Spotlight on Vocational Education and Training

Findings from Education at a Glance 2023

September 2023

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Acknowledgment

Education at a Glance is one of the OECD's yearly flagship publications. It provides an authoritative compendium of statistics on education systems in OECD countries. This Spotlight draws from Education at a Glance 2023 data with the aim of providing the reader a snapshot of the state of play in vocational education and training (VET) - a vital part of a country's education system, designed to develop occupational skills.

This spotlight is the product of collaborative effort between OECD governments, the experts and institutions working within the framework of the OECD Indicators of Education Systems (INES) programme, and the OECD Secretariat. It was prepared within the Innovation and Measuring Progress Division of the OECD Directorate for Education and Skills under the responsibility of Tia Loukkola. The production of the spotlight on VET was led by Eric Charbonnier and Viktoria Kis. Marieke Vandeweyer provided feedback and advice. Della Shin supported the editorial and production process.

Find out more from the OECD Education at a Glance 2023 data by visiting https://www.oecd.org/education/education-at-a-glance/.

Executive summary

What role does vocational education and training play in countries' education systems?

- Vocational education and training (VET) is a key component of most education systems in OECD countries. About one in three 25-34 year-olds have a vocational qualification as their highest level achieved, whether at upper secondary, post-secondary non-tertiary or short-cycle tertiary level.
- The bulk of vocational training is delivered at upper secondary level. More than two-thirds of students pursuing vocational education are enrolled in an upper secondary programme.
- VET programmes also serve learners who are no longer in initial education. VET provision includes occupational training for adults, upskilling and reskilling, and second chance programmes that are part of the formal education and training system. For this reason, students enrolled in vocational programmes are often older than those in general ones. 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). About two-thirds of the 20-24 year-old upper secondary level students are in VET programmes.

How do VET systems differ in structure and importance? Which learning pathways are open to upper secondary VET graduates?

- Although programmes combining school- and work-based learning offer many labour-market advantages (e.g. contact with potential employers, or learning technical and socio-emotional skills from experienced colleagues), on average, only 45% of students in upper secondary vocational education in OECD countries are enrolled in programmes with significant work-based learning elements. Enrolment in upper secondary programmes combining school- and work-based learning increased by 3 percentage points between 2015 and 2021 in countries with data for both years.
- Access to tertiary education matters, both to make VET programmes attractive and to allow VET graduates to further develop their skills or change career paths. About three-quarters of upper secondary vocational students are pursuing programmes that yield direct access to tertiary education. In most cases this means eligibility for all types of tertiary education, but in some countries, access is limited to short-cycle tertiary education or to some applied, professionally oriented bachelor's programmes. In many countries, learners also have the option of following a bridging programme at upper secondary level to gain access to tertiary studies.

How do VET systems compare in terms of equity?

- Learners from less advantaged social backgrounds tend to be over-represented in vocational programmes. In all countries with available data, the share of students with at least one tertiary-educated parent is considerably higher in upper secondary general programmes than in vocational ones.
- The share of female students tends to be significantly lower in upper secondary vocational programmes than in general programmes. On average across OECD countries, women make up 53% of graduates from general upper secondary programmes, compared to 45% of those from vocational ones.

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How do completion patterns vary in upper secondary VET?

- Programme completion rates are an important measure for determining the success and efficiency of vocational education and training. A smaller share of those enrolled in upper secondary vocational education complete their programme within its theoretical duration (62%) than those in general education (77%).
- Both male students enrolled in upper secondary vocational education and those enrolled in VET programmes that do not give direct access to tertiary education are less likely to complete upper secondary education than the other upper secondary VET students, even after an additional two years.

What are the labour-market benefits of holding a vocational qualification?

- Acquiring an upper secondary vocational qualification reduces the risk of unemployment in all countries, and facilitates access to employment. On average in OECD countries, the employment rate for 25-34 year-olds with upper secondary or post-secondary non-tertiary education as their highest attainment is 83% for those with a vocational qualification and 73% for those with a general one.
- Among those with upper secondary or post-secondary non-tertiary attainment, the earnings difference by programme orientation is small or even negligible among 25-34 year-olds but widens among 45-54 year-olds, usually in favour of those with a general qualification. However, in many countries, only a very small share of the population has general upper secondary attainment as highest level of education and most graduates go on to study at tertiary level.
- Gender gaps in employment and wages persist in virtually all countries. On average across OECD countries, 74% of 25-34 year-old women who attained a vocational upper secondary or post-secondary non-tertiary programme as their highest level of educational attainment are employed, against 89% of their male peers.
- Upper secondary VET graduates are less likely to continue in education than their peers from general programmes. On average across OECD countries, 29% of 25-29 year-olds with general upper secondary or post-secondary non-tertiary attainment are in education, the rest are either employed or neither employed nor in education or training (NEET). Those with vocational upper secondary or post-secondary non-tertiary attainment are much less likely to be enrolled in education (only 9% on average) while 75% are employed and around 17% NEET.

How is VET resourced?

- As they often require specific equipment and infrastructure, vocational education and training programmes typically cost more per student than general programmes. On average across OECD countries, total expenditure on educational institutions per student in 2020 is about USD 11 400 in general upper secondary programmes, compared to about USD 13 200 in vocational ones.
- The teaching profession in vocational education is ageing, which may create a problem in renewing the workforce over the next decade. On average across the 25 OECD countries with available data, 45% of teachers in upper secondary VET programmes were at least 50 years old in 2021, compared to 41% in 2013. This share is higher than for general education teachers (38% in 2021). The issue may be more pronounced in vocational education because of the fact that some teachers gain industry experience before joining the profession.
- The student-to-teaching-staff ratio in vocational programmes across OECD countries is higher than in general programmes, with 15 students per teacher on average in VET compared to 14 in general programmes, which can raise problems for the quality of learning.

Introduction

What is the role of VET in education systems?

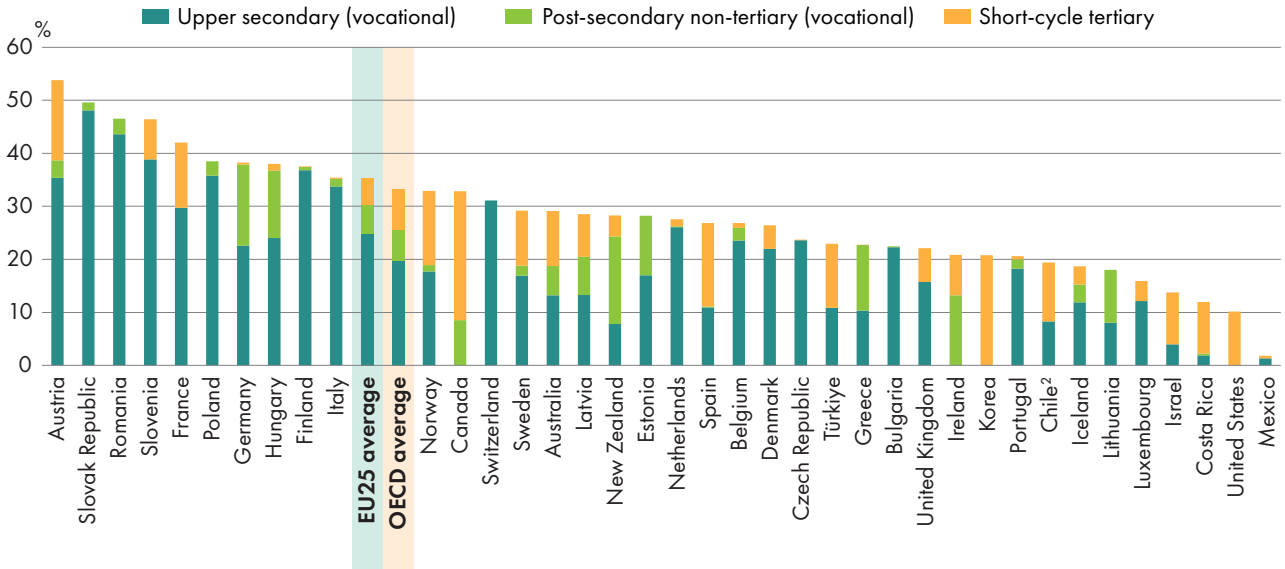
The organisation and structure of vocational education vary considerably from one country to another. Approaches range from not having a differentiated vocational track in initial upper secondary education at all, to having most students in upper secondary education pursuing vocational programmes often with the option to choose between several vocational tracks.

On average, one-third of 25-34 year-olds in OECD countries have a vocational qualification as their highest level achieved, either at upper secondary, post-secondary non-tertiary or short-cycle tertiary level. These figures hide wide variation across countries, however. For instance, in Costa Rica and Mexico, less than 2% of 25-34 year-olds have attained a vocational upper secondary qualification as their highest qualification, while in Finland and Slovenia the share is almost 40%, and it reaches 44% in Romania and 48% in the Slovak Republic. Vocational attainment is relatively uncommon in nearly one-third of OECD countries. There are 8 countries where less than one in five 25-34 year-olds hold a vocational qualification (Figure 1).

Given the predominance of upper secondary programmes in many VET systems, the first part of this Spotlight focuses on these programmes, analysing their components and outlining the main challenges to countries aiming to improve their quality, while promoting equity and ensuring better labour-market opportunities for their graduates.

The second part focuses on progression pathways open to VET graduates and higher-level vocational programmes. These are important, as most upper secondary vocational programmes are designed to grant access to higher levels of education, and students who wish to continue their studies should be able to access suitable opportunities. Taken together, the two parts of this Spotlight demonstrate the huge diversity of VET programmes in OECD countries.

Figure 1 • Share of 25-34 year-olds whose highest level of education has a vocational orientation, by level of educational attainment (2022)



Notes: All short-cycle tertiary programmes are considered here vocational, as most enrolment at this level occurs in vocational programmes, although in some countries like the United States some programmes are general.
1. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (9% of adults aged 25-34 are in this group).
2. Year of reference differs from 2022. Refer to the source table for more details.
Countries are ranked in descending order of the share of 25-34 year-olds who attained vocational upper secondary, vocational post-secondary non-tertiary or vocational short-cycle tertiary education.
Source: OECD (2023), Table A1.3.

