Higher education institutions validate the completion of a module by issuing a credit certificate. Tuition fees are based on the number of credits that students are enrolled in, and there is no distinction between part-time and full-time students in terms of financial support. This, together with other policies on flexible study provision, is likely to contribute to the comparatively high share of students studying part-time.

In the flexible study programme system, students can:

- indicate whether they plan to complete the programme and take on a degree (a "degree contract") or they intend to only enrol in specific modules and credits (a "credit contract")
- enter into an agreement to take exams, under certain conditions imposed by the board of the institution, to obtain a degree or a credit certificate without attending classes ("exam contract").

The short-cycle education programmes, currently delivered by specialised institutions (centres for adult education), also provide a great deal of flexibility for students. These programmes are offered in modules, with subjects sub-divided into a number of modules that can lead to certificates. Several modules together make up the programme, however, students can enrol in single modules. The modules are delivered during the day or evening and on Saturdays. They can be delivered through face-to-face classes or in a combination of face-to-face learning and distance learning. The short-cycle programmes will be offered by professional HEIs from 2019.[2]

In the **Netherlands,** part-time students account for a relatively low proportion of all students (Figure 5.7), and also tend to be older. Part-time students, and students who enter their programme when they are older than 30, are not eligible for student financial assistance in the Netherlands, which can deter participation in lifelong learning, although a special "lifelong learning credit" is available to them since 2017 (see Chapter 3).

Students older than 30 often pay higher tuition fees as a result of the "one bachelor's, one master's" policy. This policy requires students who have already completed a higher education programme to pay higher tuition fees when enrolling in another programme at the same level of education (see Chapter 3).

Following a 2014 review of flexible higher education for the working population to examine the causes behind the relatively low participation in part-time higher education in the Netherlands, a number of initiatives were introduced (see Chapter 3) including:

- A learning outcomes pilot scheme introduced in 21 professional HEIs through 500 part-time and dual study programmes[3] in 2016. This scheme allows higher education institutions to award credits based on learning outcomes, rather than a fixed amount of study hours, which can lead to bachelor's degrees. Institutions can also use the validation of prior learning, workplace learning, and online learning to provide a more customised study experience for students. The programme will be fully evaluated by 2020.
- A pilot voucher system introduced in September 2016 with a small number of ICT programmes, which extended to health programmes in 2017. Students in these programmes can receive vouchers to enrol in modular and part-time education.
- Employees in the private sector can apply for a EUR 1 250 voucher to undertake modules in higher education programmes while working.
- A lifelong learning credit introduced in 2017 to improve the participation of part-time students and those aged 30-55. Beneficiaries of the lifelong learning credit can borrow up to five times the legal tuition fee at similar conditions as other students.

In **Norway**, a country with a relatively high share of part-time students, no distinction is made between part-time and full-time students in terms of tuition fees. Higher education is free, but there are some differences in terms of financial support. Only students with an intended study load of 50% or higher are eligible for grants and loans from the State Educational Loan Fund, and only students studying full-time qualify for the maximum amount of financial support. Most public higher education institutions in Norway offer a number of their programmes and subjects in a flexible mode (online, mixed mode, part-time). In addition, the use of ICT in higher education ensures programmes are increasingly flexible and accessible.

5.4. Digitalisation and online learning

Digitalisation and online learning provide students with more opportunities to access higher education and can provide important opportunities for lifelong learning by allowing students to gain qualifications and improve skills while continuing to meet work and caring commitments. Digital and online learning can also enable full-time students to better balance study and work – an important consideration, as many students work while studying to cover their living costs. Many of the traditional forms of distance education are incorporating forms of online learning, so that face-to-face interaction is not abandoned, but blended with digital and online learning (Brussels Education Services et al., 2014[43]). Online learning ranges from "web supplemented" education, which makes some limited use of online resources (e.g. online availability of lecture notes, email communication), to "fully online" education, where face-to-face interaction with teachers is not required at all (OECD, 2005[44]).

5.4.1. Distance and online education in the participating jurisdictions

Internationally comparable data on the prevalence of online learning activities in higher education across the OECD are not generally available, though recent technological developments are making this type of education more widely available to students. Online learning is available in all participating jurisdictions and, depending on the higher education institution, programmes can be offered through blended learning (a combination of face-to-face and online learning) or, in the Flemish Community, the Netherlands and Norway, entirely online (see Table 5.9).

Table 5.9. Selected policies on digital and online learning (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
Provision of online modules in higher education	Yes	Yes	Yes	Yes
Ability to complete an entire programme through online modules	No	Yes	Yes	Yes
Competitive funding to stimulate innovation in online education	No	No	Yes	Yes
Establishment of a national agency or organisation responsible for digital and online learning in higher education	Yes	No	Yes	Yes

Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

While the design and delivery of online learning is the responsibility of higher education institutions in most countries, governments support the use of online learning in higher education through a range of policies.

Most Estonian higher education institutions offer some distance education programmes, which include some face-to-face classes through intensive study sessions in higher education institutions (usually Thursday to Sunday, once a month). Estonia is also working to reinforce the use of e-Learning across the higher education sector. Key supporting policies include:

- The BeST e-learning programme, supported by EUR 7 million from the EU Social Fund from 2008 to 2013, aimed to reinforce the use of e-learning; increase the quality of formal education and other forms of training; increase the diversity of studies; contribute to an increase in the mobility of students; and improve

access to studies in various regions of Estonia. Over 4 600 e-courses were developed under the programme and it led the creation of education technology and multimedia specialist positions, as well as e-learning support staff in higher education institutions.

- The non-profit Information Technology Foundation for Education (HITSA) was established by the government, the University of Tartu, Tallinn University of Technology, the private company Telia Eesti AS and the Estonian Association of Information Technology and Telecommunications. HITSA is responsible for ensuring the quality of online modules and teaching staff, including the issuance of a "quality e-course" label to certify providers. HITSA also provides analytical insight and promotes knowledge sharing in international networks on education, information systems and infrastructure. In addition, it monitors progress in the utilisation of information technologies in education, and initiates and leads development projects in this area (HITSA, 2018[45]).

Distance education in the **Netherlands** has been provided since 1984 by the Open University of the Netherlands, which has the mission of providing alternative pathways to higher education. It offers distance education, including accredited bachelor's and master's degrees. All Open University programmes are provided either completely online or in mixed mode. There are no entry requirements (except a minimum age of 18), and students can enrol for only some specific modules and exams, without having to sign up for a full degree. The Open University of the Netherlands offers distance learning in Flanders as well, with some support from Flemish universities.

Higher education institutions, the Ministry of Education, and the Netherlands Organisation for Scientific Research (NWO) jointly fund the *Samenwerkende Universitaire Reken Faciliteiten* (SURF), which provides access to internet and ICT facilities to higher education students and staff. SURF has an annual budget of around EUR 100 million. Some funds are targeted to specific projects, e.g. funds for innovation that is to contribute to the e-infrastructure (e.g. for high performance computing, supercomputer and grids). SURF supports knowledge exchange among higher education institutions, provides analysis related to experimental projects in the area of online and digital education, and contributes in various ways to the broader use of learning analytics and big data in education.

As part of its 2015 strategic agenda on higher education (The Value of Knowledge, 2015), the Dutch government established the Incentive Fund for Open and Online Education in 2014 to enhance quality, efficiency, access and student success in higher education by using open and online education. The competitive funding programme ran from 2015 to 2018 and provided EUR 1 million annually to institutions. The fund is managed by SURF. In 2015, 45 proposals were submitted and funding was awarded to 11 institutions. In addition, as part of the strategic agenda, the Dutch Government is providing an additional 10% of a special budget (*Studievoorschot*) every year to facilitate digitalisation and improve infrastructure, including digital infrastructure (see

Chapter 3).

Norway has a long history of policies to widen participation through distance learning, due to its sparsely populated areas (OECD, 2018[14]). About 8% of students in higher education in Norway were enrolled in online distance education programmes in 2015. Most public higher education institutions report having students enrolled in online distance courses. The largest proportion of distance learning students is found in

relatively small higher education institutions, located in sparsely populated areas. Online distance education courses can be delivered in either a fully online or a mixed mode format (i.e. partly on campus and partly online).

Norway also has a government agency that supports digitalisation in higher education and online learning. The Norwegian Agency for Digital Learning in Higher Education (*Norgesuniversitetet*) was recently merged with two other agencies (the Norwegian Centre for International Co-operation in Education (SIU) and the Norwegian Artistic Research Programme) into a new agency to promote quality in research and higher education more broadly. The new agency is called the Norwegian Agency for International Co-operation and Quality Enhancement in Higher Education (Diku). It provides funding to support a range of initiatives, including the development of new approaches to active learning and digital learning. The agency will continue to conduct a periodic survey on the state of digitalisation and distance learning in higher education. The survey covers various topics such as the diffusion and perceived effectiveness of digital and online learning.

Massive Open Online Courses (MOOCs) have also become an alternative online delivery mode for higher education since they emerged in 2012. MOOCs are online distance education courses that are free of charge and that can be accessed by everyone without entry requirements (OECD, 2016[46]). As they become more common, there is increasing debate on the recognition of credits earned through MOOCs within the higher education sector. Ten Norwegian institutions offered MOOCs in 2017, while in the same year, there were about 150 MOOCs offered by Dutch higher education institutions (source: background information from the Norwegian Ministry of Education and Research).

The Norwegian government established a commission in 2013 to assess the opportunities offered by MOOCs (Norwegian MOOC Commission, 2014[47]). The commission concluded that MOOCs offer the potential to improve distance education, especially when they complement existing types of distance and online provision. By integrating the current offer of online learning, they offer an additional opportunity to promote higher education abroad, reduce the costs of provision and expand access to higher education throughout life.

5.5. Internationalisation

The demand for higher education worldwide and the recognised value of studying abroad have contributed to a diversified flow of international students. International students are those who left their country of origin and moved to another country for the purpose of study. Foreign students are those who study in a country different than their country of citizenship, independently of their purposes (e.g. they might have moved to the country for other reasons and proceeded to study there later).

