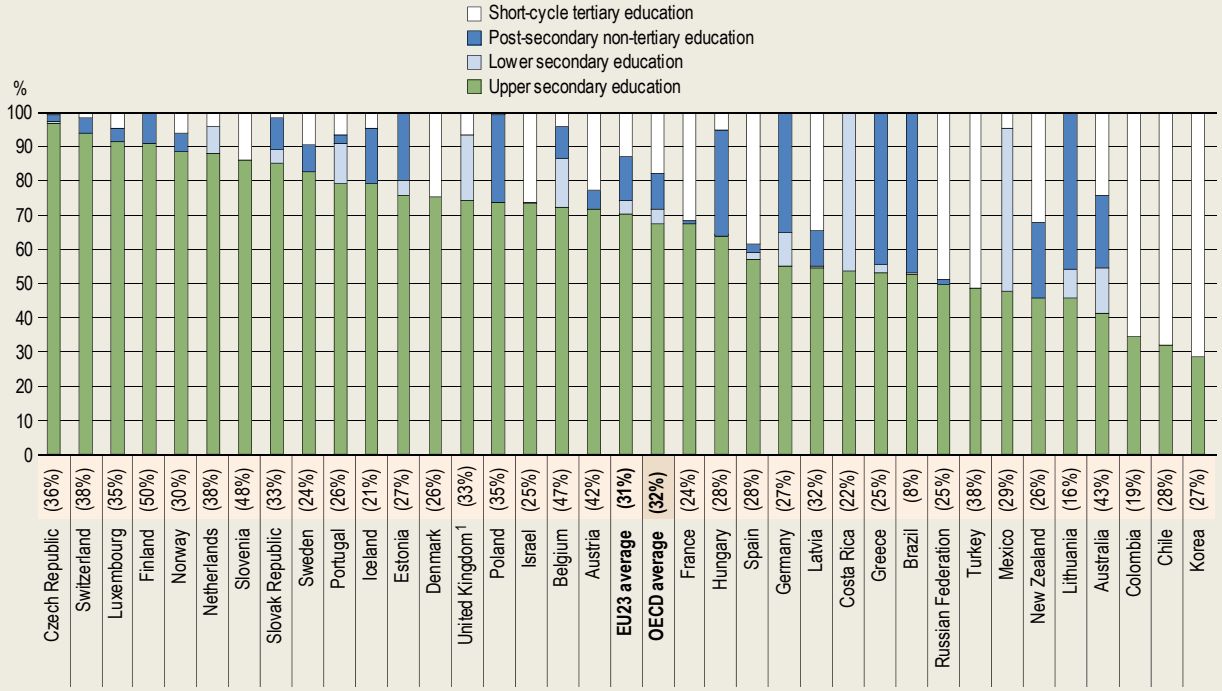
Indicator B7. How do vocational education systems differ around the world?

Highlights

- About one in three students from lower secondary to short-cycle tertiary level are enrolled in a vocational education and training (VET) programme on average across OECD countries. However, there are wide variations between countries, ranging from less than 20% of students in Brazil, Colombia and Lithuania to more than 40% in Australia, Austria, Belgium, Finland and Slovenia.
- Upper secondary education plays a central role in VET systems and accommodate adult population increasingly. On average, more than two-thirds of students in vocational education (from lower secondary to short-cycle tertiary) are enrolled in upper secondary programmes, while 42% of all upper secondary students opt for VET programmes.
- On average, about two-thirds of upper secondary vocational students are in programmes that theoretically give them the opportunity to enter tertiary education directly. Usually, this is at short-cycle tertiary level but in about two-thirds of countries with available data, graduates from upper secondary vocational programmes can go straight into bachelor's or equivalent programmes.

Figure B7.1. Distribution of students enrolled in vocational education by level of education (2018)

Full- and part-time students enrolled in public and private institutions



Note: Figures in parentheses refer to the share of students enrolled in vocational education from lower secondary to short-cycle tertiary (ISCED 2 to 5) as a percentage of all students enrolled at these levels.

1. Short-cycle tertiary programmes include a small number of bachelor's professional programmes.

Countries are ranked in descending order of the share of students enrolled in upper secondary vocational programmes.

Source: OECD (2020), Table B7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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Context

Vocational education and training (VET) is formed of programmes that attracts a diverse range of students, mainly including those seeking technical skills to enter the labour market, adults wishing to increase their employability by developing their skills further, and students who may seek entry into higher education later on (OECD, 2019[1]). VET programmes can also be an attractive option for students who struggle academically and are at risk of dropping out of education. VET systems can boost economic development and help countries remain competitive in the globalised world by adapting to evolving skill needs, through the expansion of a workforce with mid-level trade or technical and professional skills (OECD, 2015[2]). Evidence shows that countries with well-established vocational and apprenticeship programmes have been more effective in holding the line on youth unemployment and in providing the skills needed by the labour market (OECD, 2010[3]). In high-quality VET systems, cooperation with employers is key. The skills taught in the programmes are aligned with the labour-market demands, and young people also gain generic and transferable skills, and have sufficient career guidance. Teachers have access to initial education and professional development to keep their skills up to date and have industry experience.

VET programmes can be either mainly school-based or work-based. The combination of learning in the work environment and in school provides numerous advantages. Learners get an education that combines practical and theoretical learning. Firms benefit because education can be tailored to workplace needs, and students become familiar with firm-specific procedures (OECD, 2010[3]; OECD, 2014[4]; OECD, 2018[5]). In many countries, VET has been neglected and marginalised in policy discussions, often overshadowed by the emphasis on general academic education (OECD, 2011[6]). Nevertheless, almost all countries have recently changed their policies and have implemented significant VET reforms since 2013. They have often been aimed at:

1. improving the overall quality of VET programmes by updating curricula and improving the quality of teachers
2. supporting students' transitions after graduation from upper secondary education into post-secondary non-tertiary or tertiary education or the labour market
3. improving access to VET and its attractiveness to students and employers
4. strengthening apprenticeship systems by increasing the number of places available, enhancing workplace training and encouraging employer engagement ((OECD, 2018[5]) and (OECD, 2018[7])).

Other findings

- Although they provide labour-market advantages, about one-third of all students in upper secondary vocational education are enrolled in combined school- and work-based programmes on average across the OECD.
- The typical actual duration of work-based learning in combined school- and work-based programmes differ widely across countries and programmes. The work-based component forms less than 30% of such programmes' duration in Estonia and Israel, compared to 80% in Finland and Switzerland.
- On average across OECD countries, the average age of enrolment in upper secondary education is higher for students in vocational education (21 years) than for students enrolled in general education (17 years).
- On average across OECD countries, women make up 45% of vocational upper secondary students, with wide variations across sectors and occupations. In contrast, at post-secondary non-tertiary level, more than 55% of students enrolled in vocational programmes are women.

Note

VET programmes are classified as school-based or combined school- and work-based in this indicator. In school-based programmes, at least 75% of the curriculum is presented in the school environment. In combined school- and work-based programmes, at least 10% (but less than 75%) of the curriculum is presented in the school environment, with the remainder is organised as work-based learning in enterprises. Entirely work-based programmes (i.e. over 90% of the curriculum is presented in a work-based environment) are not included in the scope of this indicator.

The ISCED 2011 classification does not define academic and professional programmes for bachelor's, master's, doctoral or equivalent degrees (ISCED 6 to 8) (OECD/Eurostat/UNESCO Institute for Statistics, 2015[8]). In the absence of internationally agreed definitions for these categories of tertiary education, no analysis of vocational programmes at these ISCED levels can be carried out. For this reason, this indicator focuses on vocational programmes from lower secondary to short-cycle tertiary education (ISCED levels 2 to 5), where vocational programmes are clearly defined. Work is being undertaken to address this limitation in the future.

Analysis

Overview of vocational education from lower secondary to tertiary level

The organisation and structure of vocational education varies considerably from one country to another, both in terms of the opportunities available to students to enrol in it, the content of the programmes and the possibilities for further study and employment. On average across OECD countries, about one in three students from lower secondary to short-cycle tertiary level are enrolled in a VET programme. However, there are wide variations between countries, ranging from less than 20% of students in Brazil, Colombia and Lithuania to more than 40% in Australia, Austria, Belgium, Finland and Slovenia (Figure B7.1).

These relatively low figures are largely explained by the fact that lower secondary vocational programmes exist in only half of the countries with available data, which explains why only 6% of lower secondary students enrol in vocational programmes on average across OECD countries. VET programmes at this level are often designed for adults and are not part of initial education. The share of students enrolled in VET at lower secondary level exceeds 10% only in Australia, Belgium, Costa Rica, Ireland, Mexico and the United Kingdom. Most VET students enrolled in lower secondary vocational education can directly access upper secondary vocational programmes except in Estonia, Mexico and the Slovak Republic. The other exceptions include the few students enrolled in special education in Belgium and students in the Netherlands enrolled in practical training designed for students who do not have the skills needed to go on into further education. Vocational lower secondary programmes generally offer options for young people wishing to prepare for direct entry to the labour market in low- or semi-skilled jobs, or provide adults and students with special educational needs with the basic skills necessary for further learning (Table B7.1, Figure B7.1 and (OECD/Eurostat/UNESCO Institute for Statistics, 2015[8])).

Upper secondary education is the most common level at which VET programmes are provided across countries. All countries except the United States have some students enrolled in vocational upper secondary education. In the United States, there is no distinct vocational path at upper secondary level, although optional vocational courses are offered within the general track and VET programmes start at the post-secondary level. On average across OECD countries, more than two-thirds of all VET students are enrolled in upper secondary education and 42% of all upper secondary students are in vocational programmes. However, the importance of VET systems within the educational landscape varies widely across countries. In some, VET plays a central role in the initial education of young people whereas in other systems most students follow a general education programme. In more than one-quarter of countries with available data, more than half of upper secondary students participate in vocational programmes. In Austria, the Czech Republic, Finland, the Netherlands, the Slovak Republic and Slovenia, more than 65% of upper secondary students follow this track. In Finland, the high proportion of students enrolled in vocational education at this level is partly explained by the large number of adults participating in VET. In contrast, over 80% of upper secondary students are enrolled in general programmes in Brazil, Canada, Chile, Korea and Saudi Arabia. In Canada, the proportion of young people expected to enrol in an upper secondary vocational programme is considerably smaller because vocational programmes are often provided within the post-secondary system, and in Quebec (Canada), vocational training at the secondary level is largely through second-chance programmes for older students (Table B7.1).