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1

A focus on upper secondary vocational education

How do VET systems differ in structure and importance?

Upper secondary education is the most common level at which vocational education and training (VET) programmes are provided: on average, 69% of VET students (from upper secondary to short-cycle tertiary levels) pursue a programme at upper secondary level[1]. However, the importance of VET within the broader educational landscape varies widely across countries. This Spotlight analyses the diversity of upper secondary VET programmes and builds a typology of them across three dimensions: 1) the structure; 2) the share of students enrolled; and 3) the use of work-based learning (see Table 1).

The structure of upper secondary VET systems

The first dimension of the typology refers to the structure and degrees of differentiation within upper secondary education systems. Approaches range from having no differentiated vocational tracks at all in initial schooling, to having a single vocational track, or having several vocational tracks.

Most OECD countries have differentiated vocational tracks in upper secondary education, including initial schooling. Some of these offer VET through a single main vocational track in initial education, alongside a general track. In these countries, the single vocational track yields direct access to tertiary education (Table 1).

Another large group of countries offer multiple vocational tracks in initial upper secondary education, some of which lead to tertiary education and some of which do not. The vocational tracks with direct access to tertiary education will have a stronger element of general education (and thus help prepare students for further studies), while others will focus more on preparation for an occupation. For example, Mexico offers a technological *baccalaureat* with access to tertiary education, and technical professional programmes without. In Hungary five-year *technikum* programmes yield access to tertiary education, but three-year vocational programmes do not. In France the bac *professionnel* gives access to tertiary education, while *Certificat d'aptitude professionnelle* (CAP) programmes allows students who so wish to continue their studies towards a vocational baccalaureate once they have obtained their diploma. Among the 2020 CAP graduates (school-based route), 56% have continued their studies within 6 months after graduation (DEPP, 2022).

In a small group of countries, there is no or limited VET in initial upper secondary education. For instance, in some anglophone countries such as New Zealand and the United Kingdom, vocational programmes are mostly offered to students who have completed their initial schooling (although they are still at upper secondary level). For example, New Zealand has a generally oriented school system with one predominant upper secondary programme and most formal VET is offered after this initial schooling, at upper secondary or post-secondary non-tertiary or short cycle tertiary levels.

Finally, in Canada (except for the province of Quebec) and the United States, VET is not offered as a separate programme at upper secondary level. Instead, vocational learning is typically

integrated, available in the form of individual or clusters of optional courses. In such undifferentiated upper secondary (high school) programmes, there is no single decision point when students choose between a vocational or general pathway, as they continue to take courses with a general focus at the same time as pursuing vocational ones. While these vocational courses aim to prepare students' transition from school to the labour market or to further vocational studies, all students receive the same qualification and have access to the same higher level learning opportunities, regardless of whether they took vocational courses or not. Vocational learning in undifferentiated systems is not reported in comparative data. For these countries only VET students at post-secondary and tertiary levels can be identified.

Table 1•Approaches to VET provision in initial upper secondary education (2021)

	Share of VET students at upper secondary level (ISCED 3)		
Approach to VET at upper secondary level (ISCED 3)	Small	Medium	Large
No (or limited) VET in upper secondary initial education	Australia, Ireland, New Zealand (limited VET at ISCED 3), Canada[1], United States (no differentiated VET at ISCED 3)	United Kingdom	n.a.
One vocational track (one access arrangement	Korea, Lithuania	Chile, Colombia, Costa Rica, Estonia, Finland, Latvia, Norway, Portugal, Sweden, Türkiye	
Multiple vocational tracks (multiple access arrangements)	Brazil, Denmark, Iceland, Japan, Spain	Bulgaria, France, Germany, Greece, Israel, Mexico	Austria[2], Belgium, Czech Republic, Croatia, Hungary, Italy, Luxembourg, Netherlands, Poland, Romania, Slovak Republic, Slovenia, Switzerland.

Notes: Table only includes programmes leading to full completion of upper secondary education (ISCED 3). The share of upper secondary VET students enrolled in VET is measured here by the percentage of upper secondary students aged 15-19 who pursue a vocational programme (small – up to 25%; medium – 25-49%; large – 50% or more). A country is considered as having multiple vocational tracks if there are at least two tracks (programmes associated with a particular access arrangement) with at least 5% of upper secondary VET students in each.
Colours indicate the share of VET students pursuing combined school- and work- based programmes. Blue – 50% or more; orange – 25%-49%; not highlighted – less than 25%.
1. In Canada, VET is offered in the province of Quebec.
2. In Austria programmes in BHS schools span levels ISCED 3 and 5 and are considered here as yielding direct access to ISCED 6.
Source: (Kis, forthcoming[1]), Indicator B1 and OECD ISCED mappings (2022).

Participation among 15-19 year-olds

The second dimension of the typology gauges the weight of VET in initial upper secondary education by considering the shares of 15-19 year-olds upper secondary students enrolled in vocational and general education (recognising that some students in this age group will still be in lower secondary education, while others might have completed their upper secondary studies).

On average, 37% of all upper secondary students aged between 15 and 19 are pursuing a vocational programme, but this figure conceals major disparities between countries (Figure 2). There are 13 countries where VET is the main initial upper secondary education pathway. In these countries, more than 50% of upper secondary students aged 15-19 are enrolled in vocational programmes (Table 1). All but one of these countries offer multiple vocational tracks in the sense that different types of vocational programmes have differences in eligibility to higher levels of education (Figure 11). This approach allows education systems to accommodate the diverse needs of a large group of students who are more heterogenous in their learning needs, aspirations and interests than in countries where VET serves a smaller share of students.

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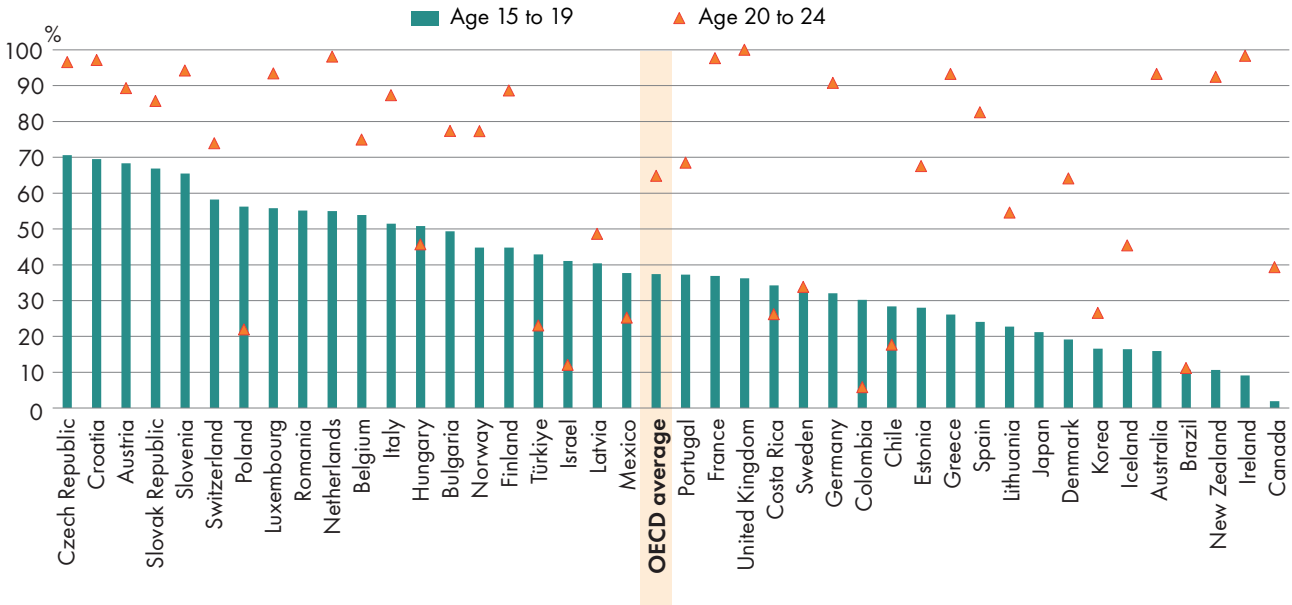
The largest group of countries (17 countries) have medium-sized VET systems at upper secondary level, with 25% to 49% of upper secondary students enrolled in VET. Of these, two-thirds have one vocational track, which always yields direct access to tertiary education. For example, in Chile and Estonia, VET enrols 28% of 15-19 year-olds at this level in programmes that are predominantly school-based. In Norway, 45% of 15-19 year-old upper secondary students are enrolled in VET, a majority of them in the 2+2 school apprenticeship model (i.e. two years of school and two years of apprenticeship) and the others are in variants of it (OECD, 2022[2]). France, Germany and Mexico offer more than one track in initial VET, which enrol over 30% of 15-19 year-old upper secondary students. In Germany, the average entrance age to vocational training is 20 years, and around 30% of new entrants have a higher education entrance qualification. The United Kingdom reports 36% of 15-19 year-olds upper secondary students are in VET, enrolled in post-school settings (e.g. further education colleges, which serve learners aged 16 and over).

Figure 2•Share of upper secondary students enrolled in vocational programmes, by age group (2021)



Countries are ranked in descending order of the share of 15-19 year-olds students in 2021.
Source: Education at a Glance 2023, Table B1.2.

The remaining 12 countries – where less than one-quarter of 15-19 year-olds upper secondary students are enrolled in VET (or where no VET is reported) – take a mix of approaches. For example, Korea and Lithuania offer a single vocational track but several other countries offer multiple vocational tracks (Table 1). Finally, some English-speaking countries report low enrolment in VET at school either because VET is delivered in post-school contexts and/or is offered in non-differentiated programmes. Canada (where both English and French are official languages) reports that only 2% of its 15-19 year-olds upper secondary students are in vocational education as differentiated programmes are only offered in the province of Quebec. The United States reports no enrolment in upper secondary VET, as there are no differentiated vocational programmes in high schools. In Ireland 9% of 15-19 year-olds upper secondary students are pursuing VET, also in post-school contexts (e.g. traineeships, second chance programmes or learning opportunities for marginalised learners), while much of its vocational provision is offered at higher levels (such as apprenticeships and post-leaving certificates at post-secondary non-tertiary level).