In 2015, about 4.6 million students were enrolled in higher education institutions outside their country of citizenship (OECD, 2017[6]). In some countries, at some levels of higher education, international students can account for well over one-third of total enrolment (Figure 5.8). But internationalisation can take many forms. Teaching and research staff also move across borders (Chapters 3 and 5). Institutions can deliver programmes abroad through distance education, franchised programmes, foreign campuses (OECD, 2008[48]), or joint and double degree programmes. Both joint and double degree programmes are integrated study programmes. A joint degree programme provides a single degree awarded by two or more institutions, while a double degree programme provides two

degrees separately by the institutions involved (Schüle, 2006[49]). In some cases, national regulations may not permit the conferring of joint degree qualifications, leading to issues around the legitimacy of qualifications and their recognition. As a result, double degree programmes are more common than joint degree programmes (Knight, 2011[50]).

Internationalisation policies and international students can also contribute to the learning of all students through internationalisation at home, which is "the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments", with the aim to develop international and intercultural knowledge, skills and attitudes for all students, regardless of whether they also take part in mobility opportunities (Beelen and Jones, 2015[51]). International students can contribute to internationalisation at home when they interact actively with local students. However, in many countries, the interaction between international and domestic students is relatively limited (ESAA, 2017[52]).

Host countries stand to benefit from international students for a variety of reasons. These include 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 innovation in the host country, initially as students and potentially later on as researchers or highly qualified professionals (OECD, 2016[53]).

A large number of international students in a country can indicate perceived quality of the education provided by the higher education system, and as such can be seen an indication of how attractive the country is as a study destination. However, other factors, including the recognition of foreign degrees and work carried out abroad; the language of instruction; geographical, trade or migration links between countries; and the overall quality of life in the host country can also play a role (OECD, 2017[6]).

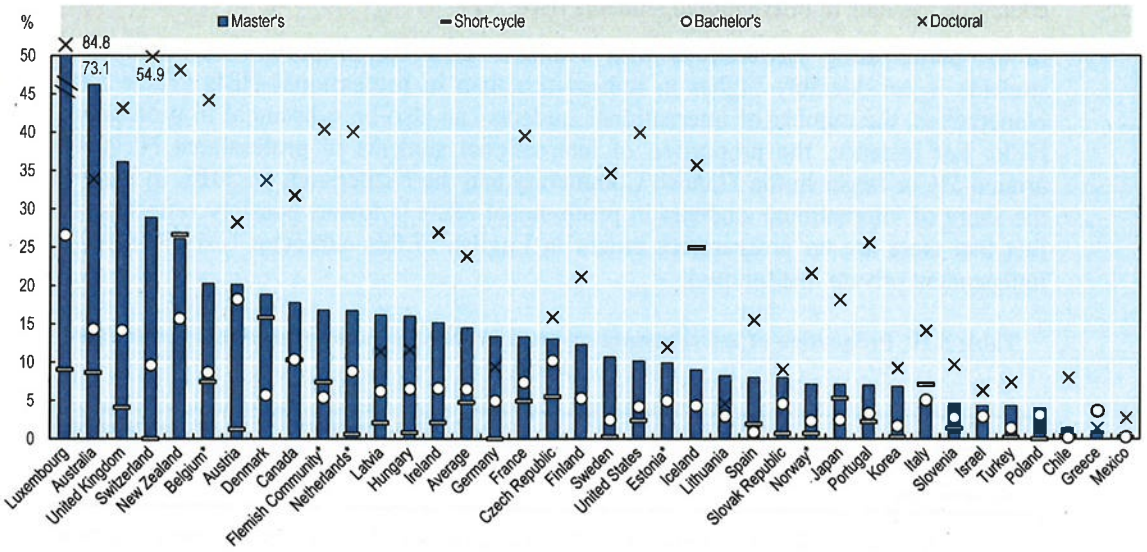
This section examines the prevalence of student mobility across the OECD, as well as initiatives to promote internationalisation in higher education in Estonia, the Flemish Community, the Netherlands and Norway. Policy options to encourage and make the most of internationalisation range from promoting the higher education system abroad and allowing teaching in different languages (which happens in all participating jurisdictions), to charging higher tuition fees to international students to reap a direct economic benefit (the Flemish Community and the Netherlands).

5.5.1. Student mobility

In the OECD area, international students represent 6% of total enrolment in higher education (OECD, 2018[4]). On average across countries, the proportion of international students is much higher at the doctoral (around 25%) and master's (around 15%) than at the bachelor's level (less than 10%) (Figure 5.8). The data refer to degree mobility, i.e. students moving to another country to earn a degree there. The OECD average of this particular indicator is affected by a few countries (Luxembourg and some English-speaking countries) with very large shares of international students, at least partly due to geographic or linguistic reasons (for example, the emergence of English as the *lingua franca* of teaching and research – see below). Therefore, even shares of international students close to the OECD average can be interpreted as a sign that jurisdictions are relatively effective in attracting international students.

Figure 5.8. International students in higher education (2016)

Proportion of international students, by education level



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The average for bachelor's, master's and doctoral programmes is calculated across countries with available data for all three series, while the average for short-cycle programmes is calculated separately.
Belgium: Data on short-cycle tertiary programmes are based on nationality and refer to the Flemish Community only.
Belgium, the Flemish Community and the Netherlands: Data exclude the Open University of the Netherlands.
The Czech Republic, Greece, Hungary, Israel, Italy, Korea, Mexico, the Slovak Republic and Turkey (all education levels) and the Flemish Community (short-cycle level): Data reflect the proportion of foreign students instead of international students. Foreign students are those who are not citizens of the country in which the data are collected.
Denmark: Students who have completed a bachelor's degree as international students and subsequently enrol in a second programme (e.g. master's programme) are not counted as international students.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933940911

Luxembourg has the largest proportion of international students at all three levels (over 70% at the master's and doctoral level, and over 20% at the bachelor's level), which reflects the unique circumstances of this small country in Europe. Other countries with particularly high proportions of international students include many English-speaking countries; Australia and the United Kingdom at the master's level, Austria and New Zealand at the bachelor's level, and New Zealand and Switzerland at the doctoral level. In contrast, the proportion of international students in Mexico is below 3% at all three levels.

In Estonia, the share of international students is below the OECD average at all levels of higher education, but it has been growing rapidly over recent years (by a factor of four in the last 5 years, for all higher education levels combined). The proportion of international students is relatively low in Norway as well, particularly at the bachelor's and master's level. In the Flemish Community, the proportion of international students at the bachelor's level is slightly below the OECD average, but it is in line with the OECD

average at the master's level and higher at the doctoral level. In the Netherlands, the proportion of international students is above the OECD average both at the bachelor's and master's level. All participating jurisdictions are actively promoting their higher education systems to international students (Box 5.2).

In the participating jurisdictions with available data, the proportion of international students is considerably higher in universities than in professional HEIs (Table 5.10). Nonetheless, the number of international students can also be substantial in professional HEIs. For instance, the proportion of international students in professional HEIs was around 5% or larger in the Flemish Community and the Netherlands in 2016. In Estonia, the share of international students in professional HEIs is lower, possibly reflecting the fact that there are no programmes taught in English in this subsector (except in a few independent private institutions).

Table 5.10. Proportion of international students in bachelor's programmes by subsector (2016)

	Estonia	The Flemish Community	The Netherlands
Universities	7.6	6.3	13.1
Professional HEIs	1.2	4.8	7.4

Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Students can also study abroad in the form of credit mobility. In this case, they undertake part of their studies at an educational institution abroad (without completing a programme there), and they are credited at their home institution. In 2016, 9% of bachelor's and master's graduates had a study period or a work placement abroad of at least three months, on average across the countries of the European Union. Two-thirds of them experienced credit mobility under an EU programme, including Erasmus+. In the Netherlands, 22% of bachelor's and master's graduates experienced credit mobility, and in Norway, 11% (calculations based on Eurostat (2018[54])).

Estonia, the Flemish Community and Norway have set targets to encourage outgoing credit mobility. These goals are inspired by the aim of the EHEA (2009[55]) that at least 20% of students graduating in the European Higher Education Area (EHEA) should have had a study or training period abroad by 2020. Based on the current national rates of outgoing mobility, Estonia has set a target of 10% of graduates with experience abroad, and the Flemish Community has set a target of 33%. Norway followed the EHEA in adopting a target of 20% for 2020, but in the longer term it is aiming for 50% of graduates with a study or training period abroad.[4]

English has emerged in the last decades as the *lingua franca* for teaching and research in an academic setting. The use of English makes higher education programmes more attractive for international students, and integrates researchers more effectively in the international research network (Rostan, 2011[56]; Kirkpatrick, 2014[57]). In all participating jurisdictions, higher education institutions are permitted to teach in languages other than the official language (typically, English instead of Dutch, Estonian or Norwegian). According to a survey by the Academic Co-operation Association (Wächter and Maiworm, 2014[58]), about one-third of higher education institutions offered English-taught programmes in short-cycle or bachelor's education, on average across 27 European countries. This proportion was over 60% in the Netherlands, around 40% in Norway, and around 30% in Estonia.

Another key factor influencing the international mobility of students is the tuition fees they pay, as there are substantial differences in this area across countries. The average annual tuition fee paid by foreign students in public institutions for enrolling in a bachelor programme in 2014 ranged from over USD 14 000 in Australia, Canada, New Zealand and the United States (where foreign students paid on average twice as much as national students) to zero in Finland, Iceland, Norway, the Slovak Republic and Slovenia. The available data show that countries charging higher tuition fees to foreign students can benefit substantially in financial terms. However, the recent tuition fee reforms implemented in Denmark, New Zealand and Sweden also show that tuition fees can have a large impact on the number of incoming international students (OECD, 2017[59]).

Box 5.2. Initiatives in the participating jurisdictions for promoting their higher education system to international students

As many countries and institutions increase their efforts to attract international students, a large number of OECD countries have developed national communication strategies to promote their higher education sector abroad (Sataøen and Wæraas, 2016[60]). A number of OECD countries have national agencies which support and promote international education and academic co-operation, e.g. the British Council in the United Kingdom; the German Academic Exchange Service or *Deutscher Akademischer Austauschdienst* (DAAD) in Germany; and Campus France in France. Similarly, the Netherlands, Norway and Estonia have established agencies to support and promote the internationalisation of education at all levels.