For students looking to continue their vocational education, the two most common options after upper secondary are post-secondary non-tertiary and short-cycle tertiary programmes. But these programmes are also for students who come from the general education path. Just over one-quarter of all students in any kind of VET programme are enrolled in one of these two levels. Specifically, 10% of these students are enrolled in post-secondary non-tertiary level programmes and 17% in short-cycle tertiary programmes. Two observations can be made. First, the countries with the most students enrolled in vocational short-cycle tertiary programmes – Chile, Colombia, Korea, Spain, the Russian Federation and Turkey – either have no post-secondary non-tertiary options, or, for example in the Russian Federation and Spain, have few students enrolled at this level. In these countries, short-cycle tertiary programmes are the best option for further education. Similarly, those with the most students in post-secondary non-tertiary programmes are those with no or few short-cycle tertiary programmes (e.g. Brazil, Greece and Lithuania). Second, there are some countries – Chile, Colombia, Korea and Turkey – where a larger share of VET students are enrolled at short-cycle tertiary level than at upper secondary level (Table B7.1 and Figure B7.1). This might be explained by the fact that even though short-cycle tertiary programmes are often vocational, they also enrol students from upper secondary general programmes, which may create a shortage of places for students graduating from vocational tracks. As a result, some countries have recently implemented reforms to improve upper secondary vocational graduates' access to short-cycle tertiary programmes. For example, Chile and Portugal have strengthened networking and co-ordination with higher education institutions to help students with the transition from upper secondary VET to tertiary education. Similarly, Chile, Italy and Japan have opened new technical institutes to increase the opportunities for vocational upper secondary graduates

to undertake further studies in short-cycle tertiary education while France has introduced quotas to ensure graduates from upper secondary vocational education have more places in short-cycle tertiary programmes (OECD, 2018[5]).

Short-cycle tertiary programmes are often designed to prepare students to enter the labour market. However, these programmes may also provide a pathway to other tertiary education programmes (see Indicator B4). The absence of or very low enrolment levels in vocational short-cycle tertiary programmes, as seen for instance in Estonia, Finland and Germany, does not mean that these countries' VET systems do not offer students the opportunity to continue their studies at other tertiary levels. On the contrary, in about two-thirds of OECD member and partner countries with data, students who have completed upper secondary vocational education have the opportunity to enrol directly in bachelor's (or equivalent) programmes (ISCED 6). However, the lack of internationally agreed definitions to distinguish between "academic" and "professional" programmes at the bachelor's (or equivalent) level make it impossible to measure the importance of professional programmes at this level in OECD countries to date (Table B7.2 and Figure B7.1).

Transition from upper secondary vocational education

Upper secondary education builds on students' basic skills and knowledge to prepare them for tertiary education or the labour market. In many countries, this level of education is not compulsory and it can last from two to five years. Most education systems provide different types of programmes at this level to cater to students' different interests and competencies, which will prepare them to contribute fully to society. Developing and strengthening both general and vocational programmes in upper secondary education can make education more inclusive, and strengthen the transition from school to work (OECD, 2019[1]; OECD/Eurostat/UNESCO Institute for Statistics, 2015[8]).

Pathways to higher levels of learning are likely to be particularly important in the near future. VET students may be particularly at risk here. The OECD predicts that 14% of jobs are at high risk of automation and a further 32% are likely to change radically in the coming years (OECD, 2019[9]). Recognising the importance of creating opportunities for further learning, many countries have created (or are in the process to create) pathways to higher levels of education for VET graduates. For instance, as part of the Portuguese Higher Education Admission Process 2020/2021, a new special competition for the admission to higher education of graduates of specialised vocational and artistic education will be introduced. Pathways between upper secondary VET, post-secondary non-tertiary and tertiary education can be either through direct access or through bridging programmes.

Transition to tertiary education

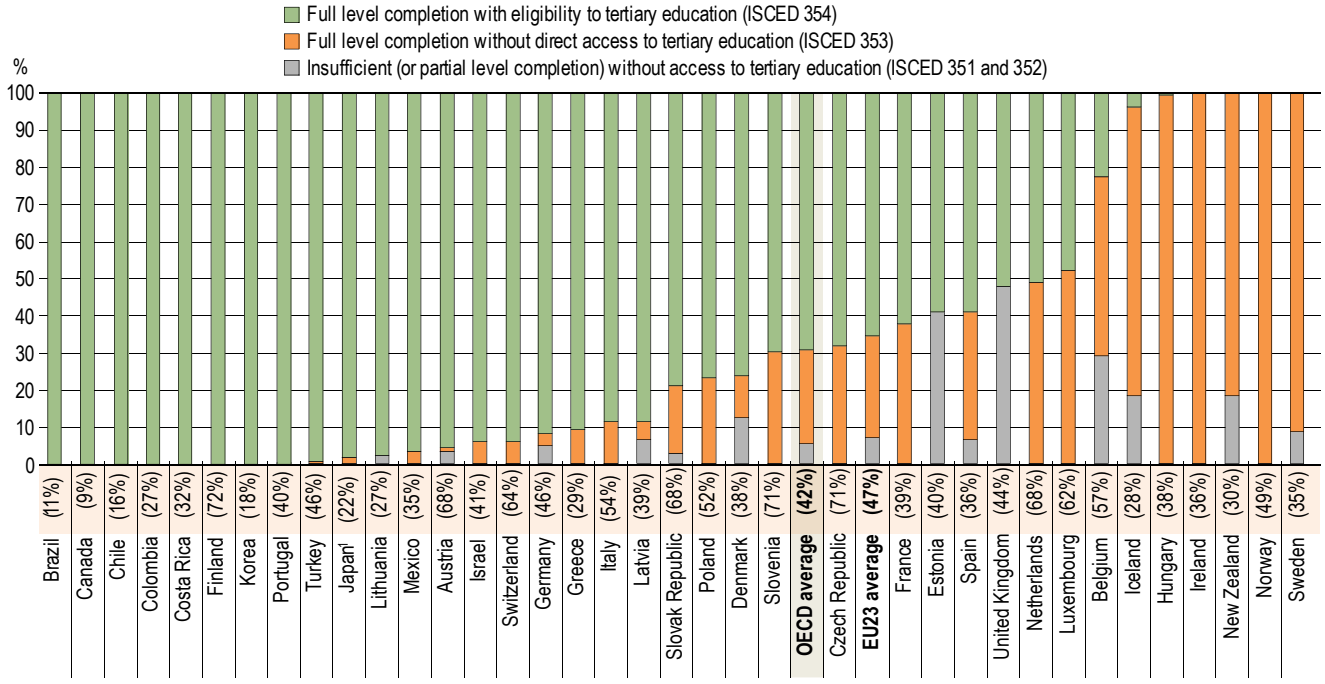
The number of students enrolled in upper secondary vocational education varies widely across countries. The type of upper secondary vocational programmes also differs greatly, as do the opportunities they offer young people to continue their studies in tertiary education. Even if upper secondary VET programmes are not academically oriented, they still provide eligibility to tertiary education for many students in most countries. On average, about two-thirds of students enrolled in upper secondary vocational education are receiving an education that theoretically provides them with the opportunity to directly enter a higher education level, often short-cycle tertiary but also at bachelor's or equivalent level (Table B7.2 and Figure B7.2).

Despite these opportunities, they are more limited than those offered to general upper secondary students in more than two-thirds of the countries with available data. On average across countries, more than 90% of students in general upper secondary education are enrolled in programmes that provide, in theory, eligibility to tertiary education. Only Austria, Israel, Switzerland and the United Kingdom have a larger share of vocational upper secondary students enrolled in a programme leading directly to tertiary education than the share of general upper secondary students. Among these countries, Austria, Israel and the United Kingdom offer many opportunities for young upper secondary vocational graduates to continue their studies in vocational programmes at the short-cycle tertiary level. Switzerland is one of the few countries with Germany where a large proportion of upper secondary vocational students directly go on to enter tertiary institutions that award qualifications equivalent to bachelor's level (Table B7.2).

However, starting tertiary education does not guarantee completion, particularly for upper secondary vocational graduates. Students with a general upper secondary qualification have higher completion rates (within the theoretical duration of the programme plus three years) at bachelor's or equivalent level (70%) than students with a vocational upper secondary qualification (58%). Only in one country – Austria – are bachelor's students from vocational upper secondary programmes more likely to graduate than their peers who attended general programmes (OECD, 2019[10]).

Figure B7.2. Distribution of students enrolled in upper secondary vocational education by type of vocational programme (2018)

Full- and part-time students enrolled in public and private institutions



Note: Figures in parentheses refer to the share of students enrolled in upper secondary vocational education as a percentage of all students enrolled at this level.
1. Vocational programmes sufficient for level completion, with eligibility to tertiary (ISCED 354) include all vocational programmes insufficient for level completion, without direct access to tertiary education (ISCED 351).
Countries are ranked in descending order of the share of students enrolment in upper secondary vocational programmes sufficient for level completion, with eligibility to tertiary education (ISCED 354).
Source: OECD (2020), Table B7.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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Transition to post-secondary non-tertiary education or the labour market

Supporting students' transitions after graduation from upper secondary education into post-secondary education is an important challenge for countries. A small group of countries including Belgium, Hungary, Iceland, Ireland, New Zealand, Norway and Sweden present a different pattern for the transition between upper secondary and post-secondary education (Figure B7.2). In these countries, upper secondary vocational programmes are not designed to provide to students eligibility to tertiary education, but rather to offer them either direct entry to the labour market, or the option to pursue their studies in post-secondary non-tertiary education before entering tertiary education or the labour market (Figure B7.3 and Table B7.2). Among these countries, Norway has recently changed its policy and most of the upper secondary vocational programmes provide access to tertiary education from 2018. Sweden is also a special case. The country abolished certain mandatory academic content in VET programmes and the automatic eligibility of VET students for tertiary education through the 2011 reforms. However, despite this change, students enrolled in upper secondary vocational programmes have the right to choose, if they wish, to add more academic courses to their timetable in order to access higher education.

Interestingly, these countries have common characteristics. Young adults with upper secondary vocational attainment have excellent employment and earnings prospects in all of them, significantly higher than those with general qualifications, but also higher than OECD average employment rates. For example, three of these countries (Iceland, Norway and Sweden) have the highest employment rates for young adults with an upper secondary vocational qualification, all over 90% (see Indicator A3). Another common feature of all these countries, with the exception of Hungary, is that upper secondary VET programmes offer their graduates opportunities to continue their education at the post-secondary non-tertiary level (ISCED 4),

often in the form of one-year training courses that allow them to deepen their technical skills to specialise in occupations in fields as diverse as health and welfare, agriculture, crafts, and building and construction (Figure B7.2, Table B7.2 and (OECD/Eurostat/UNESCO Institute for Statistics, 2015[8])).