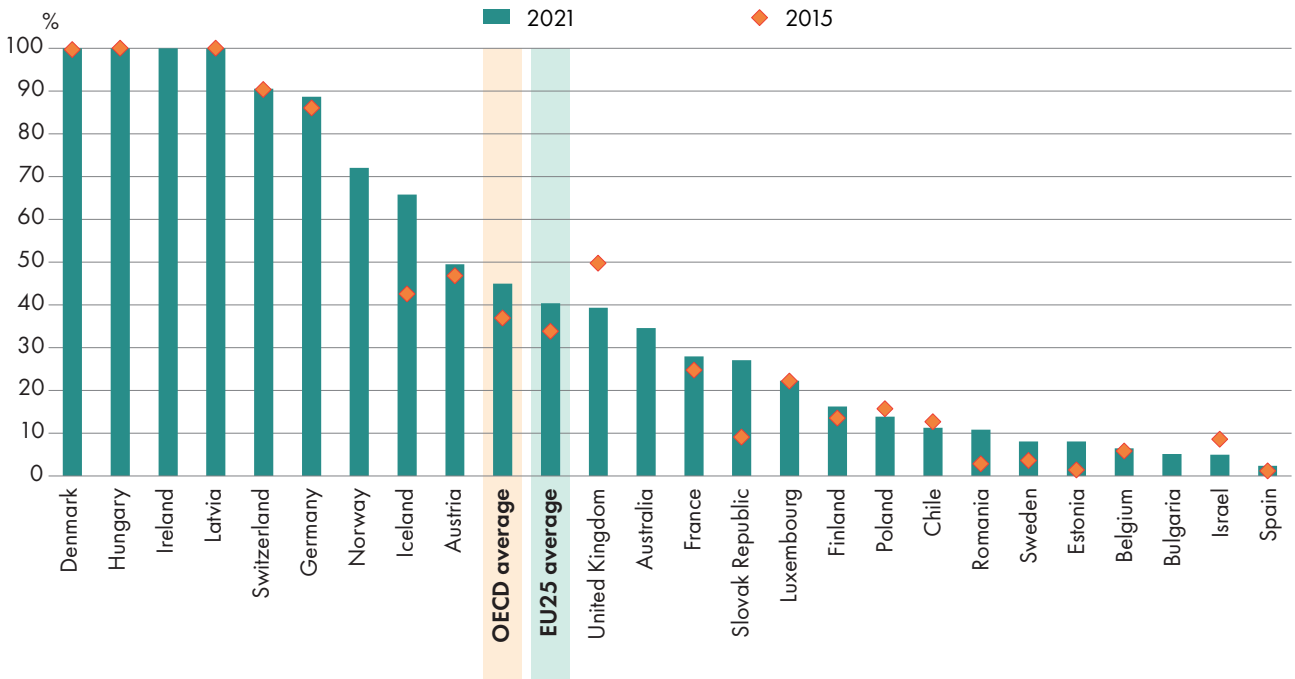
The use of work-based learning

A third dimension differentiating VET systems concerns the use of work-based learning. Including

an element of quality work-based learning in vocational programmes has multiple benefits. Workplaces are powerful environments for the acquisition of both technical and socio-emotional skills. Students can learn from experienced colleagues, working with the equipment and technology in use in their field. It is also easier to develop soft skills like conflict management in real life contexts than in classroom settings. Delivering practice-oriented training in work environments can reduce the cost of training in schools, as equipment is often costly and quickly becomes obsolete. Including a strong element of work-based learning in VET can also help tackle teacher shortages. Finally, work-based learning creates a link between schools and the world of work, as well as between students and potential employers (OECD, 2018[3]).

Despite these numerous labour-market advantages, only 45% of all students in upper secondary vocational education are enrolled in programmes with a substantial work-based element on average across OECD countries (Figure 3). However, looking only at countries with data for 2015 and 2021, enrolment in upper secondary programmes combining school- and work-based learning increased from 37% to 40%.

Figure 3• Share of upper secondary vocational students enrolled in combined school- and work-based programmes (2015 and 2021)



Notes: the work-based component is between 25% and 90% of the curriculum in combined school and work-based programmes. These programmes can be organised in conjunction with education authorities or institutions.
Countries are ranked in descending order of the share of students in combined school- and work- based programmes in 2021.
Source: Education at a Glance 2023, Table B1.2.

The use of work-based learning in vocational programmes varies widely between countries. Figure 3 shows the share of students in programmes that involve at least 25% work-based learning. In six countries, at least 85% of VET students pursuit these kinds of programmes[2]. In a large group of countries, both school-based and combined school- and work-based programmes have a substantial presence, while in seven countries less than 10% of students pursue combined school- and work-based VET.

Some countries with a small share of students in combined school- and work-based programmes are making efforts to expand the use of work-based learning. Some, such as Estonia and Romania, and in a lesser extent Spain, have seen the number of students enrolled in such programmes rise sharply since 2015 following reforms. Romania has strengthened the work-based programmes since 2015 and introduced the dual VET pathway in 2017, expanding from less than 5% of students in 2015 to more than 10% in 2021. Estonia has sought to improve transitions to the labour market by

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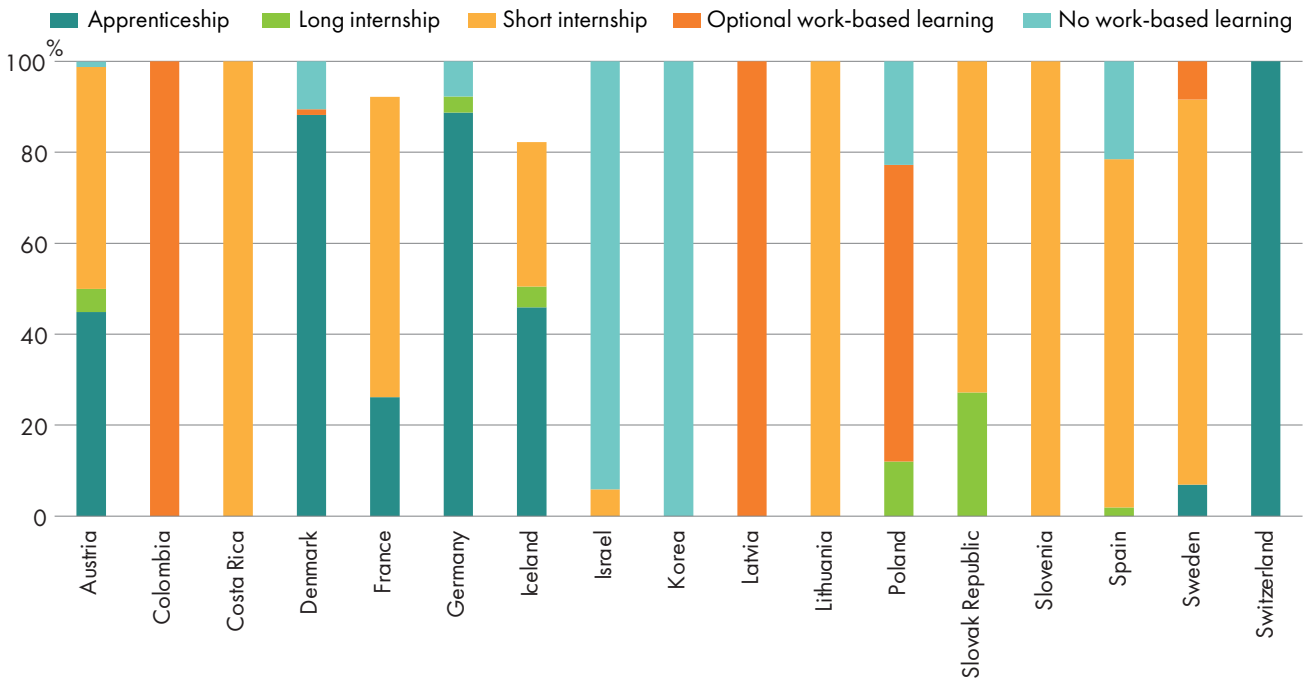
developing work-based learning and by clarifying the qualifications system. New regulations in Spain have sought to strengthen the links between companies and VET providers, and to increase the work-based learning component. Sweden has been expanding apprenticeships, increasing the share upper secondary vocational students taking part in them from less than 4% in 2015 to 8% in 2021 (Figure 3).

More generally, apprenticeships and other forms of work-based learning have received a great deal of 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 differs across countries. Some have strengthened their apprenticeship training and other forms of work-based learning. For some countries (Australia, Belgium, Chile, Finland, France, Ireland, Israel, Italy, Korea, Norway and the United Kingdom) this meant creating new places in apprenticeship programmes. Some countries (Australia, Belgium, Canada, Hungary and Korea) have focused additional attention on public support for students to access VET and on the provision of financial incentives to enterprises taking part (Indicator B7 of (OECD, 2020[4]), (OECD, 2018[3]) and Box 1).

Programmes that do not fit the definition of "combined school- and work-based" may still include shorter forms of work-based learning, accounting for less than 25% of the programme's duration. For 16 countries there are more fine-grained data available (see Figure 4), enabling programmes to be broken down into the following categories:

- apprenticeships: work-based learning is mandatory, accounts for at least 50% of the curriculum and is paid
- long internships: work-based learning is mandatory and accounts for 25% to 49% of the curriculum
- short internships: work-based learning is mandatory and accounts for less than 25% of the curriculum
- optional work-based learning: work-based learning is an optional part of the curriculum
- no work-based learning as part of the curriculum.

Figure 4• Distribution of students enrolled in upper secondary vocational programmes by type of work-based learning (2021)



Notes: Numbers may not add up to 100 if information on the type of work-based learning was not available for some programmes. For France data on the type of work-based learning are limited to CAP and *baccalauréat professionel*. In Sweden apprenticeships are unpaid.
Source: Education at a Glance 2023, Indicator B1 and OECD ISCED mappings (2022).

Apprenticeships are the dominant form of upper secondary VET in Denmark, Germany and Switzerland but in other countries programmes with different types of work-based learning co-exist. In France, for example, upper secondary vocational qualifications may be acquired either through an apprenticeship or through a school-based route with a short internship. In Austria, upper secondary VET includes both apprenticeships and programmes in higher technical and vocational colleges with short internships. Short internships are dominant in several countries, including Costa Rica, Lithuania, Slovenia, Spain and Sweden.