The Archimedes foundation promotes Estonian higher education and research abroad, and coordinates and implements a number of international programmes, including Erasmus+, a European study exchange programme. Estonia provides a number of scholarship programmes for international students coming to Estonia and for Estonian students studying abroad.

The Netherlands has been promoted as a study destination for international students for many years through Nuffic, an independent non-profit organisation, which promotes the Dutch education system online and through its offices around the world. Nuffic also manages scholarship programmes, supports institutional co-operation, and collects and publishes statistics on student mobility.

Norway has had an agency to promote the country as a study destination since 1991. The Centre for International Co-operation in Education (SIU) was established in 1991 and became a public sector agency under the Ministry of Education and Research in 2004. SIU was merged into a new public sector agency that promotes the quality of higher education more broadly in January 2018. The new agency, the Norwegian Agency for International Co-operation and Quality Enhancement in Higher Education (Diku), will continue to deliver the services and activities of SIU and therefore manage international education programmes and initiatives, promote international education in Norway, and provide information and advisory services on the internationalisation in education.

In line with European Union policies to promote mobility across the European Union and associated regions, international students from the European Economic Area (EEA)[5] and Switzerland studying within this area pay the same tuition fees as national students. However, institutions within the EEA can charge higher fees to students from other countries. As a result, students from outside the EEA and Switzerland in the Flemish

Community and the Netherlands pay, on average, substantially higher fees than national students (see Chapter 3). On the other hand, neither EEA nor non-EEA students in Norway pay tuition fees at public and private government-dependent institutions.

Many OECD countries offer scholarships for incoming and outgoing mobile students through bilateral or multilateral international co-operation programmes, and specific agencies that promote the country to international students (Box 5.2). European-wide programmes such as Erasmus+ and Erasmus Mundus play an important role in supporting student mobility in all four jurisdictions. There are also a number of scholarship programmes for students between the European area and other parts of the world. For example, the Flemish Community and a number of other European and Asian countries jointly deliver the Asia-Europe Meeting-Duo (ASEM-DUO) programme to support study abroad opportunities between these jurisdictions. In addition, many governments establish their own study abroad scholarship programmes to support student mobility.

While not aimed at attracting international students to **Estonia**, the tuition fees policy could encourage some international students to study there. As noted in Chapter 3, tuition fees are based on language of instruction rather than citizenship. The government subsidises programmes in the Estonian language and they are free to all students demonstrating sufficient study progress. Higher education institutions are allowed to charge tuition fees for programmes taught in other languages; however, many institutions choose to either not charge tuition fees or offer scholarships that cover tuition fees to international students enrolled in programmes taught in other languages, in order to reach institutional targets for international students. One year of free language classes in Estonian is also available to international students before commencing a programme in Estonian.

The Flemish Community attracts one of the highest levels of doctoral level international students (38%) across OECD countries, but the proportion of international students at the bachelor's level is 5%, below the OECD average, and it is in line with the OECD average at the master's level. An action plan, "Brains on the move", was introduced in 2013 to increase student mobility. The Government aims to increase the number of mobile students, including those from under-represented groups who should account for 33% of all mobile students.

The Flemish Community also aims to increase the number of incoming students through grants and through the "Study in Flanders" project, which was expanded to include a new "Research in Flanders" project. The mobility programmes include:

- The ASEM-DUO Fellowship Programme – a student exchange programme between Flanders and ASEM countries in Asia. Students receive a grant to study abroad and receive recognition for their exchange from the home institution.
- The "Mobility with countries in transition" programme, which supports student mobility between Flanders and Brazil, South Africa, Morocco and Turkey. Both Flemish and international students are eligible for the grants. Students receive recognition for their exchange from the home institution.

In **the Netherlands**, the proportion of international students at the bachelor's level is around 10%, and 15% at the master's level, which is in line with or above the OECD average for both levels. There are no data on international doctoral students in the Netherlands.

Legislation in the Netherlands states that teaching and examinations in higher education must be conducted in Dutch. However, institutions have been able to deliver a large number of English-taught programmes through a clause allowing them to use other languages when necessary due to the content or quality of teaching, or the origin of students or lecturers.

Faced with the increasing offer of English-taught programmes, the Dutch Ministry consulted the Royal Netherlands Academy of Arts and Sciences (KNAW) on the state of language policy in higher education. KNAW found that English offers many potential advantages as a medium of instruction, including facilitating internationalisation and preparing students for an international labour market. However, the Academy suggested that it can also make it difficult for some students (especially those from a disadvantaged background) to succeed in higher education (KNAW, 2017[61]). In addition, KNAW noted that the development of English as the main language of research and academic teaching could create distances between academia and the Dutch-speaking community. This report could feed into future policy discussion on the balance between the benefits and challenges posed by internationalisation.

In addition to providing scholarships to attract international students, the Netherlands encourages Dutch students to study abroad through scholarships for outgoing bachelor's and master's students with excellent academic records. Dutch students are also able to take their student financial assistance with them wherever they study. Student financial assistance has been portable in the Netherlands since 2007. Students studying at a recognised programme in any country of the world can benefit from the same grants and loans as they would at home.

Norway has one of the lowest proportions of international students at all levels of higher education among OECD countries, especially at the bachelor's level. Legislation first granted the right to teach in a foreign language in 2002, and the share of modules taught in languages other than Norwegian (language studies excepted) increased to around 20% in 2016 (Norwegian Ministry of Education and Research, 2017[62]). However, most of the programmes taught in English are offered predominantly at the master's and doctorate level (Norwegian Ministry of Education and Research, 2017[62]). It is rare for bachelor's programmes to be taught in a language other than Norwegian (OECD, 2018[14]), although practically all higher education institutions provide some courses in English at the bachelor's level for incoming international exchange students.

Table 5.11. Selected policies on internationalisation in the participating jurisdictions (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
Difference in the tuition fees paid by national and foreign students	No	Yes	Yes	No
Possibility to teach modules and programmes in English	Yes	Yes	Yes	Yes
National target for the proportion of graduates with education or training experience abroad in 2020	10%	33%	Nil	20%
Financial support for outgoing mobility	Yes	Yes	Yes	Yes
Existence of a national agency or organisation with some responsibilities on the internationalisation of higher education	Yes	No	Yes	Yes

Notes: In all four jurisdictions, international students from Switzerland or from countries in the European Economic Area pay the same tuition fees as national students.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

5.5.2. Brain drain, brain gain and brain circulation

Increased student and labour market mobility has generated new opportunities for higher education institutions and economic systems, but also raised concerns in some countries about losing highly qualified graduates who go to work abroad. Most OECD countries compete for global talent, but it is also important to ensure a fair share of the gains to their international partners (OECD, 2008[48]).

The concept of brain drain (or brain gain, depending on which perspective is taken) has been used to reflect the permanent emigration of skilled workers and professionals from their countries of origin towards countries with more developed economies. At the global level, the potential benefits of internationalisation could be lost if too few mobile students return to their country of origin. Brain circulation (or brain exchange) is used to denote a situation of free talent flow in which complex mobility patterns, often involving multiple moves across countries, benefit sending and host countries alike (OECD, 2008[48]). Host countries benefit most clearly from the pool of qualified individuals entering their countries to study or work, while the countries of origin can benefit from the increased human capital of returnees, but also through the establishment of social and business networks with the more developed countries where they work.

International student mobility is likely to benefit both host and sending countries, although this depends on the share of students staying in their host country or returning to their home country after their studies (Bergerhoff et al., 2013[63]). Students coming back to their home countries with more experience and human capital are likely to contribute more to the development of their economy and society than students who move abroad permanently. In a similar way, international students staying to work for some years in their host country give a more direct contribution to its economy. In 2009, between one-sixth and one-third of international students with a residence permit changed their residence status to stay on in their host country, across 14 OECD countries including the Netherlands and Norway (OECD, 2011[64]).

In Estonia in 2015, the proportion of international graduates who were still in the country three years after graduating was 17% at the bachelor's level and 23% at the master's level. In Norway, the proportion of international graduates who were still in the country three years after graduating was 79% at the bachelor's level, 57% at the master's level and 60% at the doctoral level. In both countries, the large majority of international graduates who stayed on after graduation were working (Table 5.12). There are no data available for the Netherlands and the Flemish Community.

Estonia seeks to attract top specialists from abroad, including through international students who stay on after graduation, to counteract the potential labour and skill shortages caused by demographic decline and emigration. However, a large share of international graduates leave Estonia, and the government has set a target of 30% of international master's and doctoral graduates finding employment in the country after graduation by 2020. Improving knowledge of the local labour market and information on available opportunities, for example through traineeships and work-based learning, is seen as an important way of retaining international graduates. International graduates from the more occupationally specific programmes offered by professional HEIs are more likely to find employment in Estonia than graduates from universities (Estonian National Audit Office, 2015[65]; Estonian Ministry for Education and Research, 2015[66]).

Table 5.12. Number of international higher education graduates three years after graduation, by activity status and destination (2016)

As a percentage of the total number of international graduates at a given education level

		Estonia		Norway		
		Bachelor's	Master's	Bachelor's	Master's	Doctoral
Resident in the country of graduation	In education, NOT in employment	0	7	5	4	0
	In employment, NOT in education	10	10	47	29	49
	In education AND in employment	5	6	18	13	1
	NOT in education AND NOT in employment	3	1	10	11	10
Resident in another country		83	77	21	43	40
Total		100	100	100	100	100

Note: Estonian data refer to 2016. In Estonia, there are no short-cycle programmes and there were only nine international doctoral graduates in the year of reference.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Encouraging student mobility, retaining graduates upon completion of studies and fostering brain circulation requires a whole-of-government approach. Policy initiatives include student visa, residence and work permit requirements and procedures; financial incentives (i.e. tax incentives, scholarships); and housing assistance for international students (OECD, 2017[67]).