Well-established VET systems can aid in the transition to the labour market by giving young people opportunities to gain professional experience, and by providing them with a combination of specific and general skills that will help them to evolve professionally as their own interests and labour-market requirements change. Italy, New Zealand and Slovenia reported examples of policies aiming to strengthen these synergies. Italy has implemented a major labour-market reform which includes measures to support more effective transitions and support the labour market. New Zealand introduced in 2020 a major Reform of Vocational Education legislation designed to bring together industry and educators into a single vocational education system for developing the skills of the current and future workforce. In Slovenia, following the reform of vocational education (2008-11), 20% of the curriculum can now be designed in co-operation with social partners, particularly local companies. More globally, more than one-third of the 31 countries with available data – Belgium, Chile, Estonia, Finland, France, Germany, Israel, Italy, Latvia, Korea, the Netherlands, Slovenia, Spain, and the United Kingdom – declared that their curricula have been reviewed and improved since 2013 (often in co-operation with enterprises) to align the skills and certification of VET systems with labour-market demands (INES ad-hoc survey on VET and (OECD, 2018[5])).

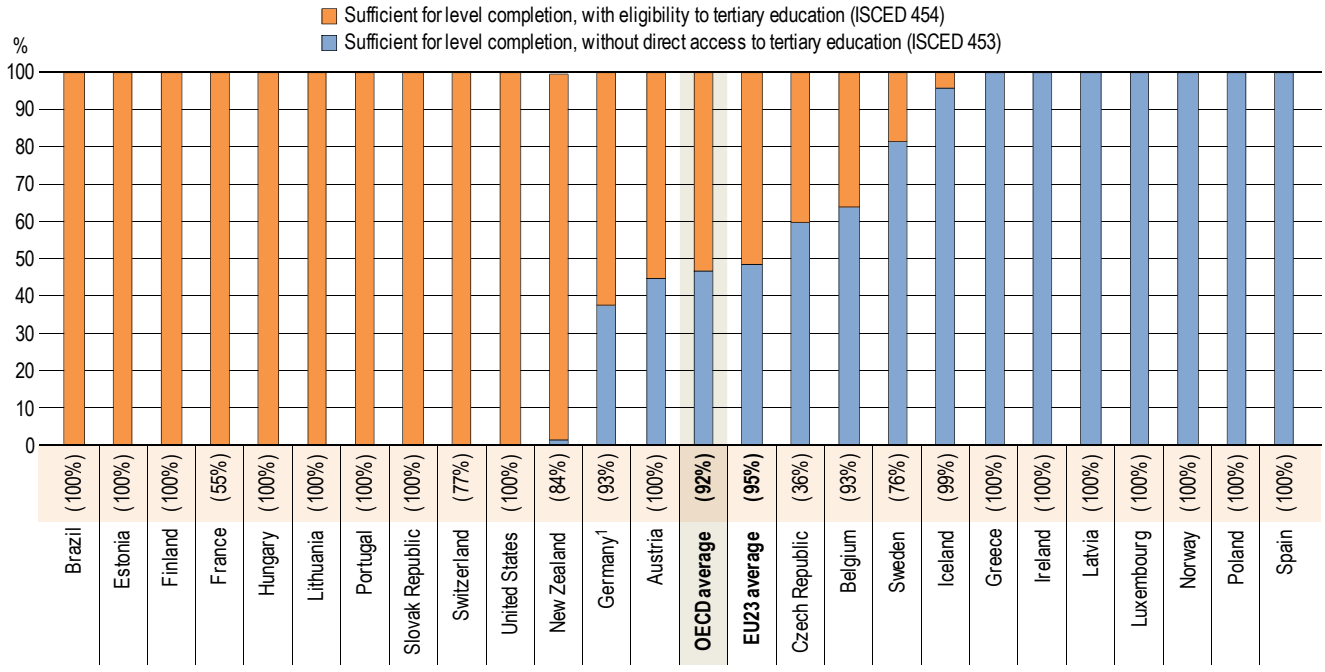
Not all countries offer students a choice between attending a post-secondary non-tertiary education programme or entering tertiary education after they complete upper secondary vocational education. For example, post-secondary non-tertiary programmes do not exist in about one-third of OECD and partner countries with data, preventing students in these countries from accessing programmes that could build on their upper secondary education. This also limits their choices to entering the labour market or continuing their studies at the tertiary level. The other 24 countries with available data do have such programmes. They are mainly vocationally oriented: on average, 92% of all post-secondary non-tertiary students enrol in vocational programmes (Table B7.1). However, in a few countries there are general programmes at post-secondary non-tertiary level which are aimed at students who completed a vocational upper secondary programme and want to increase their chances of entering tertiary education. For instance, in Switzerland, a one-year general programme – *Programme Passerelle DUBS* – prepares graduates from vocational upper secondary education to enter general programmes at the tertiary level. In the same vein, a large proportion of students enrolled at this level in the Czech Republic take one-year general courses that help them prepare for university entrance. These courses are also delivered by universities (OECD/Eurostat/UNESCO Institute for Statistics, 2015[8]).

Although post-secondary non-tertiary vocational education is designed to prepare students for entry into the labour market, it should not lock participants out of further learning options. Thus, in half of the 24 countries with data on this level, all or most students are enrolled in post-secondary non-tertiary vocational education that theoretically gives them the opportunity to access tertiary education if they wish or if the requirement for accessing tertiary education is completion of upper-secondary education. In nine other countries, a majority of students are enrolled in post-secondary non-tertiary programmes that are theoretically designed for direct entry into the labour market by taking advantage of one or two years training courses that allow them to deepen their technical skills. Among these countries, Germany is an interesting case. The majority of students are enrolled in programmes that are theoretically designed for direct entry into the labour market. However, students have eligibility to tertiary academic programmes by the given university entrance qualification obtained at upper secondary level of education. The few remaining countries offer a more mixed profile of programmes, some of which are designed to lead to further study and some of which do not (Figure B7.3).

Analysis of the transition between upper secondary, post-secondary non-tertiary and tertiary education shows large differences between countries. In Hungary, for example, non-tertiary post-secondary education is a stepping stone to tertiary education and there is in general no direct access to tertiary education for graduates of upper secondary education. Conversely, in countries such as Ireland, Norway and Sweden, vocational programmes at the post-secondary non-tertiary level offer no more opportunities for further study at tertiary level than those at the upper secondary level (Figure B7.2 and Figure B7.3).

Figure B7.3. Distribution of students enrolled in post-secondary non-tertiary vocational education by type of vocational programme (2018)

Full- and part-time students enrolled in public and private institutions



Note: Figures in parentheses refer to the share of students enrolled in post-secondary non-tertiary vocational education as a percentage of all students enrolled at this level.
1. The majority of students enrolled in ISCED 453 have eligibility to tertiary academic programmes by the given university entrance qualification obtained at upper secondary level of education (ISCED 344).
Countries are ranked in descending order of the share of students enrolment in post-secondary non-tertiary vocational programmes sufficient for level completion, with eligibility *to tertiary education (ISCED 454).*
Source: OECD (2020), Table B7.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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Box B7.1. Upper secondary graduates from vocational programmes, by field of study and gender

Participating in a vocational education and training (VET) programme has both personal and societal beneficial outcomes: the opportunity to acquire qualifications, integration into the labour market with a satisfactory wage, further career development opportunities, professional status and economic competitiveness (Cedefop, 2011[11]).

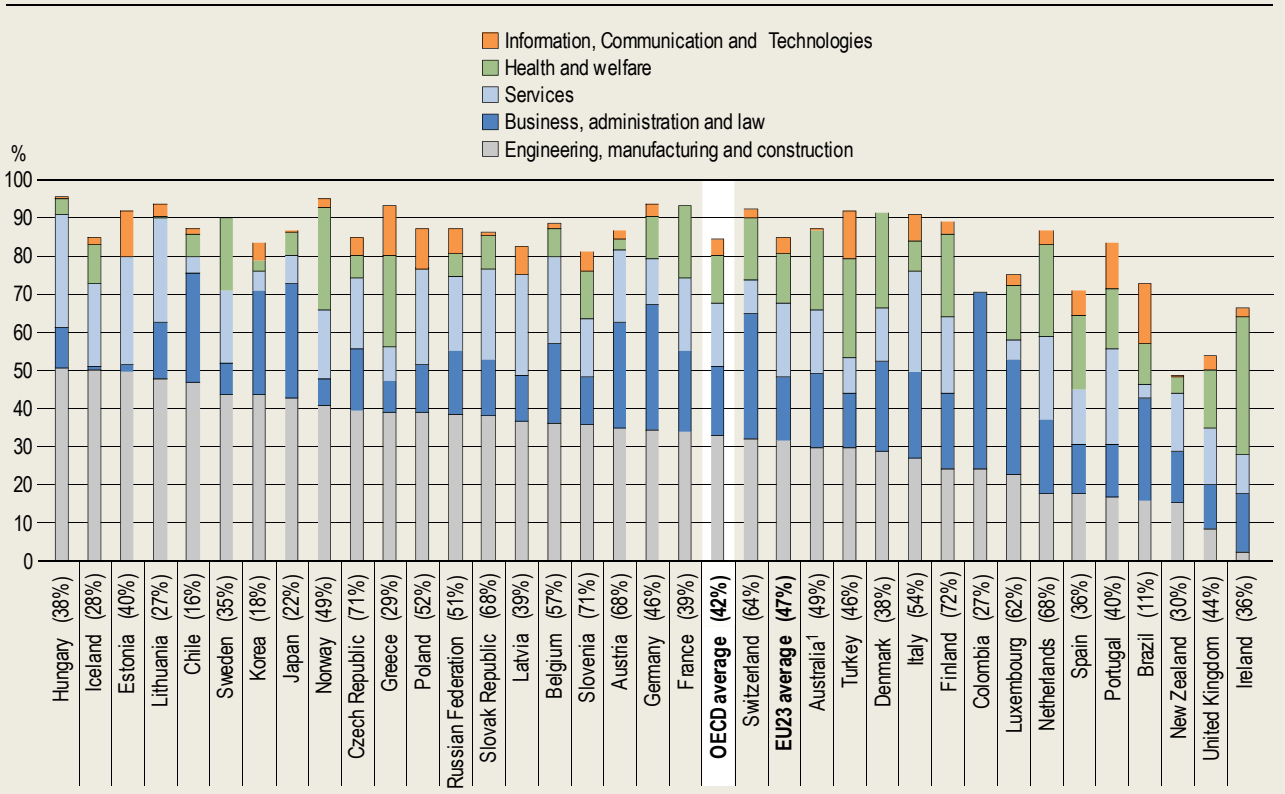
VET is an important part of upper secondary education in many OECD countries. However, certain fields of study are more common at this level. On average across OECD countries, 33% of those graduating from upper secondary vocational programmes in 2018 earned a qualification in the broad field of engineering, manufacturing and construction. The share falls to 18% for business, administration and law; 17% for services; 13% for health and welfare; and 4% for information and communication technologies (ICT). However, this pattern does not hold for every country. In Estonia, Hungary and Iceland, 50% or more of students graduate with a specialisation in engineering, manufacturing and construction. In contrast, business, administration and law is the most popular field in at this level for Brazil, Luxembourg and Switzerland. In Ireland, the Netherlands, Spain and the United Kingdom, the field of health and welfare is the most popular out of the selected fields in Figure B7.4.