How do VET systems compare in terms of equity?

Across OECD countries, there is increasing interest in the development of vocational upper secondary programmes as a means of equipping young people with the skills they need to enter the labour market. Completing a vocational programme offers improved employability compared to a general qualification at the same level. However, vocational education may also raise questions of equity, particularly if the decision to enrol in a vocational programme is determined primarily by students' socio-economic background or gender, or if these streams have a very high share of those students with academic difficulties. While vocational programmes should provide an alternative to academic programmes for those who struggle or are less interested academically, it should be a pathway that works for everyone – including those with strong academic performance.

Enrolment by students' socio-economic background

Students from disadvantaged backgrounds tend to be over-represented in vocational education in most countries with available data. This is partly driven by selection and self-selection mechanisms that shape enrolment in upper secondary education. Half of the countries that participated in the 2022 OECD *Survey of Upper Secondary Completion Rates* report that students' choices (i.e. of whether they can enrol in vocational or general education) are limited by their school performance (e.g. grades in lower secondary education). Performance in an external examination is a factor in nine countries, and teacher or school recommendations matter in seven countries. Finally, in four countries the type of lower secondary education a student has pursued limits their upper secondary options. Only 6 out of 30 countries report that students' choice of upper secondary programme was entirely unconstrained. As school performance is correlated with socio-economic background, this means that students from disadvantaged backgrounds are more likely to pursue vocational programmes. Aspirations also differ, which calls for strong counselling/guidance. Effective VET systems need to serve learners of all backgrounds and avoid being a vehicle for social segregation. The challenge is to ensure that students pursue VET because it suits their interests and abilities, and not because of their personal circumstances, which they cannot influence.

Figure 5 shows the breakdown of students in general and vocational programmes by parents' educational attainment. In all countries with available data except Slovenia, students whose parents have lower educational attainment are substantially over-represented in vocational programmes. In nearly every country, the share of students whose parents have not attained upper secondary education is at least twice as high among entrants to vocational programmes as among entrants to general programmes. The gap is even more striking at the other end of the spectrum, when considering students with at least one tertiary-educated parent. In Portugal, for example, students with at least one tertiary-educated parent make up 34% of those in general programmes, but only 9% of those in vocational ones.

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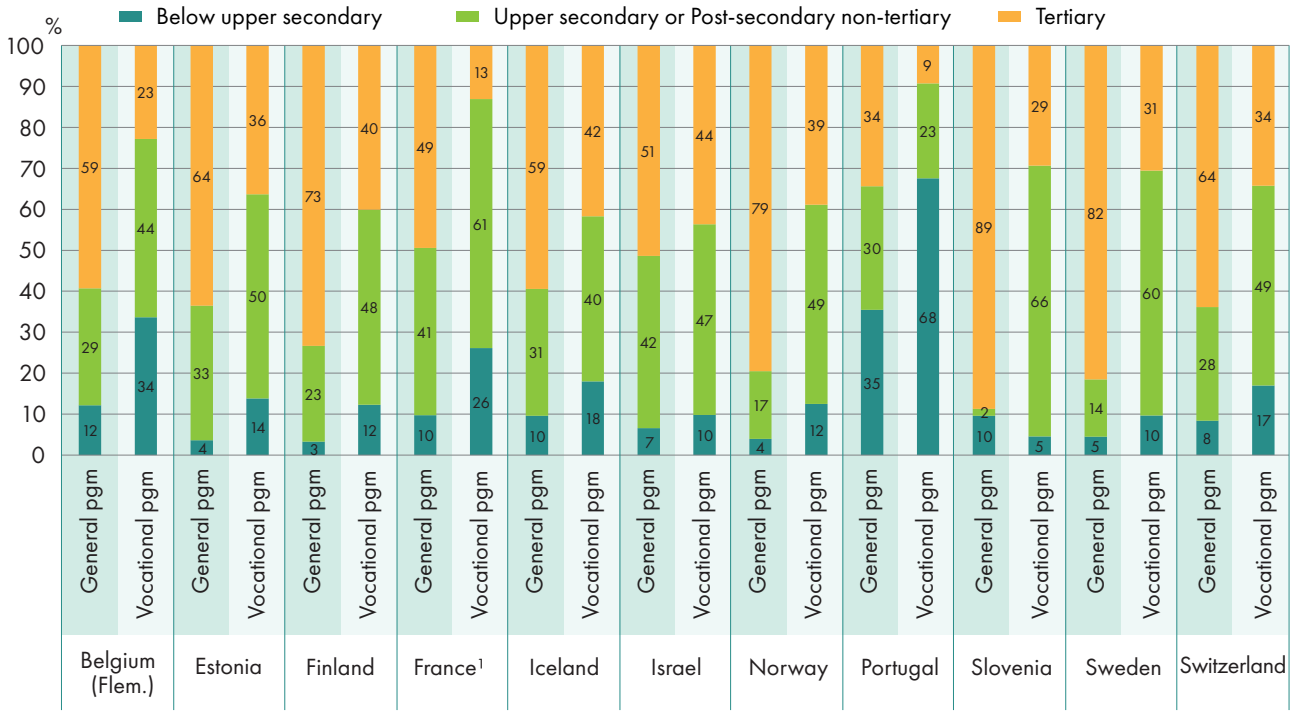
Figure 5•Share of entrants to upper secondary initial education, by programme orientation and parents' educational attainment (2022)



Notes: Data did not take into account students for whom the parents' level of education is unknown.
1. Year of reference 2017.
Source: Education at a Glance database, INES survey on upper secondary completion rates.

Enrolment by gender

Enrolment patterns in VET also vary by gender, and in different ways at upper secondary and higher levels of VET. Overall men are more likely to pursue VET than women. On average across OECD countries, 45% of students enrolled in upper secondary vocational programmes are female. Only in about one-quarter of the 44 countries with available data female students account for the majority. There is, however, significant variation across countries: the share ranges from less than 38% in Germany, Greece, Iceland, India, Italy and Lithuania to over 55% in Brazil, Costa Rica and Ireland.

The pattern changes when looking at post-secondary non-tertiary education. At this level, more than 53% of students are women. They account for the majority of enrolment in most of the countries with available data. It should be noted that although the proportion of women in vocational courses at upper secondary level is low in Germany, they account for 55% of students enrolled in post-secondary non-tertiary programmes, and a very large majority of those enrolled in the health and welfare sector at this level.

The same applies to short-cycle tertiary, but the trend 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 in short-cycle tertiary programmes ranging from less than 30% in Italy and Norway to 65% or more in Brazil, Germany, Poland and the Slovak Republic.

There are two main reasons that may explain the under-representation of women in upper secondary vocational education but not in post-secondary education. First, women have higher upper secondary VET completion rates than men and are therefore more likely to continue their studies in post-secondary education. 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, and especially so in post-secondary non-tertiary education. They represent, for example, 77% of the students enrolled in short-cycle tertiary in Germany in the field of health and welfare. 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 B7, (OECD, 2020[4])).

Several countries have recently implemented reforms to reduce the gender gap in some fields, and are also seeking to widen the talent pool in particular sectors. Thus, some countries provide financial incentives to apprentices from the under-represented gender or to employers taking on these apprentices. In Ireland, for example, employers are eligible for a bursary for every female craft apprentice registered. This bursary has recently been expanded to all programmes where one gender accounts for more than 80% of students. In Canada, the Apprenticeship Incentive Grant for Women helps female apprentices pay for expenses while they train as an apprentice in a designated trade sector where women are under-represented ((OECD, 2022[5]), (OECD, 2023[6])).

Enrolment of older students

The average age of vocational students (21 years old) is higher than for students of general programmes (17 years old). In Denmark, Estonia, Finland, Iceland and Spain, the average age of students in upper secondary level vocational programmes is between 25 and 28; in Australia, Ireland and New Zealand it is over 30.

On average across OECD countries, about two-thirds of 20-24 year olds upper secondary level students are in VET programmes (Figure 2). Relatively high enrolment rates in these programmes among this older age group are explained in some countries by the fact that some VET programmes serve those who seek to re-skill or upskill, or complete upper secondary schooling if they did not do so at a younger age. This includes participation in second-chance programmes and other forms of adult education, as is the case in Finland and Luxembourg. In Australia and New Zealand upper secondary enrolment among 20-24 year-olds is predominantly vocational. This reflects the fact that in these countries initial schooling is largely general and VET is typically pursued after the completion of upper secondary education 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, but also to help students to develop work-relevant skills and to wider their career choices.

How do completion patterns vary in upper secondary VET?

Completion rates in general and vocational programmes

Ensuring that all students complete their upper secondary education is a challenge in several countries, especially in vocational programmes. In most countries, 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 (77%). These averages mask wide differences across countries. Less than 50% of vocational upper secondary students in Iceland, Luxembourg, Norway and Spain complete their studies by the end of the theoretical duration. After a further two years, however, completion rates are higher and exceed 70% in Luxembourg and Norway. In contrast, in some countries, completion rates among vocational students exceed 70% at the end of theoretical duration. There is much less cross-country variation in the case of general programmes. Completion rates in general upper secondary education exceed 70% everywhere except in Austria, Brazil, the French Community of Belgium, Iceland and Portugal (Figure 6).

The completion gap between general and vocational programmes is partly driven by selection or self-selection. Students with weaker school performance and/or motivation are often guided into or opt for vocational programmes. However, unlike most countries, in Brazil, Israel, Portugal and Switzerland, completion rates are higher for students in vocational programmes. In Brazil, public vocational schools are viewed as high-status institutions and face excess demand; many of their graduates continue to higher education (OECD, 2022[7]). In Switzerland, where the VET system is based on apprenticeships, shorter programmes have been developed for youth at risk of dropping out and there are various targeted measures to support completion (OECD, 2018[3]). Another reason for lower completion rates in vocational education is that learners may already accept a job in their training company (or a related one) before finishing their studies.