Across the participating jurisdictions, a number of recent policy initiatives aim at encouraging international students to stay on after graduation. Since 2016, international graduates in the Netherlands can stay on without need of a work permit and can apply for a residence permit within three years of graduation. Estonia currently allows international students to stay and work for six months after the expiration of their residence permit (OECD, 2017[67]). In Belgium, international graduates will be allowed to stay in the country for a certain period after graduating, even if they do not have an employment contract, pending legislative amendments.

Countries benefit from brain circulation by attracting students and graduates from other countries, and by sending national students abroad to benefit from their immersion in a foreign culture and professional or academic environment. Some initiatives supporting outgoing mobility have been reviewed in Section 5.5.1, including targets on outgoing credit mobility.

The requirement to return to the home country after a period of study abroad is sometimes included in the conditions to become beneficiaries of a mobility scholarship. For example, Estonia makes scholarships for complete degrees abroad conditional on the students returning to Estonia upon completion or carrying out work that is of national interest. The Flemish Community offers scholarships to students from developing countries within the VLIR-UOS programme for collaborative research with developing countries. It requires beneficiaries of scholarships to commit to returning to their home countries after completing their research in Flanders. The aim of the additional requirements is to ensure students reap the benefits of student mobility, while reducing the risk that too many of them leave their home country permanently.

5.6. Student experience in higher education

Student success and learning in higher education depend crucially on the competences and standards within higher education institutions, and on how prepared institutions and staff are to respond to student needs. A number of policy initiatives have been put in place across OECD countries to increase the quality of the institutional environment and of teaching staff, and improve the student experience in higher education. Policies on teaching assessment and appraisal are discussed in Box 5.3, while a more general discussion is given the remainder of this section.

Box 5.3. Teaching appraisal and evaluation

While the evaluation of research has become more standardised in the last decade, due in part to the development and refinement of bibliometric indicators (see Chapter 6), evaluating learning and teaching performance remains a difficult task. In some countries, there have been moves to strengthen teaching appraisal and evaluation to give teaching a stronger role in funding, promotion and hiring decisions.

Teaching appraisal and evaluation is high on the policy agenda of the participating jurisdictions:

Ensuring sufficient provision of expert, motivated teaching staff and workplace learning is a key policy goal in the Flemish Community.

In the Netherlands, the *Talentbrief* (a strategic human resources policy document), calls higher education institutions to broaden their assessments for staff promotion (by not only considering research performance, but also teaching and engagement activities) (Dutch Ministry of Education, 2017[68]).

A key focus of the Norwegian White Paper on Quality Culture in Higher Education is the quality of teaching, with the goal of rewarding teaching excellence and increasing the value of teaching as a career. Increasing the variety of teaching and assessment methods is among the proposed initiatives to reach this goal (Norwegian Ministry of Education and Research, 2017[69]).

Various forms of teaching appraisal exist in the participating jurisdictions. In Estonia, institutions evaluate academic staff every five years of employment as a mechanism for internal quality assurance. A negative evaluation can lead to dismissal of the evaluated employee, as per the Employment Contract Act 2008 (*Töölepingu seadus* 2008).

In the Netherlands, the Comenius programme (see Chapters 3 and 4) is a competitive funding scheme intended to support academic staff in developing and conducting innovative teaching projects, and to strengthen the role of teaching assessment as a tool for career advancement. Proposals for funding should aim to realise concrete improvements in teaching quality with direct benefits for students. The peer review assessment of proposals is the responsibility of the National Funding Council for Education Research (NWO/NRO), and is based on innovativeness, theoretical significance, potential impact and the teaching record of the project leader. The programme also aims at creating a community of fellows facilitating the exchange and dissemination of best practices.

In Norway, measures related to teaching appraisal include:

- Peer review and mentoring for academic staff with teaching duties – the government encourages a greater use of peer review to evaluate teaching across institutions.
- Competitive funding schemes – the government will fund a portfolio of initiatives on competencies and innovation in teaching, as well as networking opportunities.

In the United Kingdom, the Teaching Excellence and Student Outcomes Framework (TEF) was introduced in 2016 to recognise excellence in relation to teaching and ensuring good student outcomes. Higher education institutions receive a gold, silver or bronze award to indicate their level of undergraduate teaching, learning environment and student outcomes. As an incentive for participation, institutions that implement the framework will be allowed to increase their tuition fees in line with inflation (despite the fee cap). The initiative is overseen by the TEF Project Board, which includes, among others, representatives from academia, the student body, funding councils and the government's department of education (HEFCE, 2017[70]).

In Australia, the Australian University Teaching Criteria and Standards framework (a Learning and Teaching Fund Programme) provides a transparent set of criteria and standards to help universities and staff understand what constitutes quality teaching. This framework can be used to set indicative standards for performance review and promotion. The criteria included in the framework include, for instance, design and planning of learning activities; assessment and giving feedback to students; and integration of scholarship, research and professional activities with teaching. For each criteria, sources of indicative evidence which could be used for assessment are provided, including student feedback and peer review (Chalmers et al., 2014[71]).

5.6.1. Student satisfaction as a measure of quality

Student engagement is "the extent to which students are engaging in a range of educational activities that research has shown as likely to lead to high quality learning. Such activities might include active learning, involvement in enriching educational experiences, seeking guidance from staff or working collaboratively with other students" (Coates, 2005[72]). Giving students a voice and listening to their experiences of studying in higher education is recognised as a way to improve learning and teaching in higher education. Evaluations of the student experience can shed new light on what is important to students and provide evidence on how the design of programmes and the information provided to them shape their experiences.

Student experience and engagement surveys provide data on what students are actually doing and how they spend their time in higher education. A number of OECD countries use student surveys at the national level or have introduced policies to mandate institutional-level surveys (Box 5.4).

There are limitations to this data as these types of surveys seek the views of students; they may have difficulty recalling certain types of information; and they may consciously or unconsciously alter their answers depending on the social desirability associated with them (Klemenčič and Chirikov, 2015[73]). In addition, student responses may be influenced by their own perception of the higher education system or the social context in which they are embedded (Porter, 2011[74]). The latter issue is a particularly serious problem with student surveys, as it could bias their results in directions consistent with general social beliefs. For example, students may report larger learning gains in

programmes with high reputations just because they infer that in such reputed programmes they must learn a lot (Porter, 2011[74]). One study concluded that student evaluations of teaching performance carry gender biases that can potentially reinforce existing biases in academic staff promotions and hiring (Mengel, Sauermann and Zölitz, 2018[75]).

Box 5.4. Student experience and engagement surveys

Two examples of comprehensive and long-stranding student engagement surveys are the Student Experience Survey in Australia and the National Survey of Student Engagement (NSSE) in the United States.

The Australian Student Experience Survey asks students about six areas of their higher education experience: overall quality of educational experience; teaching quality; learner engagement; learning resources; student support; and skills development.

The results of the survey are published on the Quality Indicators for Learning and Teaching (QILT) website (www.qilt.edu.au) which is supported by the Australian Department of Education and Training. The QILT website also publishes data on the labour market outcomes of graduates and employers' satisfaction with graduate's generic and technical skills, and overall work readiness (Australian Government Department of Education and Training, 2018[76]).

In the United States, the National Survey of Student Engagement (NSSE) collects detailed information from both first-year and senior students in four thematic areas:

- academic challenge, e.g. higher-order learning, reflective and integrative learning, learning strategies, quantitative reasoning
- learning with peers, e.g. collaborative learning and discussions with diverse others
- experiences with faculty, e.g. student-faculty interaction and effective teaching practices
- campus environment, e.g. quality of interactions and supportive environment.

Responses to these thematic areas provide stakeholders with detailed information about students and higher education institutions. This information is published on the NSSE website (nsse.indiana.edu) and has been particularly useful to higher education institutions as they seek to improve learning, teaching and overall quality. Several universities have publicly documented their actions to improve quality in the wake of their NSSE results, and many of these actions are provided to NSSE so that they may be disseminated to other higher education institutions (NSSE, 2018[77]).

In 2018, around 500 American higher education institutions participated in NSSE, and it has been administered in higher education institutions in other OECD countries, such as Canada, Mexico and the United Kingdom.

Ireland, seeking to gain a better understanding of its students and higher education system, launched the Irish Survey of Student Engagement (ISSE) in 2013 based on the NSSE.

Despite these limitations, student surveys provide prospective students with important information to help them make informed choices about where to study. Student-centred

metrics can also help guide higher education institutions by providing them with information to review and innovate in their learning and teaching practices (Universities UK, 2016[78]). Student experience evaluations can also help assure students, households, government and the broader community that higher education is delivering value, including value for money. The latter is particularly important as cost-sharing policies and market-oriented approaches become an increasingly central part of the higher education landscape (Teixeira, Jongbloed and Dill, 2014[79]).

Within the participating jurisdictions, Estonia, the Netherlands and Norway also use different types of student surveys to assess their experience in higher education.

Student surveys in Estonia are conducted at the institutional level. A national graduate survey, which includes some questions about the satisfaction with the learning experience, is commissioned by the ministry every few years. In 2012, 91% of graduates were satisfied with their higher education institution, and 87% were satisfied with their ability to carry out the tasks they were assigned on their jobs. About half of graduates were satisfied with the opportunities for traineeships (a form of work-based learning), and this proportion was substantially higher (around three-quarters) for professional HEIs.

The Dutch government commissions an annual survey (*Studentenmonitor*) that monitors the socio-economic background, income and attitudes of students, as well as their study progress, education choices and utilisation of student financial support. The Dutch government also commissions an annual survey of all students that focuses on student satisfaction (*Nationale Studenten Enquête*). The results for each higher education programme are made available to students through a web-based tool, *Studiekeuze* 123 (Section 5.7). In 2018, 77% of Dutch students were satisfied with their programme, with a higher level of satisfaction in universities (85%) than in professional HEIs (72%). Students also expressed their satisfaction on 17 themes related to the quality of higher education. Out of these themes, both university and professional HEI students were most satisfied with their internship experience and the size of their classes, which received satisfaction ratings of 3.8 or above on average (on a 1-5 scale). However, while university students were least satisfied with the preparation for their professional career (3.2), for professional HEI students internationalisation was the least satisfactory theme (3.2) (Studiekeuze123, 2018[80]; Studiekeuze123, 2018[81]).