The cost of VET programmes varies greatly depending on the fields of study followed by the students. For example, some VET programmes require expensive equipment or sophisticated infrastructure to train students. This is particularly the case for programmes in science or technology. Countries where a large share of VET students graduate with a specialisation in

engineering, manufacturing and construction, such as Chile, Estonia, Iceland and Sweden tend to spend more per student in vocational programmes than in general ones. The differences are also significant in countries where the field of health and welfare is the most popular, such as Greece, the Netherlands and Spain (see Figure C1.2 and Box C1.1).

Upper secondary graduation patterns by field of study also reveal a strong gender bias. The share of women pursuing an upper secondary vocational qualification in engineering, manufacturing and construction is low: only 13% of graduates in this field of study are women. On the other hand, women are over-represented in health and welfare, where they make up 81% of graduates on average. In fact, in health and welfare, the share of female graduates exceeds 75% in all countries except Latvia (where it is 71%) and Sweden (73%). Between these two extremes, there is more gender balance: in the field of services, on average, 57% of graduates are women, and in business, administration and law, 64% of graduates are women (OECD, 2019[12]).

Figure B7.4. Share of upper secondary vocational graduates, by selected field of study (2018)



Note: Figures in parentheses refer to the share of students enrolled in upper secondary vocational education as a percentage of all students enrolled at this level.
1. Year of reference 2018.
Countries are ranked in descending order of the share of graduates in engineering, manufacturing and construction field.
Source: OECD/UIS/Eurostat (2020) See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

StatLink https://doi.org/10.1787/888934164237

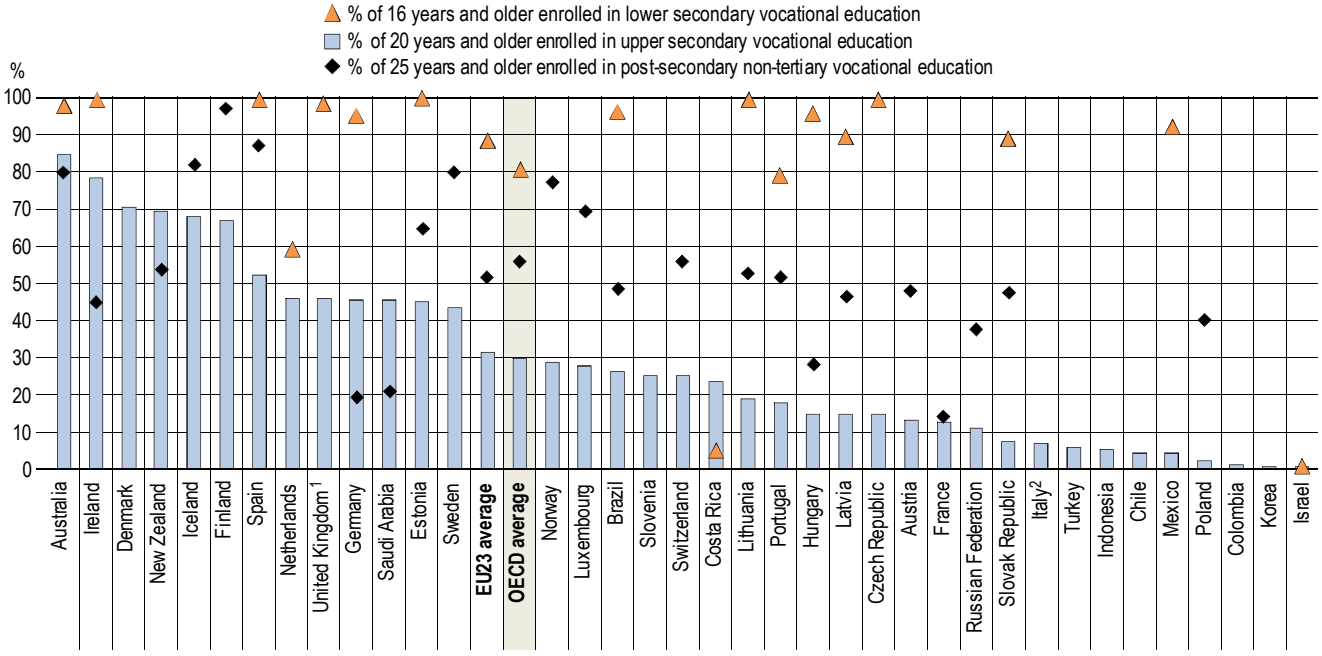
Gender gaps in fields of study may be partly due to social perceptions of what women and men excel at and the careers they can pursue. For example, the low share of women in the field of engineering, manufacturing and construction may result from the social perception of science as being a masculine domain, which may discourage women from pursuing studies in that field (OECD, 2015[13]). In contrast, their over-representation in health-related fields seems to mirror their supposed aptitude for caring positions, as women make up a large share of frontline healthcare workers. In the context of the current sanitary crisis, their exposure to infectious diseases is exacerbated, which in turn represents a high psychological burden on women healthcare workers.

Share of students beyond the typical enrolment age in vocational education, by education level

The proportion of students who are older than the typical enrolment age for their level of education tends to be higher in vocational education than in general education from lower secondary to post-secondary non-tertiary levels. In 10 of the 37 countries for which data are available, less than 10% of vocational upper secondary students are over 20 years old. However, in Australia, Denmark, Ireland and New Zealand, 70% or more are over the typical enrolment age, i.e. older than 20. Overall, the average age of enrolment is 21 years old for vocational upper secondary programmes and 17 years old for general programmes. The average age of enrolment in upper secondary vocational programmes is 25-29 years old in Denmark, Finland, Iceland and Spain while in Australia, Ireland and New Zealand it is over 30 years. In contrast, the country with the highest average age of enrolment in general education is Sweden, where it is 21 years of age (Table B7.2 and Figure B7.5).

Figure B7.5. Share of students beyond the typical enrolment age in vocational education, by education level (2018)

Full- and part-time students enrolled in public and private institutions



Note: The absence of a symbol for a level of education means that there are no VET programmes at that level in the country concerned.
1. Short-cycle tertiary programmes include a small number of bachelor's professional programmes.
2. Upper secondary vocational programmes include post-secondary non-tertiary programmes.
Countries are ranked in descending order of the share of students beyond the typical enrolment age in upper secondary vocational education.
Source: OECD (2020), Table B7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

StatLink https://doi.org/10.1787/888934164256

There are two main reasons that might explain the higher average age of students in vocational programmes. First, vocational systems are often flexible enough to allow students who left the education system early to re-enter later on. Thus, VET systems from lower secondary to post-secondary non-tertiary education often have programmes designed to offer a second chance for some students to acquire basic skills and for others to re-enter a learning environment, developing skills that will subsequently increase their employability. This trend is particularly pronounced in lower secondary education where, except in Costa Rica and, to a lesser extent, Greece and the Netherlands, the majority of students enrolled in lower secondary VET programmes are over 16 years old, which is over the typical enrolment age at this level (Table B7.1 and Figure B7.5). VET systems in these countries are flexible and able to satisfy different needs at different stages of people's lives, whether they are preparing for a first career, seeking additional skills to assist in their work or catching up on educational attainment (OECD/Eurostat/UNESCO Institute for Statistics, 2015[8]).

A second reason for these differences is that VET programmes also tend to cater for students with greater difficulties who also graduate from earlier levels of education at a later age. Moreover, the completion rate of upper secondary education (within the theoretical duration of the programme) is lower among students enrolled in vocational education (62%) than among those in general education (76%). In this context, male students and/or those enrolled in upper secondary vocational programmes that do not give direct access to tertiary education are less likely to complete upper secondary education, even three years after the typical duration, than others (see Indicator B3 and Box B7.1).

Share of women enrolled in vocational education, by education level

Women have historically been under-represented in certain fields of study at upper secondary level such as engineering, manufacturing and construction or ICT, and continue to be so despite undeniable political efforts to reduce gender gaps (Box B7.1). Women's under-representation is not just limited to particular fields of study at upper secondary level; they are also clearly under-represented in vocational education overall. This may be a cause for concern in view of the Sustainable Development Goal (SDG) of ensuring equal access for all women and men to high-quality and affordable technical and vocational education by 2030 (see SDG chapter). On average across OECD countries, women make up 45% of enrolment into upper secondary vocational programmes. Only in about one-quarter of the 40 countries for which data are available is the proportion of women above 50%. There is, however, significant variations among countries: the share of women ranges from less than 37% in Germany, Greece, Iceland and Lithuania to over 55% in Brazil, Costa Rica, Ireland and New Zealand (Table B7.1).

The pattern changes when focusing on post-secondary non-tertiary education. At that level, more than 55% of students are women. They account for more than half of enrolments in most of the countries for which data are available. The only exceptions are the Czech Republic, Ireland, Luxembourg, Portugal and the Russian Federation. The same applies to the short-cycle tertiary level, but the trend towards the over-representation of women is less pronounced. On average in OECD countries, women account for 52% of all students enrolled at this level and make up more than 50% in about two-thirds of countries for which data are available. However, there are wide variations between countries, with the share of female students ranging from less than 30% in Italy and Norway to 65% or more in Brazil, Germany, Poland and the Slovak Republic (Table B7.1). The proportion of women in VET programmes is closely related to differences between countries in the predominant fields of study at this level (Box B7.1). The number of students enrolled in the different levels of education must also be taken into account in the analysis of these results. For example, the proportion of women is very high in short-cycle tertiary programmes in Germany, but the level itself only enrols a minority of students.