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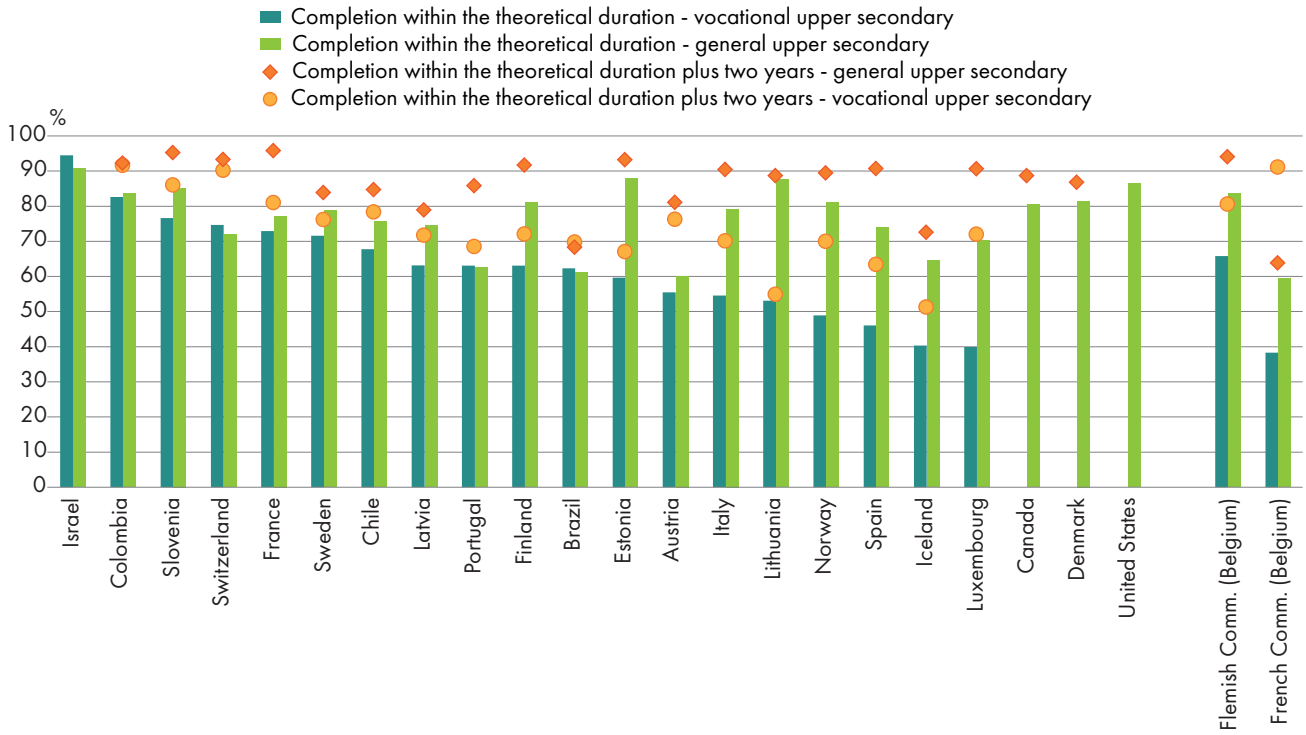
Figure 6•Upper secondary completion rates, by timeframe and programme orientation on entry (2021)



Notes: The data presented here come from an ad-hoc survey and only concern initial education programmes. The reference year (2021, unless noted otherwise) refers to the year of graduation by the theoretical duration plus two years.

1. Year of reference differs from 2021. Refer to the source table for more details.

Countries and other participants are ranked in descending order of the completion rate within the theoretical duration of vocational upper secondary students.

Source: Education at a Glance 2023, Table B3.1.

Completion rates by type of vocational programme

Several countries provide data on completion patterns in different vocational tracks, distinguishing between programmes with or without direct access to tertiary education. In nearly all countries with available data, students who entered programmes without direct access to tertiary education are less likely to complete them than their peers in programmes which do offer such access. In Italy, for example, 53% of students who entered a vocational programme without direct access to tertiary education will have completed their studies two years after the theoretical duration, compared to 71% of those in programmes with direct access. The only exception is Latvia, where the completion rates are 85% for programmes without direct access, and 70% for those with. The difference in completion rates varies considerably across countries, ranging from 21 percentage points in Austria to only 4 percentage points in Slovenia.

The different completion rates between programmes with or without direct access to tertiary education also reflects a combination of selection and self-selection into the programmes. Among countries offering multiple vocational tracks at upper secondary level, programmes with direct access to tertiary education tend to place more emphasis on general content and preparation for further studies. Students with weaker lower secondary school grades and those who are less interested in school-based forms of learning are more likely to choose or be guided towards vocational programmes without direct access to tertiary education, as these tend to have a stronger focus on occupational skills and a lighter academic workload. Some programmes in this category were explicitly designed for youth at risk of dropping out.

Completion rates of general and vocational programmes by gender

Male students are less likely than their female peers to complete upper secondary education. In nearly all countries with available data, female students have higher upper secondary completion rates

than male students. This holds for both vocational and general programmes, with Lithuania and Sweden being the only exceptions for vocational programmes. On average, the gender gap (within the theoretical duration) in general programmes is 7 percentage points, while it is 6 percentage points in vocational programmes. The gender gap in completion rates is consistent for both timeframes (within the theoretical duration and plus two years), although the gap narrows slightly two years after the theoretical duration, indicating that male students, especially when they are enrolled in vocational programmes, are more likely to delay graduation.

Countries show different patterns when it comes to gender gaps in completion rates by programme orientation. The gender gap is wider for vocational programmes in some countries and in general programmes for others. For example, in Norway the gender gaps in completion rates are 20 percentage points for vocational and 7 percentage points for general programmes, and in Spain they are 11 percentage points for vocational programmes and 8 percentage points for general ones. On the other hand, in both Brazil and Israel, the gender gap for general programmes is more than 10 percentage points but less than 5 percentage points for vocational programmes.

What are the labour-market benefits of holding an upper secondary vocational qualification?

Strong vocational programmes need to ensure that graduates are able to find employment and pursue successful careers. Data on outcomes associated with vocational qualifications can shed light on this, but with an important caveat: the difficulty of establishing a suitable point of comparison. Selection and self-selection drive participation in different types and levels of education. As a result, young people who complete tertiary education have different profiles overall in terms of skills and interests from those who hold a vocational qualification as their highest level of education. Comparing VET graduates to general education graduates at the same level is also challenging, as general programmes are not designed to prepare for labour-market entry and the large majority of general education students continue to tertiary education. Comparison to those who leave the education system without an upper-secondary degree may suggest that the alternative to VET is dropping out, which is setting the bar too low.

Employment

High-quality VET programmes can be effective at developing the skills students need to ensure a smooth and successful transition from school into the labour market. Failing to support transition into jobs is also costly – a large share of youth who are neither employed nor in education or training (NEET) involves significant social and economic costs (Mawn et al., 2017[8]).

Holding a vocational upper secondary qualification is associated with higher employment rates than holding a general qualification at the same level or lacking an upper secondary qualification altogether. This potential to facilitate school-to-work transition has been a factor behind increasing policy attention to VET over the last decade (see Box 1). The average employment rate among 25-34 year-old adults is 62% for those without upper secondary education and 83% for those with upper secondary or post-secondary non-tertiary vocational education as their highest attainment.

In OECD countries, the employment rate among younger adults whose highest attainment is upper secondary or post-secondary non-tertiary education is about 10 percentage points higher for those with a vocational qualification than for those with a general qualification. The employment rate of those with upper secondary or post-secondary non-tertiary vocational education has increased by an average of 3 percentage points between 2015 and 2022 (Figure 7).

Gender gaps in employment persist in virtually all countries, for both general and vocational programmes. On average across OECD countries, 74% of 25-34 year-old women with a vocational upper secondary or post-secondary non-tertiary programme as their highest level of educational attainment are employed, against 89% of their male peers. These gaps are similar to those observed in general upper secondary programmes, where employment rates are 80% for men and 66% for women.

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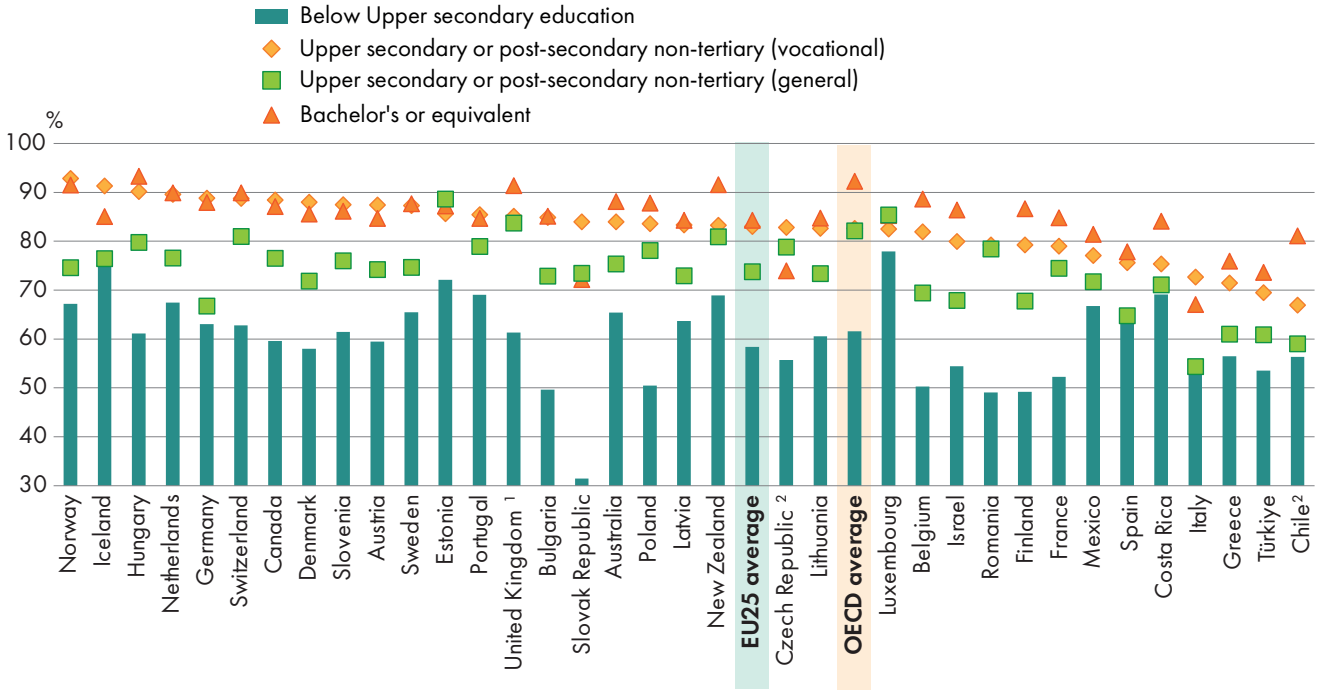
Figure 7•Employment rates of 25-34 year-olds, by educational attainment and programme orientation (2022)



1. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (9% of adults aged 25-34 are in this group).
2. Year of reference differs from 2022. Refer to the source table for more details.
Countries are ranked in descending order of the employment rates of 25-34 year-olds with vocational upper secondary or post-secondary non-tertiary attainment.
Source: Education at a Glance 2023, Table A3.2.