The Norwegian Agency for Quality Assurance in Education (NOKUT) conducts an annual survey on student perceptions of the quality of their study programmes, known as the *Studiebarometer*. The survey is sent to all bachelor's and master's students in their second year of studies (and also in the fifth year of studies for students in long first degrees). A student survey of students in short-cycle programmes has been recently established as part of a plan to improve the student learning experience at this level of education. The survey examines student choice of field of study, quality of teaching, students' experiences in higher education, their workload and the career relevance of their study programmes. Overall, around 70% of students are satisfied or very satisfied with their study and learning environment, but students would like to receive more feedback from academic staff, have more input into the design and development of their education, and see more creative forms of assessment (Damen et al., 2016[82])(NOKUT, 2016). A recent OECD report (OECD, 2018[14]) suggested that the survey could be expanded to include more questions about student engagement and effective teaching practices, both at an institutional and field of study level, in order to better inform institutional decision-making.

A number of countries in the EHEA participate in the EUROSTUDENT network, which administers a survey to higher education students every three years. The EUROSTUDENT survey focuses on the socio-economic background and living conditions of students. In addition, it provides some information on the levels of student satisfaction with the quality of teaching, the organisation of studies and timetables, and study facilities. It also surveys students on how well prepared they feel for the labour market. The latest survey found that 55% of students are satisfied with the organisation of their studies and 65% with the teaching quality (Hauschildt, Vögtle and Gwosć, 2018[36]).[6]

5.6.2. Student support and talent development

Students, especially those at risk of not completing, can greatly benefit from social, psychological and academic support. Examples of these forms of support include the establishment of learning communities to facilitate social interaction among students (Brouwer et al., 2017[83]); student coaching (Bettinger and Baker, 2014[84]); remedial classes and other forms of formal academic support to students with weaker academic records (Mcnaught, 2013[85]).

Student support can be an effective way to support individuals from groups that are under-represented in higher education, and who could be particularly in need of support, as they may have fewer alternative channels from which to draw it. The presence of effective support systems could make these individuals more likely to complete once enrolled. Despite this, no comparable international data are collected on the resourcing, prevalence and effectiveness of student support in higher education.

The Flemish government provides targeted funding to support student tutoring projects aimed at students from under-represented groups or at risk of non-completion. In addition, it provides funding for the Support Centre for Inclusive Higher Education (*Steunpunt Inclusief Hoger Onderwijs*, SIHO) to support the development of institutional strategies to help disabled and special-needs students.

In the Netherlands, institutions organise a variety of remedial support activities, e.g. on language, mathematics or research methodology. The orientation activities and tests undertaken by applicants in the Flemish Community and the Netherlands (Section 5.7) can be useful tools to identify the needs of students in this respect.

Remedial work is required for some students in a number of state higher education systems in the United States. For instance, the Tennessee Board of Regents requires institutions to place students with poor performance on the Scholastic Aptitude Test or the American College Test in learning support courses or similar interventions for reading, writing or mathematics (OECD, 2017[86]).

In addition to supporting successful completion of higher education for all students, institutions have a role in helping develop the potential of highly motivated and high-achieving students. A number of countries support talented students through special honours programmes or excellence tracks within bachelor's and master's programmes, and an increasing number of students are enrolled in these programmes (Kool et al., 2017[87]), though no comparable data are available on these policies or their outcomes. These programmes or tracks are aimed at providing students with more enriching and deeper learning experiences through a range of practices, including smaller classes, wider study material, and a deeper and more challenging exploration of subjects.

Of the participating jurisdictions, **the Netherlands** has the most explicit and extensive policies and practices to support excellence in higher education. After a number of pilot projects dating back to 2004 (Wolfensberger, 2015[88]), the Dutch government ran a competitive funding scheme (the "Sirius Programme") from 2008 to 2014 to finance the development of excellence tracks (talent or honours programmes) within bachelor's and master's programmes. Applications for funding were assessed by a panel of experts and around EUR 60 million were distributed to 23 universities and professional HEIs through this funding scheme between 2008 and 2014.

The excellence tracks are directed at students with high academic performance and strong motivation who are capable of doing more than is provided through the mainstream curricula. The talent or honours programmes include activities aimed at broadening or deepening student learning, including additional subjects and more demanding coursework, interdisciplinary programmes, work- and project-based learning, and research projects (Wolfensberger, 2015[88]). Many institutions maintained the excellence tracks following the termination of Sirius Programme. Some 8% of bachelor's students in universities are in excellence tracks, as well as 6% of students in bachelor's and master's programmes in professional HEIs.

A number of universities in **the Flemish Community** have delivered honours programmes since 2010. In 2015, there were six programmes in place, three of which were delivered by Ghent University. Honours programmes include interactive, work field-related classes; project-related laboratory work and research papers; interdisciplinary subjects; and individual honours research projects conducted during an internship and presented in the final semester (written or orally). However, there is no special support for these programmes by the Government (Wolfensberger, 2015[88]).

In general, there are no honours programmes or excellence tracks for individual students in Norway's higher education system. Instead, the drive for excellence is directed at the system as a whole. This can be seen in the various quality initiatives outlined in the White Papers on quality reform (Norwegian Ministry of Education and Research, 2001[89]), structural reform of the sector (Norwegian Ministry of Education and Research, 2015[90]) and a quality culture in higher education (Norwegian Ministry of Education and Research, 2017[69]). However, some higher education institutions and programmes can be highly selective in Norway; successful applicants need to be academically talented and highly motivated to gain entry. In addition, a research track in higher education programmes in medicine and veterinary studies exists since the 2000s, and pilots are currently starting in other fields of study. The University of Oslo plans to start an honour's programme from 2019.

5.7. Completion and non-completion

In the context of the massive expansion of higher education systems and wider participation, there are persistent challenges related to students' preparation for higher education and their ability to succeed and gain a qualification (CHEPS and NIFU, 2015[91]). Of particular concern to policymakers is the magnitude of non-completion and delayed completion, often perceived as a waste of financial and human resources. Completion rates can be regarded as a measure of operational performance, i.e. the efficiency in transforming input resources into outputs.

It should be noted that recent literature questions the traditional assumption that not completing higher education is a negative outcome in the life of an individual. Many

students who leave their studies without graduating go back to higher education later on in life. In addition, in a number of countries, even those who do not graduate fare better in the labour market later on in life than individuals with similar profiles who did not enrol in higher education (Schnepf, 2014[92]).

Nonetheless, there are concerns about non-completion and delayed completion of higher education and implications for labour market outcomes among many OECD countries. High levels of non-completion or severely delayed graduation could reflect failures in the guidance process from compulsory to higher education, inadequate student support mechanisms, low admission standards, as well as poor programme quality (OECD, 2008[48]). Countries have subsequently focused policies on addressing the issue in a number of ways over the last two decades. In the participating jurisdictions, some of the efforts have focused on improving the match between students and programmes through orientation activities and study advice, on the assumption that students are dropping out of higher education because they did not choose a programme that suits their capabilities and interests. The Estonian government has tried to attract non-completers back to higher education through financial incentives. These and other policy initiatives, discussed within this section, have had some positive consequences, but have not eradicated the problem.

Low completion rates may be regarded as a sign of inefficiency in higher education; however, completion depends on other factors as well. For example, the profile of students entering higher education is a factor in determining their path to completion. In addition, completion rates can influence graduate outcomes at the system level. For example, if a higher education system were to lower the standards required for graduation, this could translate into a higher completion rate and lower overall graduate skill proficiency.

As completion rates can be a useful measure of higher education system performance, it is useful to break them down by as many dimensions as possible, including programme level and field of study, student age, study intensity and socio-economic background. Unfortunately, the internationally comparable data that are available on completion rates are relatively limited. To compensate for this lack of data, this chapter also explores what can be learned by comparing the number of first-time graduates with the number of new entrants.

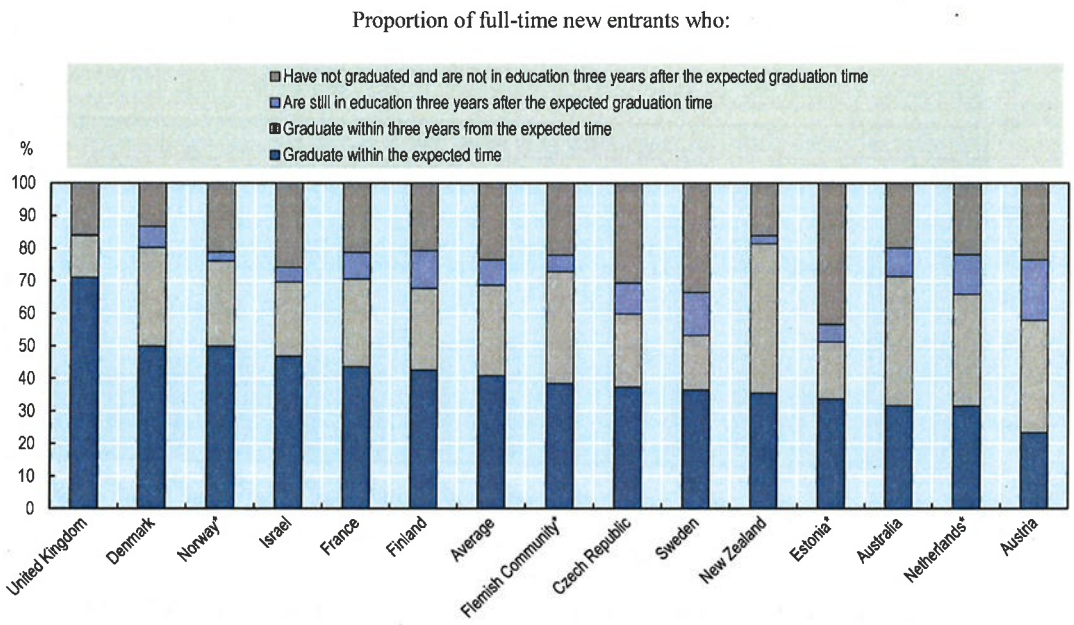
5.7.1. Completion of higher education

In 2014, on average across higher education systems with available data, around 40% of new entrants to a bachelor's programme graduated within the expected duration of the programme (Figure 5.9). This proportion ranged from around one-third, or less, in Australia, Austria, Estonia and the Netherlands to around one-half, or more, in Denmark, Norway and the United Kingdom. In the Flemish Community, 38% of new entrants completed a programme within the expected graduation timeframe. The completed programme could be either the same programme in which the new entrants initially enrolled, or a different higher education programme. The expected duration of the programme is based on relevant legislation or regulation (except for the United Kingdom, where it is reported by the institutions, and the United States, where it is based on common practice).