There are two main reasons for the under-representation of women in upper secondary vocational education but not in post-secondary education. First, women have a higher completion rate for upper secondary vocational education than men and therefore are more likely to continue their studies in post-secondary education (Indicator B3). Second, women are more strongly represented in certain broad fields of study such as health and social welfare, and business, administration and law, fields which are very prevalent in short-cycle tertiary vocational education at tertiary level, but especially in post-secondary non-tertiary education (OECD, 2019[12]). In contrast, the share of women in short-cycle tertiary education tends to be lower in countries where science, technology, engineering and mathematics (STEM) fields are prominent at this level (Indicator B4).

School-based and combined school- and work-based vocational programmes

The content of VET programmes and the way they are organised and delivered in upper secondary education varies considerably from country to country. In general, VET programmes are divided into school-based programmes and combined school- and work-based programmes, and countries often have VET systems that offer several types of programmes in parallel. In school-based programmes, at least 75% of the curriculum is presented in the school environment. This includes special training centres run by public or private authorities, or enterprise-based special training centres if they qualify as educational institutions. In combined school- and work-based programmes, at least 10%, but less than 75%, of the curriculum is presented in the school environment or through distance learning, with the remainder is organised as work-based learning in enterprises. Such programmes are in some national context called “apprenticeships”. These programmes can be organised in conjunction with education authorities or institutions. They include apprenticeship programmes that involve concurrent school-based and work-based training (e.g. in Denmark and Norway), and programmes that involve alternating periods of attendance at educational institutions and participation in work-based training, as in the dual systems in Austria, Germany and Switzerland (see *Definitions* section and Table B7.3).

Through work-based learning, students acquire the skills that are valued in the workplace. Work-based learning is also a way to develop public-private partnerships and to involve social partners and employers in the development of VET programmes, often including the definition of curricular frameworks (OECD, 2018[7]). The combination of learning in school and in the work environment through combined school- and work-based programmes offers numerous advantages. Learners get an education that combines practical and theoretical learning, and gain soft skills from engaging in actual workplaces. Employers benefit because students' education can be tailored to workplace needs and students become familiar with firm-specific procedures. Combined school- and work-based programmes therefore reduce skill mismatches and provide hiring opportunities for firms, which also provides a smooth transition into working life for students (see Indicator A3 and Box B7.2).

For all these reasons, apprenticeships and other forms of work-based learning have received much attention from policy makers, and about two-thirds of countries with available data have implemented recent reforms to strengthen the quality of their combined school- and work-based programmes. The nature of these reforms differ across countries. Some have strengthened their apprenticeship training and other forms of work-based learning. For some countries (Australia, Belgium, Chile, Finland, Ireland, Israel, Italy, Korea, Norway and the United Kingdom) this meant creating new places in apprenticeship programmes. For others, sometimes the same countries (e.g. Australia, Belgium, Canada, Hungary and Korea), additional attention has focused on public support for students to access VET and on the provision of tax reductions to enterprises taking part (OECD, 2018[7]).

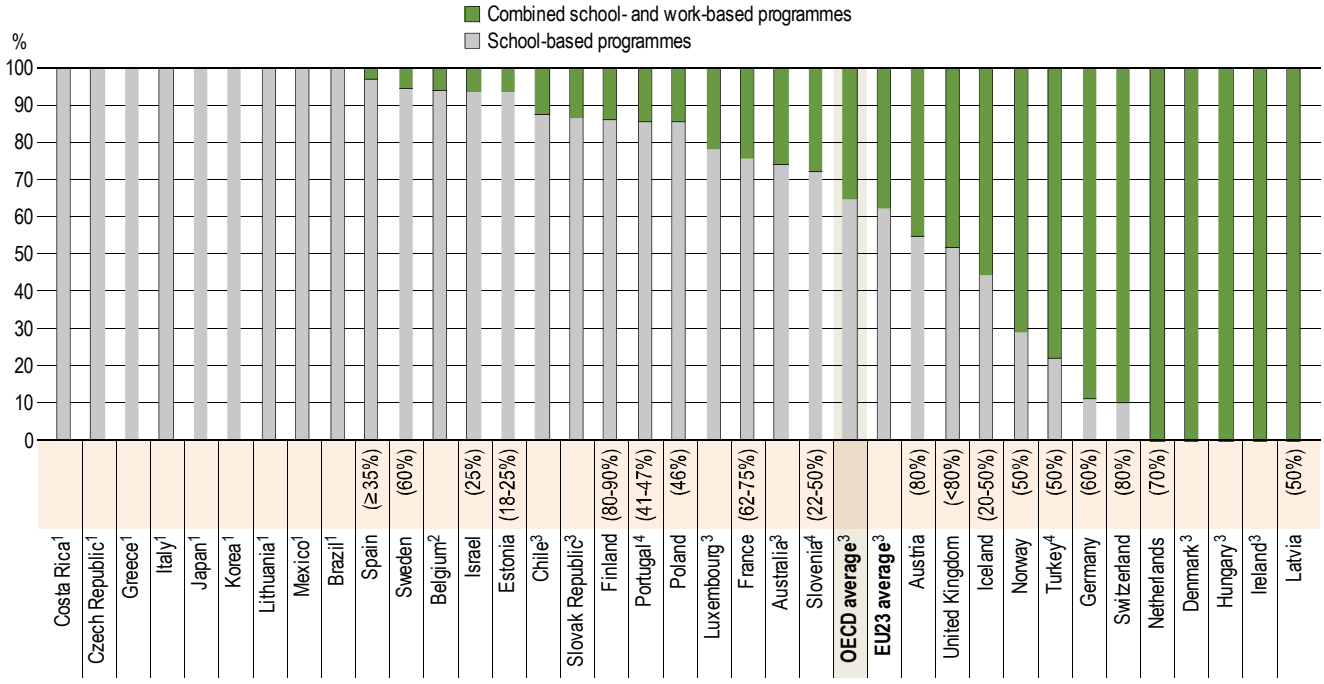
The governance of VET programs has also been an important focus of recent reforms. In Canada, for instance, Federal, provincial and territorial governments in most jurisdictions reconfirmed their commitment to harmonise apprenticeship training across regions for key trades. Finally, some countries have recently reformed their combined school- and work-based programmes in greater depth and created a new model of apprenticeship, as in the Flemish Community of Belgium, Estonia, France, Latvia, Mexico, the Slovak Republic, Slovenia and Spain. In France, for example, the 2018 law for the "freedom to choose one's professional future" reinforces the weight of professional branches in the governance of apprenticeship. It also strengthens apprenticeship training opportunities by improving financial assistance to students and companies, increasing the number of apprenticeship training centres and developing bridges between school education and apprenticeship (INES ad-hoc survey and (OECD, 2018[7]).

Although programmes combining learning in both the school and work environment provide numerous labour-market advantages and received a surge of policy attention over the last decade, about one-third of all students in upper secondary vocational education are enrolled in these programmes on average across OECD countries. The rest are enrolled in school-based programmes. Overall, school-based VET programmes account for more than 90% of students in 14 out of the 35 countries for which data are available. There are only school-based VET programmes in countries as diverse as Brazil, Costa Rica, the Czech Republic, Greece, Italy, Japan, Korea, Lithuania and Mexico. The rest of these countries have a largely school-based system alongside some apprenticeships. Even where school-based programmes predominate, however, that does not mean that vocational education does not have a work-based component. For instance, vocational school-based programmes in France have a work-based component that accounts for 17-23% of the programmes' duration (Table B7.3 and Figure B7.6). Some countries have well-developed combined school- and work-based upper secondary VET systems, although the form that the work-based component may take differs between them. Overall, more than 44% of upper secondary VET students are enrolled in combined school- and work-based programmes in 12 out of the 35 countries with available data. Of these countries, the proportion of students enrolled in these programmes exceeds 89% in Denmark, Germany, Hungary, Ireland, Latvia, the Netherlands and Switzerland. Interestingly, among the 26 countries with at least some students enrolled in combined school- and work-based programmes, the work-based component is mandatory in all of them except Latvia, where it depends on training contracts among the VET schools and enterprises. Combined school- and work-based programmes can also differ in cost models. For instance, only the French Community of Belgium, Chile, Estonia, the Netherlands, Portugal, Slovenia, Spain and Sweden declared that "some" or "most" students enrolled in these programmes do not receive remuneration on the work-based component, which is common in all other countries (Table B7.3 and Figure B7.6).

There are other major differences among combined school- and work-based programmes. First, combined school- and work-based programmes can be quite different in terms of their practical arrangements. Work and study periods alternate continually over the course of the programmes, with varying proportions of study and work across countries. For example, the work-based component is less than 30% of the programme's duration in Estonia and Israel, while it is 80% or more in Finland and Switzerland. In some VET systems, school-based study and work-based study may be consecutive instead of parallel. The Norwegian 2+2 Model, for instance, divides a four-year vocational training course into a two-year school-based learning period and a two-year work-based learning period (Table B7.3 and (OECD, 2016[14])).

Figure B7.6. Distribution of upper secondary vocational students by type of vocational programme (2018)

Full- and part-time students enrolled in public and private institutions



Note: Figures in parentheses refer to the most typical duration of the work-based component as a percentage of the total programme duration for combined school- and work-based programmes. For example, in Germany, more than 98% of students in combined school- and work-based programmes are enrolled in a programme where the duration of the work component accounts for about 60% of the total programme duration. See Table B7.3 for more information.

1. Data on typical duration of the work-based component are not applicable because the category does not apply.
2. The most typical duration of the work-based component is at least 46% for the Flemish Community of Belgium and 60% for the French Community of Belgium.
3. Data on the most typical duration of the work-based component are missing.
4. The share of students enrolled in combined school- and work-based programmes as a percentage of all student enrolled in upper secondary vocational education is estimated based on the results of the INES ad-hoc survey on VET.

Countries are ranked in descending order of the share of students enrolled in school-based vocational programmes.

Source: OECD (2020), Table B7.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

StatLink https://doi.org/10.1787/888934164275

Second, the duration of upper secondary VET programmes also varies widely across countries. For example, in Germany, more than 95% of students in upper secondary combined school- and work-based are enrolled programmes which last three years, with the work component accounting for about 60% of the total duration of the programme. In contrast, the main upper secondary VET programme in Ireland lasts only one year, which means that number of months worked is much smaller than in Germany. This is an important parameter to take into account when analysing the results (Table B7.3 and Figure B7.6).