Upper secondary VET graduates are less likely to continue in education than their peers from general programmes. On average across OECD countries, 29% of 25-29 year-olds with general upper secondary or post-secondary non-tertiary attainment are in education, the rest are either employed (55%) or NEET (around 17%). Those with vocational upper secondary or post-secondary non-tertiary attainment are much less likely to be enrolled in education (only 9% on average) while 75% are employed and around 17% NEET.

Attaining upper secondary vocational education or post-secondary non-tertiary education also reduces the risk of unemployment. In most OECD and partner countries, among young adults with upper secondary or post-secondary non-tertiary attainment, those with a vocational qualification have a lower risk of unemployment than those with a general one, although the average difference across OECD countries remains small (about 2 percentage points). The differences in unemployment rates are most pronounced in Costa Rica, Finland and the Netherlands, where they reach 5-7 percentage points.

Earnings

The earnings benefits associated with holding a vocational qualification can vary widely. The differences between countries also reflect the fields offered in VET - some fields have much higher incomes than others (OECD, 2020[9]). It is also important to bear in mind that in many countries only a small group of adults have general upper secondary or post-secondary non-tertiary attainment, while VET graduates form a much larger group. In more than half of OECD, partner and accession countries with available data, young adults with a general upper secondary or post-secondary non-tertiary attainment earn more than those with vocational attainment at that level. Although the difference in earnings is small or even negligible in most cases, it is over 10% in Latvia, Luxembourg and the United Kingdom. In contrast, young adults with a vocational upper secondary or post-secondary non-tertiary attainment earn 10% more than their peers with a general qualification in the Czech Republic and Norway, and the difference reaches almost 30% in Canada (Figure 8).

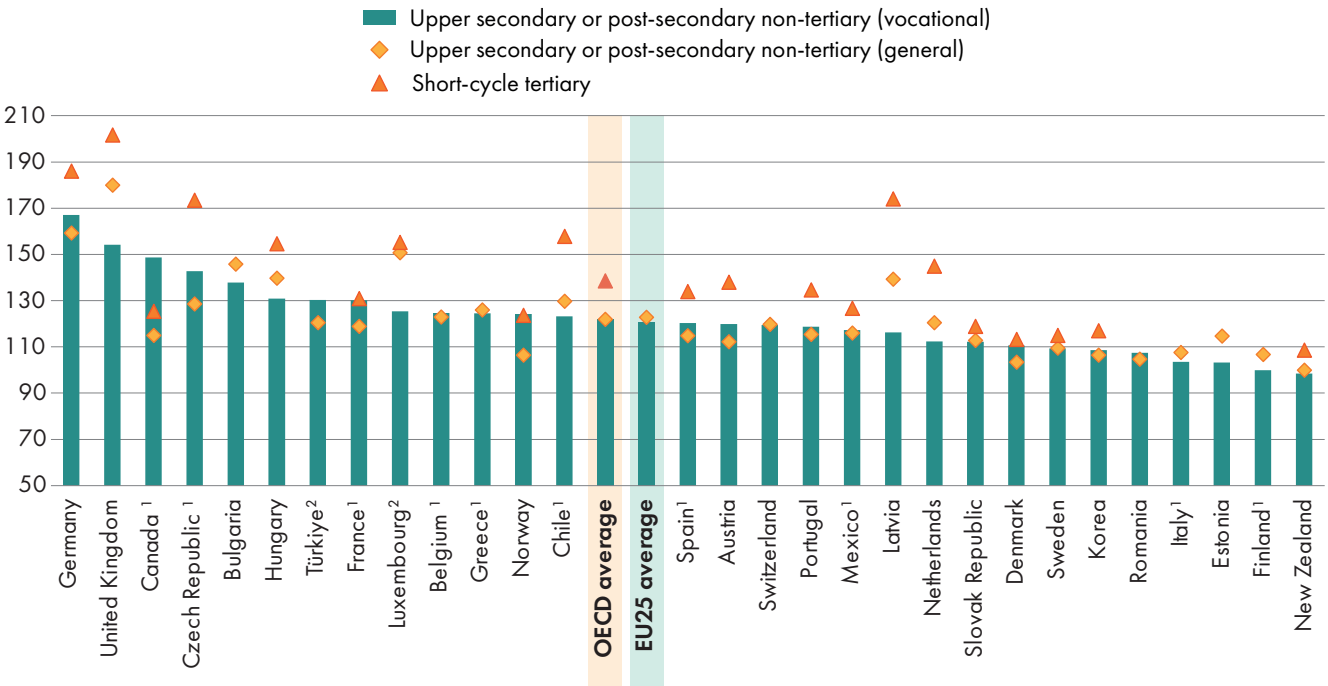
It should be noted that in Canada, there is no differentiated vocational track at upper secondary level outside of Quebec and differentiated occupational preparation starts at post-secondary non-tertiary level. The earnings advantage from vocational qualifications in Canada is therefore not fully comparable with those advantages in other countries where upper secondary vocational education exists.

On average across OECD countries, young adults who attained short-cycle tertiary education earn 14% more than those with vocational upper secondary or post-secondary non-tertiary attainment. The earnings advantage is greatest in Latvia (50%) and the United Kingdom (31%).

Although the earnings difference by programme orientation is small or even negligible among young adults in most OECD, partner and accession countries, the gap widens among 45-54 year-olds, usually in favour of those with a general qualification. On average across OECD countries, 45-54 year-olds with vocational upper secondary or post-secondary non-tertiary attainment earn 6% less than those with a general qualification at the same level. This difference is about 40% in Finland and Luxembourg and is still above 10% in favour of those with a general qualification in Austria, Denmark, Germany, Latvia, the Netherlands and the United Kingdom. In contrast, in Brazil, Canada and the Czech Republic, 45-54 year-olds with a vocational qualification earn at least 10% more than those with a general qualification.

Figure 8•Relative earnings of workers compared to those with below upper secondary attainment, by educational attainment and programme orientation (2021)

Adults with income from employment (full-time full-year workers); 25-34 year-olds; below upper secondary attainment = 100



Notes: There are cross-country differences in the inclusion/exclusion of zero and negative earners.
1. Year of reference differs from 2021. Refer to the source table for more details.
2. Earnings net of income tax.
Countries are ranked in descending order of the relative earnings of 25-34 year-olds who attained vocational upper secondary or post-secondary non-tertiary education.
Source: Education at a Glance 2023, Table A4.4.

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Box 1 • Recent vocational education and training reforms to facilitate the transition from school to work (OECD, 2022[5])

Vocational education and training (VET) has the potential to facilitate students' transition from school to work, prepare them for higher level studies and provide adults with opportunities to improve their skills or change careers. Seeking to realise their VET systems' full potential, many countries have recently changed their policies and have implemented significant reforms since 2013. For example, these have 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 and encouraging employer engagement (OECD, 2018[10]; OECD, 2018[3]).

Several countries have introduced reforms to improve the labour-market relevance and quality of existing VET and adult learning provision (OECD, 2022[5]), with an emphasis on strengthening co-operation with employers and industry:

- In the Republic of Türkiye, the Ministries of National Education and of Industry and Technology signed in 2021 a co-operation protocol to strengthen links between VET institutions and regional hubs that bring together representatives from different employment sectors. The protocol aims to facilitate institutional collaboration for curriculum planning.
- Greece began a broad reform of VET and lifelong learning systems based on three core pillars: integrating strategic planning for VET and lifelong learning; enhancing the alignment of education and training pathways with the real needs of the labour market through collaboration with social partners; and upgrading the structures, procedures, curricula and certification of initial and continuing education. At the national level, a newly established Central Council for Vocational Education and Training conducts analysis of labour-market developments and makes recommendations for updates to VET courses, curricula and infrastructure. At the regional level, Production-Labour Market Liaison Councils identify gaps in VET and adult learning provision and develop proposals based on local skill needs.
- In Germany, the amendment of the German Vocational Training Act (Berufsbildungsgesetz - BBiG) in 2020 strengthened and modernised higher vocational education and training. In order to reinforce vocational upskilling, consistent higher vocational education and training levels have been introduced that stress the equivalence of vocational qualifications (Bachelor Professional, Master Professional) to academic bachelor's and master's degrees and render vocational degrees internationally comparable. In addition, in order to provide a new boost to initial, further and continuing training and professional reorientation, Germany has started the Excellence Initiative for Vocational Education and Training in December 2022. The Excellence Initiative for Vocational Education and Training is intended to raise the attractiveness of vocational education and training for all young people. In addition, it places a special focus on young people who can choose between different training paths (training in the dual system, trade and technical school, higher education study).