On average, around 70% of bachelor's new entrants completed a higher education programme three years after their expected graduation year. The proportion of new entrants who graduated within this timeframe was lowest in Estonia (just over 50%), and

it above 75% in Denmark, New Zealand, Norway and the United Kingdom. In the Flemish Community, around 73% of students completed within this timeframe and 66% in the Netherlands.

Figure 5.9. Completion and non-completion of bachelor's new entrants (2014)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The year of reference is the expected graduation date plus three years. Countries are ranked in descending order of the proportion of new entrants graduating within the expected time.
Czech Republic: Data refer to two years instead of three years after the expected graduation time.
Estonia: Data include all entrants instead of only new entrants.
Flemish Community: Data for "Had not graduated and were not in education" refer to students who were not enrolled in either bachelor's or master's degrees or equivalent programmes. They could still be enrolled at other levels.
France: Data exclude international students.
Source: Adapted from OECD (2016[26]), *Education at a Glance 2016: OECD Indicators*, http://dx.doi.org/10.1787/eag-2016-en.

StatLink https://doi.org/10.1787/888933940930

The share of new entrants who were still in education three years after the expected graduation time is also considerably different across countries, ranging from a negligible fraction in the United Kingdom to around 20% in Austria.

The share of new entrants who leave the higher education system without a degree within three years of the expected graduation year is highest in the Czech Republic, Estonia and Sweden (over 30%), and lowest in Denmark (less than 15%). This proportion is around 20% in the Flemish Community, the Netherlands and Norway, and around 40% in Estonia.

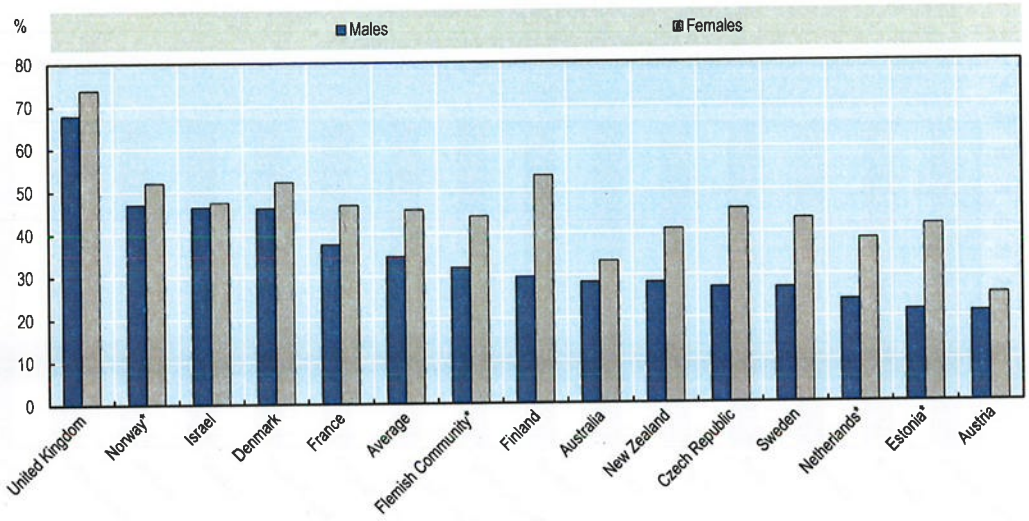
5.7.2. Factors related to completion

The completion rates are remarkably different across genders (Figure 5.10). In 2014, on average across countries with available data, women were about one-third more likely to

graduate within the expected time than men. The difference in the probability of graduating by the expected time was largest in Estonia and Finland (over 20 percentage points), and smallest in Israel (1 percentage point).

Figure 5.10. Completion rates in bachelor's programmes, by gender (2014)

Proportion of full-time new entrants graduating within the expected time



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The year of reference is the expected graduation date plus three years.
Estonia: Data include all entrants instead of only new entrants.
France: Data exclude international students.
Source: Adapted from OECD (2016[26]), *Education at a Glance 2016: OECD Indicators*, http://dx.doi.org/10.1787/eag-2016-en.

StatLink https://doi.org/10.1787/888933940949

The difference in the completion rate between female and male new entrants was relatively small in Norway (5 percentage points), while it was more substantial (between 10 and 15 percentage points) in the Flemish Community and the Netherlands.

Women tend to be more likely to complete than men, independently of their programmes or field of study (Severiens and ten Dam, 2012[93]; Conger and Long, 2010[94]). Differences in completion rates by gender are probably related to gender differences in attitudes (female students tend to be more organised, disciplined and motivated). However, other factors such as different labour market expectations may play a role as well (with women possibly perceiving higher returns from their degrees) (Severiens and ten Dam, 2012[93]).

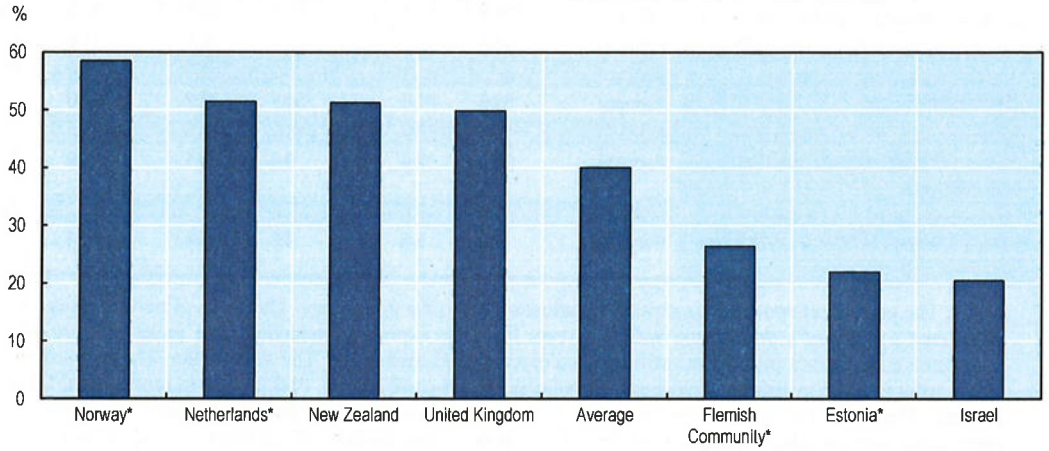
Completion by full-time or part-time status

About one-half, or more, of new entrants who enrolled part-time at the bachelor's level completed a higher education programme within the expected time in the Netherlands, New Zealand, Norway and the United Kingdom in 2014 (Figure 5.11). For Estonia, the Flemish Community and Israel, the completion rate of part-time new entrants was between 20% and 30%. In three countries (New Zealand, the Netherlands and Norway),

the completion rate of part-time new entrants was higher than for those who enrol full-time, while it was lower in the other four countries with available data.

Figure 5.11. Completion rates of part-time new entrants in bachelor's programmes (2014)

Proportion of new entrants in part-time programmes graduating within the expected time



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The year of reference is the expected graduation date plus three years.
Estonia: Data include all entrants instead of only new entrants.
Source: Adapted from OECD (2016[26]), *Education at a Glance 2016: OECD Indicators*, http://dx.doi.org/10.1787/eag-2016-en.

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Completion by subsector

There can be large differences between universities and professional HEIs in the share of new entrants to bachelor's programmes who complete or do not complete a programme at the same level of education.

In the Flemish Community and the Netherlands, both male and female new entrants to professional HEI programmes are two to four times more likely to leave higher education without a degree than new entrants to university programmes. In the Netherlands, new entrants to professional HEI programmes are both more likely to leave higher education without a degree and to graduate within the expected graduation time (Table 5.13).

In Estonia, the proportion of new entrants who have not graduated and are not in education three years after the expected graduation time is similar across subsectors, with similar gaps in completion between men and women. The share of new entrants who complete a higher education programme within the expected graduation time is also similar across subsectors for men (20% in both subsectors), but not for women. Over half of female new entrants to bachelor's programmes at professional HEIs in Estonia graduate within the expected graduation time, a far larger proportion than at universities.

Table 5.13. Completion and non-completion of new entrants to bachelor's programmes, by gender and subsector (2014)

Proportion of full-time new entrants who:

		Estonia		The Flemish Community		The Netherlands	
		Universities	PHEIs	Universities	PHEIs	Universities	PHEIs
Graduate within the expected time	Males	20.3	20.4	30.9	26.6	17.9	26.6
	Females	34.2	52.6	39.8	39.8	31.6	41.0
Graduate within 3 years from the expected time	Males	39.3	31.8	76.2	61.2	74.6	50.7
	Females	56.8	61.6	86.7	73.2	87.0	66.8
Have not graduated and are not in education 3 years after the expected graduation time	Males	55.2	58.6	15.9	34.6	9.4	32.8
	Females	36.9	32.9	9.0	23.5	5.9	24.0
Have not graduated and are still in education 3 years after the expected graduation time	Males	5.5	9.6	7.8	4.3	16.0	16.5
	Females	6.3	5.5	4.3	3.4	7.1	9.2

Notes: The year of reference is the expected graduation date plus three years. The share of new entrants who completed a bachelor's programme within 3 years from the expected graduation time includes those who completed a bachelor's programme within the expected graduation time. The sum of the second, third and fourth rows is equal to 100 for each country/gender/subsector combination. PHEIs refer to professional HEIs. For the Flemish Community, new entrants to bachelor's programmes graduating from a short-cycle programme are included among completers. For Estonia, data include all entrants instead of only new entrants.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Graduates-to-entrants ratios by field of study and socio-economic background

In absence of more comprehensive data on completion rates, the comparison between the number of entrants and graduates in different programmes or conditions offers some indication on the relative propensity to complete, provided that caution is used in the interpretation (Box 5.5). As shown in Figure 5.12, on average across OECD countries, the graduates-to-entrants ratio in engineering, manufacturing and construction is about 10% lower than the ratio for all fields of study combined (bachelor's programmes); in ICT, it is about 30% lower. In contrast, the graduates-to-entrants ratio in social sciences, journalism and information is about the same as the ratio for all fields, and in the field of study of education, it is about 35% higher. This pattern in the proportion of students completing their studies, or leaving without a qualification, is broadly consistent across a number of OECD countries, such as Estonia, Ireland, Germany and the United States (Frowley et al. (2017[95]), Heublein (2014[96]), Chen and Soldner (2013[97]), Järve, Kallaste and Räis (2015[98])).[7]

Box 5.5. What can be learned from differences in the graduates-to-entrants ratio?