Box B7.2. Vocational education during the COVID-19 lockdown

The unprecedented health crisis that we are experiencing, linked to the rapid spread of COVID-19 throughout the world, has strong consequences for the economy and consequently on education systems, which are themselves vectors of economic growth. Schools have had to close for several months in most countries, resulting in the loss of about 14 weeks (though it may include school and public holidays) in the first half of 2020 on average across countries (see Box D1.2). Firms also suffered during this period, as the crisis led to an almost general lockdown of companies and a slowdown in economic activity. Governments have reacted to ensure pedagogical continuity over this period, and distance learning has taken over rather effectively. In many cases, this had to be done immediately and without specific preparation, which also challenged teachers to use new techniques and methods. However, it is not necessarily the most appropriate

response for the most disadvantaged students who need more individualised support, nor for the less well-off families who do not necessarily have sufficient equipment or material comfort to provide their children with the conditions they need to follow their courses and not drop out. In contrast to the more academic streams which have been able to offer more flexible learning options and, therefore, distance learning, vocational education and training (VET) programmes face challenges in the search for new forms of e-learning that will allow their students to continue to develop their skills.

VET programmes suffer from a double disadvantage compared to general ones. First, whether they are school-based or combined school- and work-based programmes, practical teaching forms an important part of their curricula, which is difficult to do at a distance. Some fields such as agriculture, health, engineering, construction or crafts, require specific equipment, learning in small groups for practical demonstrations, and careful attention from teachers to ensure that the actions performed by the students are the right ones. This type of learning does not correspond to what distance education offers, or does so only in a limited way, which raises questions about educational loss. Another problem faced by VET education, particularly work-study programmes, is the size of the work-based component, which accounts for more than 60% of total learning time in some countries (Table B7.3). The consequences of the lockdown for these programmes are therefore serious, even though they are normally the most sought-after by companies and offer better employability. The situation is less clear today. For example, apprentices who were placed in companies and sectors that have come to a standstill as a result of border closures and the confinement of populations, such as catering or tourism, have largely stopped their working activities. With an economic crisis looming, it is also an open question whether companies will wish to continue to take on apprentices when their priorities will be to relaunch their businesses.

This situation raises doubts about what will happen in the coming months, but some initiatives have already been announced and governments seem to have grasped how much is at stake. For example, according to the OECD/Harvard study published in June 2020 (OECD/Harvard, 2020[15]), in 70% of countries for which data are available, plans to reopen schools generally include provisions and remedial measures, particularly for students in vocationally oriented programmes. The measures do not stop at the early reopening of schools for VET students; in many countries there is a genuine understanding that apprenticeship streams should not be the first victims of the current situation. For example, according to a policy brief produced by the VET team of the OECD Centre for Skills (OECD, 2020[16]), many measures have already been taken in OECD countries. These include:

- increasing the use of online and virtual platforms more appropriate to VET to ensure continuity of learning
- financing training breaks or extensions to avoid breaks in learning resulting in fees, repayments or other penalties for both learners and providers
- providing wage support for apprentice retention to allow apprentices to maintain contact with employers and if possible continue working through remote working or virtual meetings
- leveraging links between work-based and school-based VET to provide alternative school-based VET in cases where upper secondary VET students are unable to secure an apprenticeship, including work-based components
- offering flexible skills assessment and awarding of qualifications as, in many sectors, particularly healthcare, a direct route to qualification may need to be established quickly in response to the COVID-19 crisis
- informing, engaging and communicating with learners, providers and social partners about new guidance on the delivery of assessment, or to ensure apprentices are informed of changes to regulations and practices
- investing in VET to mitigate future skills shortages and minimise the shock of the crisis.

All these actions confirm the importance that decision makers attach to VET, and the coming months will be crucial in assessing the effectiveness of these measures.

Definitions

General education programmes are designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher ISCED level and to lay the foundation for lifelong learning. These programmes are typically school- or college-based. General education includes education programmes that are designed to prepare participants for entry into vocational education but do not prepare for employment in a particular occupation, trade or class of occupations or trades, nor lead directly to a labour market-relevant qualification.

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

Both general and vocational programmes can contain some courses or subjects that are common to both programmes. For example, a vocational programme may contain courses on mathematics or the national language which are also taught to students in general programmes. When reporting data on certain statistical units, in particular educational personnel, by programme orientation it is the classification of the programme that determines the orientation and not the subject being studied or taught.

The data in this chapter cover formal education programmes that represent at least the equivalent of one semester (or one-half of a school/academic year) of full-time study and take place entirely in educational institutions or are delivered as a combined school- and work-based programme. At the upper secondary level and the non-tertiary post-secondary level, vocational programmes are further divided into **school-based programmes** and **combined school- and work-based programmes** on the basis of the amount of training that is provided in school as opposed to the workplace.

In **school-based programmes** instruction takes place (either partly or exclusively) in educational institutions. These include special training centres for vocational education run by public or private authorities or enterprise-based special training centres if these qualify as educational institutions. These programmes can have an on-the-job training component, i.e. a component of some practical experience at the workplace. Programmes should be classified as school-based if at least 75% of the curriculum is presented in the school environment (covering the whole educational programme) or through distance education.

Programmes are classified as **combined school- and work-based programmes** if less than 75% of the curriculum is presented in the school environment or through distance education. The 75% cut-off point should be regarded as a general guideline that may need to be operationalised differently across countries. These programmes include:

- **apprenticeship programmes** organised in conjunction with educational authorities or educational institutions that involve concurrent school-based and work-based training

- dual-system programmes organised in conjunction with educational authorities or educational institutions that involve alternating intervals of attendance at educational institutions and participation in work-based training (**programmes of training in alternation**, sometimes referred to as **sandwich programmes**).

Note that programmes of dual-system apprenticeships are usually considered part of upper secondary (ISCED 3) education, but other programmes under this heading may be classifiable not just as ISCED 3 but also ISCED levels 4-6.

The amount of instruction provided in school should be counted over the whole duration of the programme. An institution providing school- and work-based programmes is classified as either public or private according only to the school-based component.

Source

Data refer to the academic year 2017/18 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2019. Data for some countries may have a different reference year. For details, see Annex 3 at https://doi.org/10.1787/69096873-en.

Data on main characteristics of combined school- and work-based programmes in upper secondary education (Table B7.3) are based on a special survey on VET administered by the OECD in 2020 and on UNESCO-UIS/OECD/EUROSTAT ISCED 2011 mappings at http://uis.unesco.org/en/isced-mappings.

Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

References

Cedefop (2011), "The benefits of vocational education and training", *Research Paper*, No. 10, European Centre for the Development of Vocational Training, Publication Office of the European Union, Luxembourg, http://dx.doi.org/10.2801/43027. [11]

OECD (2020), "VET in a time of crisis: Building foundations for resilient vocational education and training systems", *Policy Brief*, OECD, Paris, https://read.oecd-ilibrary.org/view/?ref=132_132718-fdwmrqsgmy&title=VET-in-a-time-of-crisis-Building-foundations-for-resilient-vocational-education-and-training-systems. [16]

OECD (2020), *Education at a Glance Database*, https://stats.oecd.org/ (accessed on 6 July 2018). [12]

OECD (2019), *Education at a Glance 2019: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/f8d7880d-en. [10]

OECD (2019), *OECD Employment Outlook 2019: The Future of Work*, OECD Publishing, Paris, https://doi.org/10.1787/9ee00155-en. [9]

OECD (2019), "What characterises upper secondary vocational education and training?", *Education Indicators in Focus*, No. 68, OECD Publishing, Paris, https://dx.doi.org/10.1787/a1a7e2f1-en. [1]

OECD (2018), *Education Policy Outlook 2018: Putting Student Learning at the Centre*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264301528-en. [5]

OECD (2018), *Seven Questions about Apprenticeships: Answers from International Experience*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264306486-en. [7]

OECD (2016), *Education at a Glance 2016 : OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2016-en. [14]

OECD (2015), *Education Policy Outlook 2015: Making Reforms Happen*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264225442-en. [2]

OECD (2015), *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence, PISA, OECD Publishing*, https://dx.doi.org/10.1787/9789264229945-en. [13]

OECD (2014), *Skills beyond School: Synthesis Report*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, http//dx.doi.org/10.1787/9789264214682-en. [4]

OECD (2011), *Learning for Jobs: Pointers for Policy Development*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, http://www.oecd.org/education/skills-beyond-school/LearningForJobsPointersfor%20PolicyDevelopment.pdf. [6]

OECD (2010), *Learning for Jobs*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264087460-en. [3]

OECD/Eurostat/UNESCO Institute for Statistics (2015), *ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264228368-en. [8]

OECD/Harvard (2020), *Schooling disrupted, schooling rethought - How the Covid-19 pandemic is changing education*, https://read.oecd-ilibrary.org/view/?ref=133_133390-1rtuknc0hi&title=Schooling-disrupted-schooling-rethought-How-the-Covid-19-pandemic-is-changing-education. [15]

Indicator B7 Tables

Table B7.1 Profile of students enrolled in vocational education from lower secondary to short-cycle tertiary, by type of programme, age and gender (2018)

Table B7.2 Pathways between upper secondary or post-secondary non-tertiary education and higher levels of education, by type of programme and programme orientation (2018)

Table B7.3 Main characteristics of combined school- and work-based programmes in upper secondary education (2018)

Cut-off date for the data: 19 July 2020. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888934164104

Table B7.1. Profile of students enrolled in vocational education from lower secondary to short-cycle tertiary, by type of programme, age and gender (2018)