- France has been strengthening its upper secondary vocational pathways since the Act for the freedom to choose one's future career in 2018, with the aim of making the VET sector more attractive, more efficient and better oriented towards the needs of an evolving labour market. The reform aims to improve the support, guidance and opportunities available to vocational students by fostering greater collaboration between a variety of actors. This work builds on the Job Campuses (*Campus des métiers* et *qualifications*) established since 2013, which aimed to open up VET institutions to establishing stronger links with higher education and research institutions, other training providers, and economic actors at local level. The September 2018 also provides 5 main measures for apprenticeship in France, namely:
  - Revaluation of the remuneration for 16-20 year-olds + €500 aid for young people aged 18 or over who wish to take the driving test.
  - Better information for young people and their families on the quality of apprenticeships available to them.
  - All apprentices whose employment contract is interrupted during the year will no longer lose their year spent in the VET programme.
  - Apprenticeships will be open to young people up to the age of 30, instead of 26.
  - All work-study contracts are financed, in all sectors, whatever the size of the company.
- New Zealand passed legislation in 2020 providing major reforms of vocational education. These are intended to bring together industry and educators into a single vocational education system, increasing collaboration and consistency of provision, and increasing availability of workplace-based experiences for students.
- Romania introduced in 2017 the dual VET pathway, at the demand and with the active involvement of employers and industry.

How is VET resourced?

Expenditure

Obtaining accurate and comprehensive expenditure data for VET poses various challenges across OECD countries. Different institutional settings imply that funding sources and flows as well as their importance in overall funding differ strongly between countries. Moreover, various country specific challenges in reporting VET expenditure may affect the comparability of VET expenditure statistics. Additionally, the level of expenditure on VET varies greatly across countries, depending on the amount of work-based learning and how it is captured by data, making it sometimes difficult to interpret the data.

VET programmes typically cost more per student than general programmes. On average across OECD countries, total expenditure on educational institutions per student in 2020 is about USD 11 400 in general upper secondary programmes, compared to about USD 13 200 in vocational programmes. The largest differences are seen in Chile, Estonia, Iceland, Lithuania and Türkiye, where funding for students enrolled in upper secondary vocational education is at least 50% higher than for students enrolled in general programmes (Figure 9).

Higher expenditure per student may stem from vocational education often requiring specific equipment and infrastructure, especially when work-based learning is not extensively used. Vocational programmes may also be expected to have lower student-to-teaching staff ratios (i.e. smaller classes) than general ones because of their practice-oriented nature, driving the expenditure per student upwards. However, this second relationship

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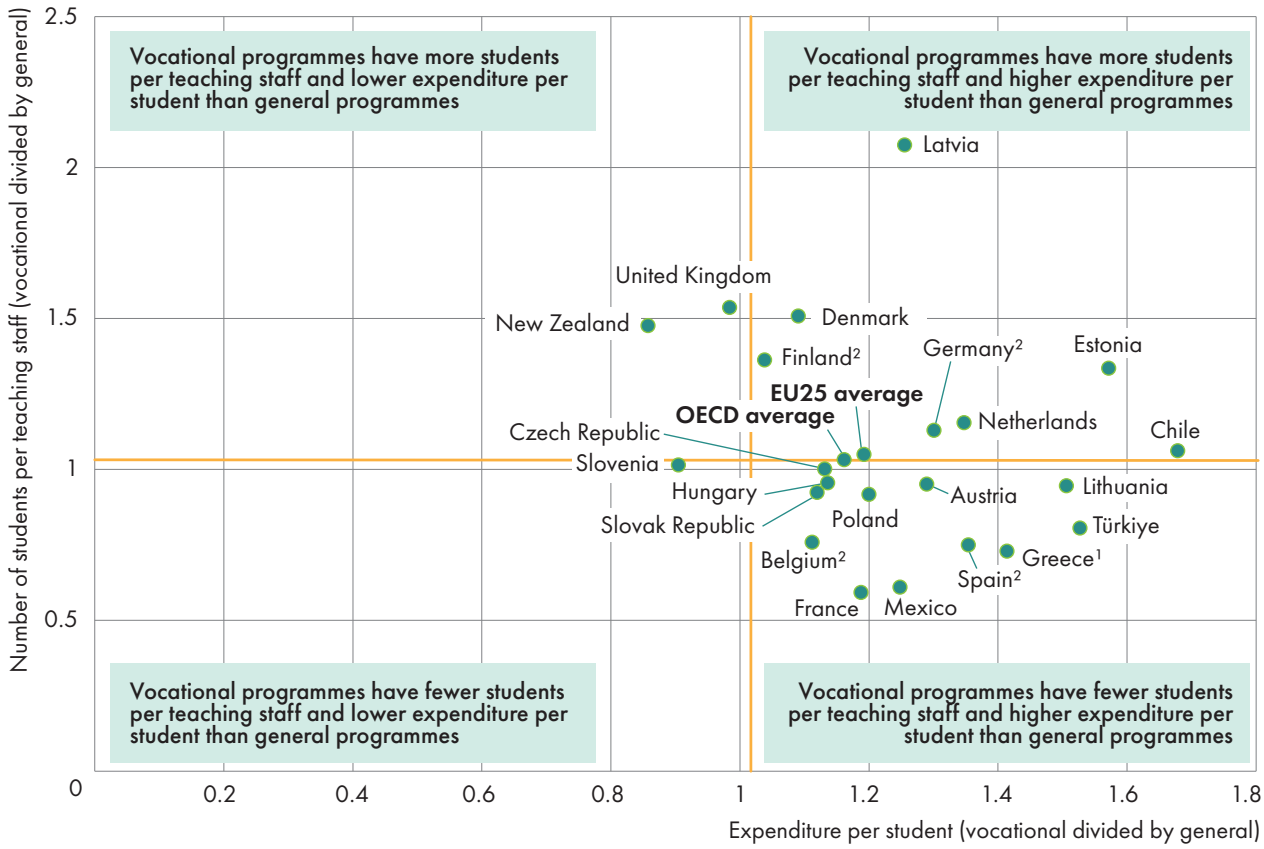
is not easy to establish as it varies according to the field of study and because of complexities in reporting consistent enrolment and expenditure data for the work-based part of vocational education.

The relationship between expenditure per student and the number of students per teaching staff member in both general and vocational programmes can provide valuable insights into the educational resources allocated per student. Higher expenditure per student coupled with a lower student-to-teaching staff ratio may indicate a greater investment in individualised attention and support for students. This can be particularly important in vocational programmes, which generally emphasise practice-oriented training.

However, no strong correlation is found when plotting differences in the expenditure per student against differences in the number of students per teaching staff. The student-to-teaching-staff ratio in vocational programmes across OECD countries is higher than in general programmes, with 15 students per teacher on average in VET compared to 14 in general programmes. Only 10 out of the 23 countries with available data report that upper secondary vocational programmes have fewer students per teaching staff member than general programmes, and these 10 countries are not necessarily those with the greatest difference in expenditure per student between vocational and general education. In other words, although the student-to-teaching staff ratio is indeed lower in vocational programmes in some instances, it does not consistently correlate with higher expenditure per student (Figure 9). A potential explanation may be that countries putting the emphasis on work-based learning would require fewer VET teachers, and thus have both higher student-to-teaching staff ratios as well as lower levels of expenditure per student, all else being equal.

Figure 9•Differences by programme orientation in expenditure per full-time equivalent student and number of students per teaching staff (2020)

Upper secondary education



1. Year of reference differs from 2020. Refer to the source table for more details.
2. Data on upper secondary includes another level of education. Refer to the source table for more details.
Source: Education at a Glance 2023, Table C1.1 and Indicator D2.

Latvia is an interesting case: its upper secondary vocational programmes have twice as many students per teacher as its general programmes, the largest difference across countries with data. This may be because vocational programmes are significantly work-based, so vocational students spend a considerable amount of time outside of school while still enrolled. The difference is also influenced by the optimisation of the vocational education school network, which has not been carried out for general education schools yet. Despite this much higher ratio of students per teacher in vocational programmes, Latvia's expenditure per student in upper secondary vocational programmes is still higher than in general ones, with a ratio comparable to the OECD average. This could be related to the fact that Latvia captures expenditure associated with the work-based component of its programmes, while some other countries may not be able to report this information, but also to the differences in material and technical costs between vocational and general education programmes, which is confirmed by the data for most OECD countries.

In upper secondary education, central governments, rather than regional or local authorities, provide the largest share of government funding in most OECD countries even after transfers between government levels. On average, central governments provide more than 60% of government funding in upper secondary VET, compared with 53% for general programmes. While governments tend to be the main funder of the school-based part of VET, enterprises bear the bulk of the cost of work-based learning (with some government support in many countries). On average across OECD countries, other private entities than households account for 5% of the total funding for upper secondary vocational programmes, but only 2% of the total for general ones. In Norway for example, where almost 3 VET students out of 4 were enrolled in a combined school- and work-based upper secondary programme in 2021, private entities other than households account for 14% of the total funding of upper secondary vocational programmes.

The delivery of VET also often involves transfers, including some that are specific to VET (e.g. subsidies to employers hosting apprentices). Government transfers to the private sector become more relevant for higher education levels: they average 2% for upper secondary vocational education whereas they represented less than 1% of the total funds devoted to primary and lower secondary education in 2020 across OECD countries. In response to the COVID-19 crisis, several countries introduced new financial incentives or scaled up existing ones to support employers providing work-based learning opportunities. In some countries, these new or scaled-up incentives have been specifically targeted at small and medium-sized enterprises (SMEs) as, even under normal circumstances, they tend to face more barriers to the provision of work-based learning than larger firms do. During the COVID-19 crisis, many countries also encouraged teachers to develop their skills in remote or hybrid teaching, by providing financial support for training.

The VET teaching workforce

The VET teaching workforce is ageing: on average across the 25 OECD countries with available data, 43% of teachers in upper secondary VET programmes were 50 years old or older in 2021, compared to 41% in 2013 (Education at a Glance Database and Figure 10). This is higher than the share for general education teachers (39% in 2021), where there has been a similar 1 percentage point increase between 2013 and 2021. These large proportions of older teaching staff reflect the wider challenge of an ageing teacher workforce in many countries, but could also be compounded by the usual practice (or sometimes even requirement) of VET teachers gaining industry experience before joining the teaching profession.

Enabling VET teachers to develop and update their skills is an important issue for VET, as technological advances are very rapid in certain parts of the labour market and VET teachers need to stay abreast of these changes. This has led to some countries to introduce reforms in recent years. For example, the Slovak Republic has introduced several measures to facilitate collaboration between schools and companies in VET. Since 2018, teachers working as pedagogical advisors in work-linked training have had dedicated time to collaborate with employers. Brazil has considerably expanded the training on offer for VET teachers and trainers, taking advantage of digital training solutions (OECD, 2021[11]).