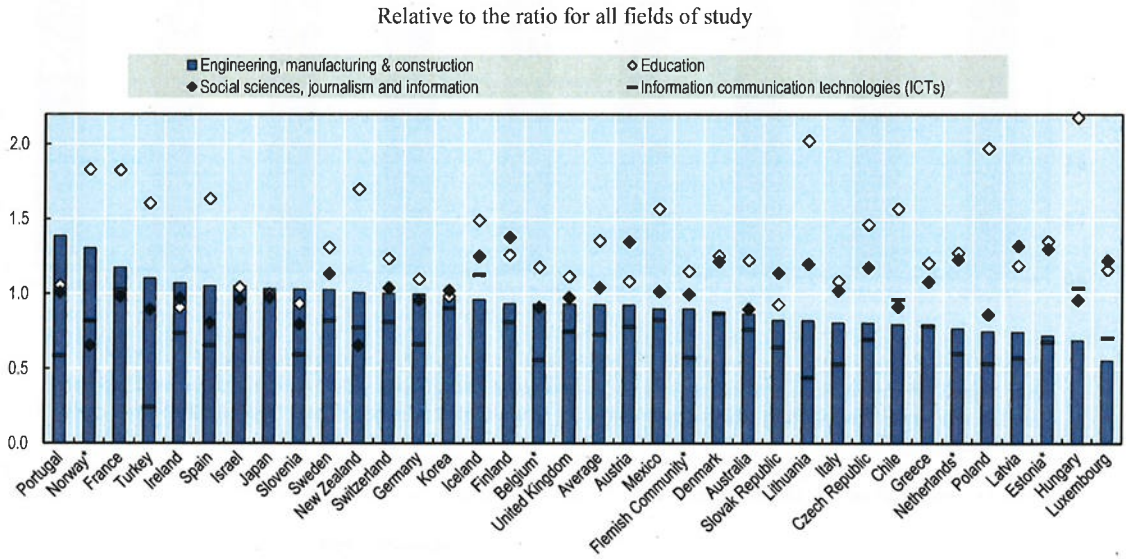
The ratio of first-time graduates to new entrants (graduates-to-entrants ratio) varies by field of study and (to a lesser extent) between individuals from different demographic groups. Completion rates are an important source of this variation: higher completion translates in more graduates, increasing the graduates-to-entrants ratio. Therefore, in certain circumstances, the graduates-to-entrants ratio can be used as a proxy for completion rates.

However, the size of the cohorts entering higher education can also play a role. For example, an exceptionally large cohort of new entrants in the reference year in a certain field of study decreases the graduates-to-entrants ratio for that field of study. Changes in completion patterns matter as

well. If a policy to stimulate completion brings about a larger number of graduates than expected in the reference year, then the graduates-to-entrants ratio increases. In addition, switching between fields of study (i.e. students entering higher education in a certain field, and later changing programmes and graduating in a different field) also impacts the graduates-to-entrants ratio.

With these caveats, graduates-to-entrants ratio can provide some indication on the relative propensity to complete, if complemented by contextual information on the higher education systems or other available evidence. In addition, aggregate cross-country measures of the graduates-to-entrants ratio reduce the effect of sudden changes in cohort size or completion rates in one or a few countries.

Figure 5.12. Ratio of graduates to new entrants in bachelor's programmes, selected fields of study (2016)



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
See Figure 5.3 for notes on new entrants by field of study.
Belgium and the Flemish Community: Data exclude first-time graduates from independent private institutions.
Estonia: Data include all entrants instead of only new entrants, and all graduates instead of only first-time graduates.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

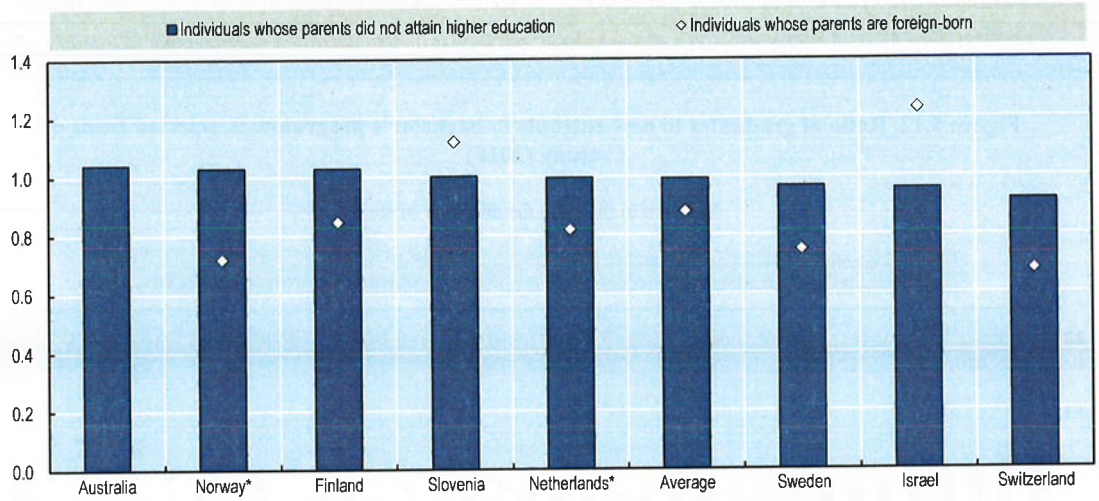
StatLink https://doi.org/10.1787/888933940987

In all countries with available data, the graduates-to-entrants ratio at the bachelor's and long first-degree level among individuals whose parents did not attain higher education is close to the ratio for the whole population (Figure 5.13). The graduates-to-entrants ratio among individuals with foreign-born parents is lower than for the whole population in five countries with available data, but it is higher in Israel and Slovenia. These results suggests that completion rates are not systematically lower among new entrants from critical demographic groups, consistent with previous evidence for a few OECD countries (OECD, 2016[26]). The completion rates of individuals whose parents did not attain higher

education or with foreign-born parents can be higher or lower than for other individuals, depending on the selection at entrance (Figure 5.6) and on other contextual factors.

Figure 5.13. Ratio of first-time graduates to new entrants in selected critical demographic groups at the bachelor's and long first-degree level (2015)

Relative to the ratio for all demographic groups



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
See Figure 5.6 for notes on new entrants by socio-economic background. The average is calculated separately for the two series "individuals whose parents did not attain higher education" and "individuals whose parents are foreign-born".
Estonia: Data include all graduates instead of only first-time graduates.
Source: Indicators of Education Systems (INES) Survey on Equity in Tertiary Education.

StatLink https://doi.org/10.1787/888933941006

As shown above, there are low levels of completion within the expected timeframes in all participating jurisdictions. Governments use a variety of policy levers to help improve completion rates. Some of these are directed at students to help them choose the right study programme and ensure they progress through their studies and gain a qualification within the expected timeframe. Others are directed at institutions; for instance, institutions may receive financial incentives to help students succeed and improve completion rates. In all participating jurisdictions, the funding formula for part of the funding allocated to higher education institutions (Chapter 3) includes the number of degrees awarded.

In **Estonia**, the government has set a national target to reduce the share of students who drop out during their first year by six percentage points to 15% by 2020. Completion rates are included in the funding formula, and the performance agreements with higher education institutions include a reduction in the share of students who leave higher education institutions without a degree among the institutional goals. Estonia also limits the time period during which students can receive means-tested grants.

Estonia is also taking a similar approach to the Flemish "exam contract" (Section 5.3) to address non-completion. Students who have completed a large part of their curricular

activities but are no longer enrolled in higher education are allowed to take exams and participate in other education activities (e.g. a final thesis) with a view to obtaining a degree as "external students", i.e. without attending classes at the institution. External students do not receive any student financial support.

In addition, Estonia introduced the "TULE" programme in 2010 to encourage former students who had left higher education without completing during the economic boom of 2000-2007 (Chapter 2). The programme was co-funded by the European Union and enabled students to study free of charge. It succeeded in attracting around 800 former students back to higher education by 2013 (this is equal to around 5% of all Estonian entrants in 2013). However, only one-third of them eventually earned a degree. The programme ended in 2015.

In the context of the open admissions policy in **the Netherlands**, the Dutch government is using a combination of measures to try to help students choose the right programme and complete within an expected timeframe:

- The government funds a web-based tool launched in 2006, Study Choice 123 (*Studiekeuze 123*), to help prospective students make a better choice of enrolment in programmes. Study Choice 123 provides information on bachelor's and master's programmes available across the Netherlands, including access requirements, the content of programmes, labour market prospects, and results from the national student satisfaction survey for each programme.
- Under the Higher Education and Research Act (1992) (WHW), higher education institutions are required to offer students a non-binding "study check" to assess their suitability for a programme. The study check can include online or face-to-face information sessions; self-assessment tests; evaluation of motivation letters, entrance tests or intake interviews; and participation in the programme for a day.
- Prospective students are required to take at least an online self-assessment test, which is not binding.
- Under the Higher Education and Research Act (1992), institutions can provide students with binding study advice at the end of the first year that results in their expulsion from a programme if they have not made sufficient progress. The measure provides an incentive to students to progress at a sufficient pace and helps them reflect on their study choices, and has proven effective in increasing completion rates (Sneyers and De Witte, 2017[99]).[8] In 2013, the government piloted the use of binding study advice in the second and later years in a small number of institutions, but it was heavily criticised by students and academic staff and will not be continued past the end of the pilot in 2018.
- Students only receive financial support for a limited period of time. For example, students enrolled in a four-year degree programme are entitled to seven years of student financial aid. In addition, students who qualify for means-tested grants can receive them only for the expected duration of the programme.