Full- and part-time students enrolled in public and private institutions

		Distribution of students in vocational education and training (VET) (total is 100%)				Enrolment in vocational lower secondary education			Enrolment in vocational upper secondary education				
							Of which:			Of which:			
		Lower secondary	Upper secondary	Post-secondary non-tertiary	Short-cycle tertiary	Share of students enrolled in VET as a percentage of all students enrolled at this level	% who are female	% aged 16 and older	Share of students enrolled in VET as a percentage of all students enrolled at this level	% of VET students enrolled in combined school- and work-based programmes	% who are female	% aged 20 and older	% aged 25 and older
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	13	41	21	24	13	34	98	49	26	44	85	62
	Austria	a	72	5	23	a	a	a	68	45	43	13	4
	Belgium	14	72	10	4	19	48	m	57	6	51	m	m
	Canada	a	m	m	m	a	a	a	9	m	46	m	m
	Chile	a	32	a	68	a	a	a	16	12	47	5	2
	Colombia	a	35	a	65	a	a	a	27	m	53	1	0
	Costa Rica	47	53	a	a	17	49	5	32	a	55	24	12
	Czech Republic	1	97	2	0	1	44	100	71	a	45	15	6
	Denmark	a	75	a	25	a	a	a	38	100	41	71	35
	Estonia	4	76	20	a	3	43	100	40	6	41	45	29
	Finland	a	91	9	a	a	a	a	72	14	51	67	51
	France	a	67	1	32	a	a	a	39	25	42	13	4
	Germany	10	55	35	0	5	33	95	46	89	36	46	11
	Greece	3	53	45	a	1	33	59	29	a	35	m	m
	Hungary	0	64	31	5	0	46	96	38	100	41	15	9
	Iceland	a	79	16	4	a	a	a	28	56	36	68	40
	Ireland	m	m	m	m	17	56	100	36	100	61	79	64
	Israel	1	73	a	26	0	16	1	41	6	50	0	0
	Italy[1]	a	m	m	m	a	a	a	54	a	37	7	3
	Japan	a	m	m	m	a	a	a	22	a	43	m	m
	Korea	a	29	a	71	a	a	a	18	a	41	0	0
	Latvia	1	54	11	34	1	27	90	39	100	41	15	5
	Lithuania	9	46	46	a	2	26	99	27	a	35	19	11
	Luxembourg	a	92	4	4	a	a	a	62	22	48	28	6
	Mexico	48	48	a	4	23	59	93	35	a	48	5	2
	Netherlands	8	88	a	4	6	43	60	68	100	49	46	22
	New Zealand	a	46	22	32	a	a	a	30	m	56	70	56
	Norway	a	89	5	6	a	a	a	49	71	39	29	10
	Poland	a	74	26	0	a	a	a	52	14	38	2	0
	Portugal	12	79	2	6	7	40	79	40	14	43	18	8
	Slovak Republic	4	85	9	2	2	44	89	68	13	45	7	3
	Slovenia	a	86	a	14	a	a	a	71	28	45	25	7
	Spain	2	57	2	39	1	44	100	36	3	46	52	34
	Sweden	a	83	8	10	a	a	a	35	6	51	43	31
	Switzerland	a	94	4	2	a	a	a	64	90	41	25	7
	Turkey	a	49	a	51	a	a	a	46	74	47	6	2
	United Kingdom[2]	19	74	a	7	15	45	99	44	48	51	46	30
	United States	a	a	m	m	a	a	a	a	a	a	a	a
	OECD average	6	67	10	17	4	41	80	42	34	45	30	17
	EU23 average	4	70	13	13	3	41	89	47	38	45	31	17
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	0	53	47	0	0	55	96	11	a	55	26	17
	China	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	a	a	a	m	m	m	m	m
	Indonesia	m	m	m	m	a	a	a	44	m	43	5	0
	Russian Federation	a	50	2	49	a	a	a	51	m	41	11	2
	Saudi Arabia	m	m	m	m	a	a	a	1	m	m	45	26
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

		Enrolment in post-secondary non-tertiary vocational education				Enrolment in short-cycle tertiary vocational education	
		Share of students enrolled in VET as a percentage of all students enrolled at this level	Of which:			Share of students enrolled in VET as a percentage of all students enrolled at this level	Of which:
			% of VET students enrolled in combined school- and work-based programmes	% who are female	% aged 25 and older		% who are female
		(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries						
	Australia	100	6	54	80	96	59
	Austria	100	55	79	48	100	53
	Belgium	93	m	50	55	100	61
	Canada	m	m	m	m	m	m
	Chile	a	a	a	a	100	54
	Colombia	a	a	a	a	100	48
	Costa Rica	a	a	a	a	a	a
	Czech Republic	36	a	45	m	100	64
	Denmark	a	a	a	a	100	46
	Estonia	100	5	72	65	a	a
	Finland	100	62	57	97	a	a
	France	55	a	72	14	100	48
	Germany	93	54	56	20	100	65
	Greece	100	2	54	30	a	a
	Hungary	100	100	55	28	100	62
	Iceland	99	9	35	82	60	41
	Ireland	100	95	40	45	m	m
	Israel	a	a	a	a	100	49
	Italy[1]	x(8)	x(9)	x(10)	x(12)	100	27
	Japan	m	a	m	m	81	56
	Korea	a	a	a	a	100	40
	Latvia	100	100	63	47	100	60
	Lithuania	100	a	54	53	a	a
	Luxembourg	100	100	23	70	100	57
	Mexico	a	a	a	a	100	40
	Netherlands	a	a	a	a	100	55
	New Zealand	84	m	50	54	95	53
	Norway	100	a	71	77	100	17
	Poland	100	a	71	40	100	84
	Portugal	100	100	33	52	100	37
	Slovak Republic	100	11	56	48	100	65
	Slovenia	a	a	a	a	100	40
	Spain	100	20	60	88	100	48
	Sweden	76	81	60	80	89	50
	Switzerland	77	a	61	56	100	62
	Turkey	a	a	a	a	100	49
	United Kingdom[2]	a	a	a	a	50	56
	United States	100	m	60	54	m	m
	OECD average	92	53	55	56	96	52
	EU23 average	95	60	56	52	97	53
Partners	Argentina	m	m	m	m	m	m
	Brazil	100	a	58	49	100	65
	China	m	m	m	m	m	m
	India	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m
	Russian Federation	100	m	34	38	100	51
	Saudi Arabia	100	m	56	21	m	m
	South Africa	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m

1. Upper secondary vocational programmes include post-secondary non-tertiary programmes.
2. Short-cycle tertiary programmes include a small number of bachelor's professional programmes.

Source: OECD/UIS/Eurostat (2020). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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

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Table B7.2. Pathways between upper secondary or post-secondary non-tertiary education and higher levels of education, by type of programme and programme orientation (2018)

Full- and part-time students enrolled in public and private institutions

		Average age of enrolment in upper secondary education		Distribution of students enrolled in upper secondary education by type of programme and orientation					
				General education			Vocational education		
		General education	Vocational education	Insufficient (or partial level completion) without access to tertiary education (ISCED 341 and 342)	Full level completion without direct access to tertiary education (ISCED 343)	Full level completion with direct access to tertiary education (ISCED 344)	Insufficient (or partial level completion) without access to tertiary education (ISCED 351 and 352)	Full level completion without direct access to tertiary education (ISCED 353)	Full level completion with direct access to tertiary education (ISCED 354)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Countries								
	Australia	17	32	a	a	a	a	a	a
	Austria	16	17	14	2	84	4	1	95
	Belgium	m	m	43	22	35	29	48	23
	Canada	m	m	a	a	100	a	a	100
	Chile	17	17	a	a	100	a	a	100
	Colombia	16	16	a	a	100	a	a	100
	Costa Rica	20	20	a	a	100	a	a	100
	Czech Republic	17	18	7	a	93	a	32	68
	Denmark	19	25	5	a	95	12	12	76
	Estonia	18	24	a	a	100	41	a	59
	Finland	18	28	a	a	100	a	a	100
	France	16	18	a	a	100	a	38	62
	Germany	17	20	a	a	100	5	3	92
	Greece	16	m	a	a	100	a	9	91
	Hungary	19	18	a	a	100	a	100	0
	Iceland	19	26	11	4	85	18	78	4
	Ireland	17	35	27	23	50	a	100	a
	Israel	16	16	1	11	88	a	6	94
	Italy	16	17	a	a	100	a	11	89
	Japan[1]	16	16	x(6)	a	100 [d]	x(9)	2	98 [d]
	Korea	16	16	a	a	100	a	a	100
	Latvia	19	19	a	a	100	6	5	89
	Lithuania	18	20	1	a	99	3	a	97
	Luxembourg	17	19	a	a	100	a	52	48
	Mexico	17	16	a	a	100	a	3	97
	Netherlands	16	23	a	a	100	a	49	51
	New Zealand	17	31	a	a	100	18	82	a
	Norway	18	20	a	a	100	a	100	a
	Poland	19	17	a	a	100	a	23	77
	Portugal	19	19	a	a	100	0	a	100
	Slovak Republic	17	18	a	a	100	3	18	79
	Slovenia	17	19	a	a	100	a	30	70
	Spain	17	25	38	a	62	6	34	59
	Sweden	21	24	13	a	87	9	91	a
	Switzerland	17	19	15	1	84	a	6	94
	Turkey	19	16	a	a	100	a	1	99
	United Kingdom	15	24	67	a	33	48	a	52
	United States	16	a	a	a	100	a	a	a
	OECD average	17	21	7	2	92	5	25	70
	EU23 average	17	21	9	2	89	7	27	66
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	18	20	a	a	100	a	a	100
	China	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m
	Indonesia	17	17	m	m	m	m	m	m
	Russian Federation	17	18	m	m	m	m	m	m
	Saudi Arabia	17	20	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m

		Pathways between upper secondary vocational programmes and higher levels of education				Distribution of students enrolled in vocational post-secondary non-tertiary education	
		Full level completion, without direct access to tertiary education (ISCED 353)		Full level completion, with direct access to tertiary education (ISCED 354)			
		Students who graduate from these programmes have direct access to:					
		General programmes in upper secondary education	Post-secondary non-tertiary education	General programmes in upper secondary education	Post-secondary non-tertiary education (ISCED 4) or/and tertiary education (ISCED 5 to 8)	Sufficient for level completion, without direct access to tertiary (ISCED 453)	Sufficient for level completion, with direct access to tertiary (ISCED 454)
		(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries						
	Australia	No	a	a	a	a	a
	Austria	No	No	No	ISCED 5	45	55
	Belgium	Some	Some	Some	ISCED 6	64	36
	Canada	a	a	Yes	ISCED 4	m	m
	Chile			No	ISCED 5, 6	a	a
	Colombia	a	a	Yes	ISCED 5	a	a
	Costa Rica	m	a	a	m	a	a
	Czech Republic		No	m	ISCED 5, 6, 7	60	40
	Denmark	m	No	m	ISCED 5	a	a
	Estonia	No	No	No	ISCED 6	a	100
	Finland	a	a	Yes	ISCED 4, 6, 7	a	100
	France	No	a	Yes	ISCED 5, 6	a	100
	Germany	No	Some	No	ISCED 4, 6	38	62
	Greece		Yes	m	ISCED 4, 6	100	a
	Hungary		No	a	a	a	100
	Iceland	Yes	Yes	Yes	ISCED 5	96	4
	Ireland		Yes	a	a	100	a
	Israel	Yes	No	Yes	ISCED 4, 5, 6	a	a
	Italy		No	m	ISCED 5, 6	m	m
	Japan[1]	Yes	No	Yes	ISCED 4, 5, 6, 7	m	m
	Korea	a	a	No	ISCED 5, 6	a	a
	Latvia	Yes	No	Yes	ISCED 4, 5, 6 ,7	100	a
	Lithuania	a	a	m	ISCED 4, 6	a	100
	Luxembourg	m	m	m	m	100	a
	Mexico	No	No	Yes	ISCED 5, 6	a	a
	Netherlands	Yes	Some	Yes	ISCED 4, 5, 6	a	a
	New Zealand	a	Some	a	a	1	98
	Norway	Yes	Some	a	a	100	a
	Poland	No	No	No	ISCED 4, 5, 6 ,7	100	a
	Portugal	a	a	No	ISCED 5, 6, 7	a	100
	Slovak Republic	Yes	Yes	Yes	ISCED 5, 6	a	100
	Slovenia	Yes	No	Yes	ISCED 5, 6	a	a
	Spain	Some	No	Yes	ISCED 5	100	a
	Sweden	No	Yes	m	a	81	19
	Switzerland		No	m	ISCED 6	a	100
	Turkey		No	Yes	ISCED 5, 6	a	a
	United Kingdom	a	a	m	ISCED 5	a	a
	United States	a	a	a	a	a	100
	OECD average	m	m	m	m	47	53
	EU23 average	m	m	m	m	49	51
Partners	Argentina	m	m	m	m	m	m
	Brazil	a	a	a	ISCED 4, 5, 6	a	100
	China	m	m	m	m	m	m
	India	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m

1. ISCED 7 in column 12 includes only Master's long first degree programmes.

Source: OECD/UIS/Eurostat (2020). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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

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Table B7.3. Main characteristics of combined school- and work-based programmes in upper secondary education (2018)

Full- and part-time students enrolled in public and private institutions

	Share of students enrolled in combined school- and work-based programmes as a percentage of all students enrolled in vocational education	Of which: % enrolled in combined school- and work-based programmes (into brackets), by name of programme and ISCED levels (total is 100%)[1]
	(1)	(2)
OECD Countries		
Australia	26	Certificate III apprenticeships and traineeships – ISCED 35 (100%)
Austria	45	Courses for medical staff – ISCED 351 (4%) Courses for qualified medical staff – ISCED 353 (1%) Apprenticeship – ISCED 354 (95%)
Flemish Comm. (Belgium)[2]	3	Apprenticeship – ISCED 354 (100%)
French Comm. (Belgium)	m	Regular education (2nd stage) – ISCED 351 or 352 (18%) Regular education (3rd stage) – ISCED 353 or 354 (38%) Adult programmes – ISCED 353 (44%)
Canada	a	a
Chile	12	Technical Education – ISCED 354 (100%)
Colombia	a	a
Costa Rica	a	a
Czech Republic	a	a
Denmark	100	Vocational educational training, basic course 1 – ISCED 351 (12%) Vocational educational training, main course – ISCED 353 (12%) or 354 (76%)
Estonia[3]	6	Basic vocational training provision (initial and further) -ISCED 351 (41%) Regular education – ISCED 354 (59%)
Finland	14	Initial vocational qualifications – ISCED 354 (52%) Programmes for further vocational qualification – ISCED 354 (48%)
France[3]	25	Certificate of vocational ability (CAP) – ISCED 353 (58%) Vocational qualification of craftsmanship (BP) – ISCED 353 (18%) Professional baccalaureate (Bac Pro) – ISCED 354 (19%)
Germany	89	Training for civil servants – ISCED 353 (2%) Dual System – ISCED 354 (98%)
Greece	a	a
Hungary	100	Initial vocational qualifications – ISCED 353 (100%)
Iceland	56	Specific Skills Training – 351 (17%) Initial vocational qualifications – ISCED 353 (83%)
Ireland	100	Specific Skills Training – ISCED 351 (100%)
Israel	6	Apprenticeship & Industrial schools – ISCED 353 (18%) Apprenticeship & Industrial schools – ISCED 353 (82%)
Italy	a	a
Japan	a	a
Korea	a	a
Latvia	100	Programme to acquire the 2nd level professional qualification – ISCED 351 (6%) Programme to acquire the 2nd level professional qualification – ISCED 353 (5%) Programme to acquire the 3rd level professional qualification – ISCED 354 (89%)
Lithuania	a	a
Luxembourg	22	m
Mexico	a	a
Netherlands[2, 4]	100	Vocational education, basic vocational training (level 2) – ISCED 353 (7%) Vocational education, professional training (level 3) – ISCED 353 (31%) Vocational education, middle-management training (level 4) – ISCED 354 (62%)
New Zealand	m	Certificates on the National Qualifications Framework – ISCED 351 or 353 or 354 (100%)
Norway	71	Initial vocational qualifications – ISCED 353 (100%)
Poland	14	Stage I sectoral VET school (for youth), young workers – ISCED 353 (100%)
Portugal[2]	14	Apprenticeship – ISCED 354 (96%) Vocational courses (Dual) – ISCED 354 (4%)
Slovak Republic	13	Apprenticeship centers and specialised schools – ISCED 352 or 353 or 354 (100%)
Slovenia[2]	28	Initial vocational qualifications – ISCED 353 (100%)
Spain	3	Professional Certificate, level 2 – ISCED 351 (7%) Basic vocational training provision – ISCED 353 (15%) Vocational training, intermediate level – ISCED 354 (79%)
Sweden	6	Adult education for people with learning disabilities – ISCED 353 (17%) Programmes for pupils with learning disabilities – ISCED 353 (83%)
Switzerland[1]	90	Vocational education, in dual system 2 years – ISCED 353 (7%) Vocational education, in school and in the dual system – ISCED 354 (93%)
Turkey[2, 3]	74	Vocational and Technical Upper Secondary School – ISCED 354 (85%) Open Vocational High School – ISCED 354 (10%) Vocational Education Centers – ISCED 354 (5%)
United Kingdom	48	Apprentices work towards work-based learning qualifications – ISCED 352 (50%) and ISCED 354 (50%)
United States	a	a
OECD average	34	m
EU23 average	38	m

		Main characteristics of combined school- and work-based programmes in upper secondary education				
		Theoretical starting age	Theoretical duration of the programme (in years)	Status of the work-based component (mandatory/ optional)	Duration of the work-based component as a percentage of the programme duration	Do participants receive remuneration for the work-based component?
		(3)	(4)	(5)	(6)	(7)
OECD	Countries					
	Australia	a	1-4	Varies	Varies	Sometimes
	Austria	15-17	0.5-1	Mandatory	40-67	Never or in few cases
		15-17	2-2.5	Mandatory	40-75	Never or in few cases
		15	2-4	Mandatory	80	Yes
	Flemish Comm. (Belgium)[2]	15-16	3	Mandatory	At least 46% for 81% of students; at least 70% for the others	Yes
	French Comm. (Belgium)	14	2	Mandatory	60	Yes
		16	2	Mandatory	60	Yes
		>=15	m	Mandatory	m	Never or in few cases
	Canada	a	a	a	a	a
	Chile	16	2	Mandatory	Varies	Never or in few cases
	Colombia	a	a	a	a	a
	Costa Rica	a	a	a	a	a
	Czech Republic	a	a	a	a	a
	Denmark	15-18	6 months	m	m	m
		15-30	3-5 years	m	m	m
	Estonia[3]	17-19	3 months – 1 years	Mandatory	25	Sometimes
		16	3-4	Mandatory	18-25	Sometimes
	Finland	16	3	Mandatory	80-90	Yes
		18-65	1-3	Mandatory	80-90	Yes
	France[3]	15	2	Mandatory	75	Yes
		18-22	2	Mandatory	75	Yes
		15	3	Mandatory	62	Yes
	Germany	16-18	2	Mandatory	50	Yes
		16-18	3	Mandatory	60	Yes
	Greece	a	a	a	a	a
	Hungary	14-16	3-4	m	m	m
	Iceland	16	0.5-1.5	Mandatory	33	Yes
		16	3-4	Mandatory	20-50	Yes
	Ireland	16-35	1	m	m	m
	Israel	15	3	Mandatory	25	Yes
		14	4	Mandatory	20	Yes
	Italy	a	a	a	a	a
	Japan	a	a	a	a	a
	Korea	a	a	a	a	a
	Latvia	17	1	Optional	Practical training share is 65%	Yes
		16	3	Optional	Practical training share is 65%	Yes
		16	4	Optional	Practical training share is 50%	Yes
	Lithuania	a	a	a	a	a
	Luxembourg	m	m	m	m	m
	Mexico	a	a	a	a	a
	Netherlands[2, 4]	16	2-3	Mandatory	70	Yes
		16	3	Mandatory	70	Sometimes
		16	3-4	Mandatory	70	Sometimes
	New Zealand	a	<=1	Varies	Varies	m
	Norway	16	3-5.5	Mandatory	50	Yes
	Poland	under 18	3	Mandatory	46	Yes
	Portugal[2]	15	3	Mandatory	41	Never or in few cases
		16	2	Mandatory	47	Never or in few cases
	Slovak Republic	15	2-4	m	m	m
	Slovenia[2]	15	3	Mandatory	22-50	Sometimes
	Spain	>=16	0.5	Mandatory	m	Yes
		>=15	2	Mandatory	At least 35%	Never or in few cases
		16	2	Mandatory	At least 35%	Never or in few cases
	Sweden	16	m	m	m	m
		16-17	4	Mandatory	60	Never or in few cases
	Switzerland[1]	15-17	2	Mandatory	80	Yes
		15-17	3-4	Mandatory	80	Yes
	Turkey[2, 3]	13-14	4	Mandatory	50	Yes
		a	4	m	33	m
		13-14	4	Mandatory	90	Yes
	United Kingdom	14-18 or	Varies	Mandatory	<80	Yes
		19+		Mandatory	<80	Yes
	United States	a	a	a	a	a
	OECD average	m	m	m	m	m
	EU23 average	m	m	m	m	m

Note: This table includes only combined school- and work-based programmes. In these programmes, at least 10%, but less than 75%, of the curriculum is presented in the school environment or through distance learning, with the remainder organised as work-based learning.

1. ISCED 351 includes all vocational programmes insufficient for level completion. ISCED 352 includes all vocational programmes sufficient for partial level completion, without access to tertiary education. ISCED 353 includes all vocational programmes sufficient for level completion, without direct access to tertiary education. ISCED 354 includes all vocational programmes sufficient for level completion, with direct access to tertiary education. See *Definitions* section for more information.

2. The share of students enrolled in combined school- and work-based programmes as a percentage of all student enrolled in vocational education is estimated based on the results of the INES ad-hoc survey on VET.

3. Additional combined school- and work-based programmes exist but they represent only a small proportion of total enrolment in combined school- and work-based programmes.

4. The share of students enrolled in combined school- and work-based programmes as a percentage of all student enrolled in vocational education is for public institutions only.

Source: 2020 INES ad-hoc survey on vocational education and training (VET). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/69096873-en).

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

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