The Netherlands is also using a number of funding policy levers to encourage higher education institutions to help students finish their programmes. For instance, the funding formula excludes students who have been enrolled longer than the expected study duration. In addition, the performance agreements with higher education institutions include similar provisions to the Estonian example above to reduce non-completions. Between 2008 and 2013, the Dutch government provided targeted funding to five

professional HEIs located in large urban areas to improve the academic performance of students with an immigrant background (for example, in terms of completion rates).

The Flemish Community is developing two types of tests to provide non-binding advice to applicants on their suitability for higher education. One non-mandatory test is more general in nature and will assess the overall motivation, interests and skills of the prospective students. They are also piloting a set of tests for specific fields of study, which will provide applicants with more detailed information about their position relative to the competences and knowledge necessary to undertake a particular higher education programme. These tests will be mandatory starting in 2019 for teacher education and civil engineering (including a civil engineering architecture programme).

In addition, as part of the Flemish legislation to create a more flexible higher education system (the Flexible Learning Paths Act 2004), higher education institutions can impose binding conditions on students to monitor progress and take peremptory action if students do not meet the requirements. Students may be required to leave the institution or change higher education programmes if they do not make sufficient progress.

The Flemish Community has also introduced policies to improve the completion rates of students from disadvantaged backgrounds. The formula to allocate funding to higher education institutions (Chapter 3) is designed to provide incentives to higher education institutions to enrol and support students from disadvantaged backgrounds. More specifically, an additional weight is assigned in the formula to credits completed by students who are beneficiaries of a means-tested grant, who classify as disabled or special-needs students, who work a certain number of hours during the day (night jobs are excluded), or are registered with the government employment agency.

Funding was also provided to Flemish higher education institutions from 2008 to 2014 to support initiatives that increased the entry, progression and completion rate of students from under-represented groups. However, the funding programme was terminated after an evaluation that found it imposed a high administrative burden on institutions. The budget of the programme has been thereafter included in the general budget of higher education institutions.

5.8. Skills outcomes

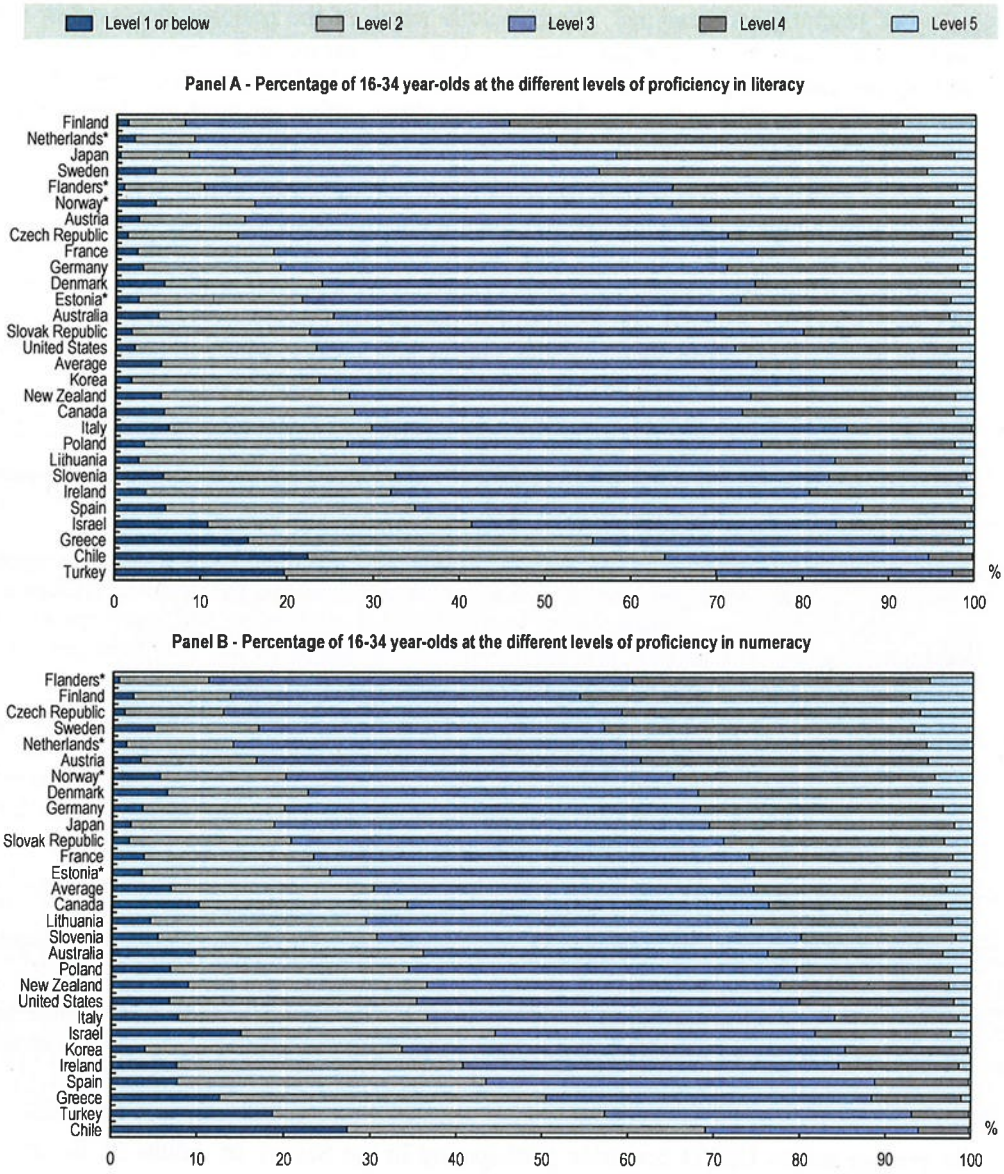
It is difficult to assess the effectiveness of the education function of a higher education system without considering measures of what students learn, or of the skills and competencies that they develop. Internationally comparative measures of higher education learning outcomes are not generally available (Section 5.8.2), so the analysis in this chapter relies on proxy measures. The Survey of Adult Skills, though not designed to measure higher education learning outcomes, can provide some insight into the cognitive and workplace skills of young graduates.

5.8.1. The literacy and numeracy proficiency of young graduates

Figure 5.14 shows the percentage of higher education graduates younger than 35 who, in the Survey of Adults Skills, scored at each of five levels of proficiency on the literacy (Panel A) or numeracy (Panel B) scale for each country. A high share of graduates scoring at low levels of proficiency indicates that a higher education degree is not a good signal of the literacy or numeracy proficiency of graduates. In other words, this result indicates that higher education qualifications are not able to signal a certain threshold skills level or guarantee employers a minimum skills set (Van Damme, 2015[100]). High

proportions of low-skilled graduates can have worrying implications, given that skill signalling is an important function of degrees.

Figure 5.14. Proficiency distribution among graduates younger than 35 (2012 or 2015)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018. Countries are ranked in ascending order of the proportion of 16-34 year-olds with higher education who perform below level 2 in literacy or numeracy proficiency.
Source: Adapted from OECD (2016[101]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

StatLink https://doi.org/10.1787/888933941025

As measures of learning gain are not available, it is not possible to reach firm conclusions on how much students learn in the higher education system. For example, a high proportion of graduates with good skills could be due to learning in higher education, but it could also depend on their proficiency before entering, as well as on other factors.

Higher education skills outcomes depend crucially on policies aimed at increasing the quality of teaching and learning. These include many of the policies discussed in this chapter, for example on digitalisation, internationalisation, and student support. In addition, policies on higher education staff (Chapter 4) and on quality assurance in higher education (Chapter 2) can have a direct or less direct effect on teaching, learning and skills outcomes.

On average across OECD countries participating in the Survey of Adults Skills, over 25% of adults with a higher education degree who are younger than 35 do not reach level 3 in literacy, and over 30% in numeracy (see Box 5.6 for an explanation of the levels). The proportion reaching level 3 (or higher levels) exceeds 85% in both proficiency domains in the Czech Republic, Finland, the Flemish Community and the Netherlands. At the other extreme, there are countries such as Chile, Greece and Turkey, where in both proficiency domains over one-half of graduates younger than 35 do not reach level 3.

Box 5.6. Literacy and numeracy proficiency levels according to the OECD Survey of Adult Skills (PIAAC)

Adults performing at **level 3 in the literacy proficiency scale** can understand and respond appropriately to dense or lengthy texts. They understand text structures and rhetorical devices and can identify, interpret, or evaluate one or more pieces of information and make appropriate inferences. They can also perform multistep operations and select relevant data from competing information in order to identify and formulate responses.

Adults at **level 3 of the numeracy scale** can successfully complete tasks that require an understanding of mathematical information that may not be explicit and may be embedded in contexts that are not familiar. They can perform tasks requiring several steps and that may involve a choice of problem-solving strategies and relevant processes. They can interpret and perform basic analyses of data and statistics in texts, tables and graphs.

Level 5 is the highest proficiency level in the scale of the Survey of Adult Skills. At **level 5 of literacy proficiency**, adults can solve tasks which require them to construct syntheses of similar and contrasting ideas or points of view, often while evaluating the reliability of evidentiary sources or being aware of subtle rhetorical cues.

Adults at **level 5 of the numeracy scale** can understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. They can also develop or work with mathematical arguments or models and justify solutions or choices.

On average across OECD countries participating in the Survey of Adults Skills, 2% of adults with a higher education degree who are younger than 35 reach level 5 in literacy, and 3% in numeracy. This proportion is similar to or above average for all four participating jurisdictions; and is significantly higher than the average for the Netherlands in literacy.

Overall, the adult population in all four participating jurisdictions scores above the average among countries participating in the Survey of Adult Skills in terms of literacy and numeracy proficiency. However, a more refined analysis of the national samples reveals segments of the population with a lower skill level. For example, foreign-