The vocational teaching workforce has become more female in many countries. Between 2013 and 2021, the share of male teachers in upper secondary vocational programmes fell by 2 percentage points (from 47% to 45%) on average across OECD countries. However, teachers in upper secondary vocational programmes are more

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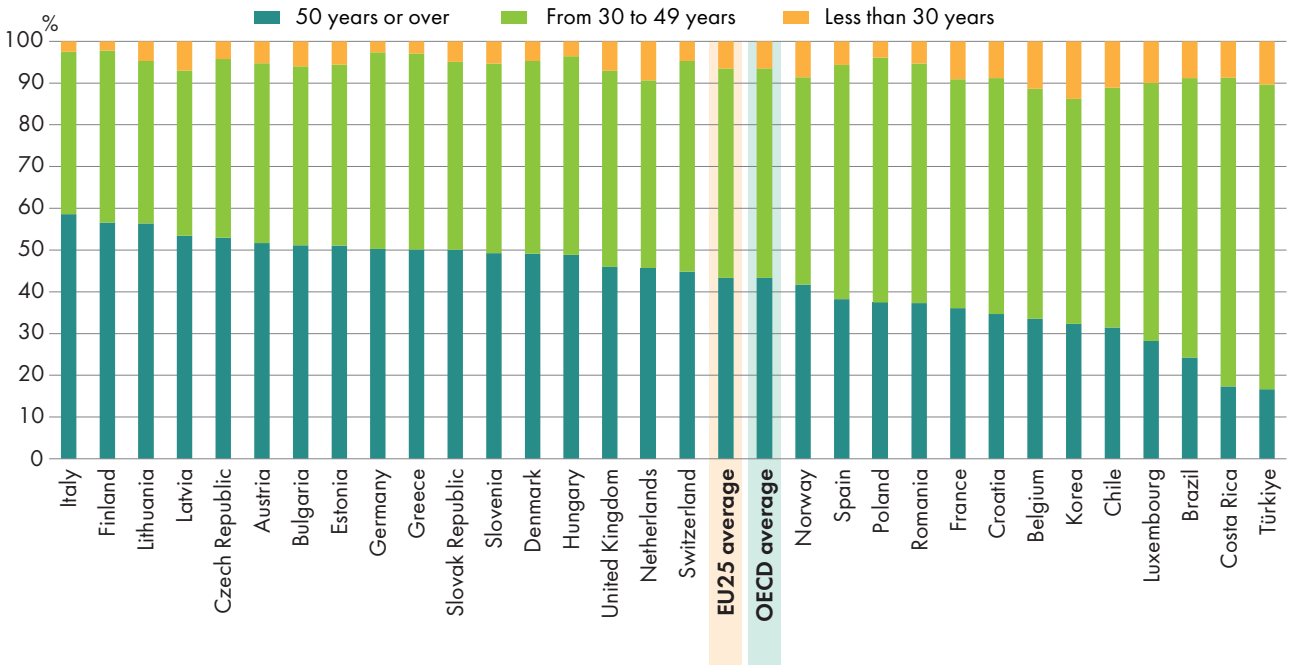
likely to be men than those in general ones. On average across OECD countries, men account for only 39% of teachers in upper secondary general programmes. Despite their substantial representation among the VET teaching staff at upper secondary level, women continue, as for general programmes, to be paid less than men. However, female VET teachers are also more likely to work part-time than their male peers.

Figure 10•Age profile of teachers in upper secondary vocational programmes (2021)



Countries are ranked in descending order of the share of teachers aged 50 years or over in upper secondary vocational programmes.
Source: Education at a Glance 2023, Table D7.2.

2

Beyond upper secondary VET

Which learning pathways are open to upper secondary VET graduates?

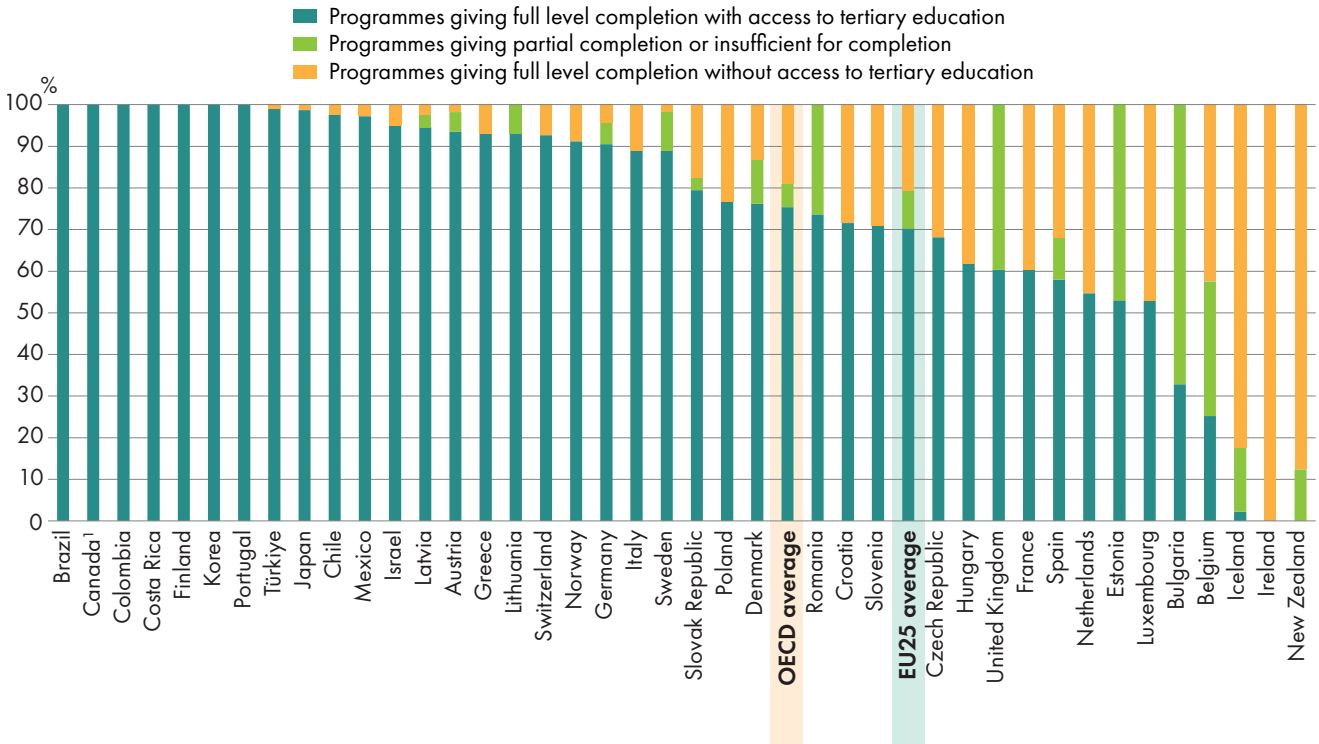
It is important to ensure that vocational programmes, particularly those at upper secondary level, allow their students to progress to higher levels of education, for reasons related to attractiveness, equity and lifelong learning. Countries have taken different approaches to structuring upper secondary education and VET, as well as the associated progression opportunities. Figure 11 provides an overview of participation in different types of vocational programmes.

About three-quarters of upper secondary vocational students are pursuing programmes that lead to a qualification giving them direct access to tertiary education - but within this broad category there are some nuances in access arrangements. In many countries upper secondary VET graduates are eligible for any type of tertiary programme, subject to the same selection processes that apply to general upper secondary graduates. In some countries, however, there are distinct progression routes for VET graduates. For example, they may only have access to short-cycle tertiary programmes, which are typically viewed as part of higher VET. For example, in Norway, graduates of upper secondary VET have direct access to higher vocational programmes but not to universities. In some countries, VET graduates have access to some but not all bachelor's level programmes. For example, in the Netherlands and Slovenia, some of the VET graduates (e.g. the secondary vocational education Level 4 students in the Netherlands) have direct access to professional bachelor's programmes, but not academic ones. In Germany and Switzerland VET graduates have direct access to higher vocational programmes at bachelor's level (and also at master's level in Germany), but not universities nor universities of applied sciences. In Germany, after three years of professional practice, VET students can get subject-related access to the university in connection with an aptitude test.

Most countries have at least one upper secondary vocational programme whereby graduates are considered as "upper secondary graduates", but the qualification obtained does not make them eligible for any type of tertiary education. Enrolment in such programmes is relatively high in countries with multiple vocational tracks at upper secondary level, such as Hungary, the Netherlands and Slovenia. In these countries, there is another vocational track with stronger emphasis on general skills and preparation for higher level studies, which gives direct access to tertiary education (Figure 11 and Table 1).

There are some good arguments for restricting access to tertiary education for the graduates of some vocational programmes – some programmes may offer little preparation for

Figure 11•Distribution of students enrolled in upper secondary vocational education, by type of vocational programme (2021)



1. Excludes post-secondary non-tertiary education.

Countries are ranked in descending order of the share of students enrolled in programmes giving full level completion with access to tertiary education.

Source: Education at a Glance 2023, Table B1.3 (web columns) and OECD/Eurostat/UNESCO Institute for Statistics, 2015[12].

theoretically oriented tertiary programmes. At the same time, restrictions need to be complemented by bridging opportunities. Countries have established different approaches to achieving this. For example, although some upper secondary VET graduates in the Netherlands (i.e. the Level 4 graduates) only have direct access to professional bachelor's programmes, completing the first year of a professional bachelor's programme yields access to the first year of studies in an academic programme at a university (although some additional requirements may be imposed).

In Germany and Switzerland, where VET gives access to bachelor's programmes (and master's programmes in Germany) that are part of the higher vocational sector, but not universities, graduates may pursue bridging programmes, but also have the option to pursue additional general education during their vocational programme to gain eligibility to universities. In Germany, VET graduates may also study at a university and university of applied sciences in fields related to their VET qualifications.

In Austria, Luxembourg and Spain, VET graduates have access to short-cycle tertiary education (higher vocational programmes), which then gives access to bachelor's level programmes. This is also possible in Norway, although most learners pursue a bridging programme at upper secondary level to gain access to bachelor's level studies.

There are also bridging arrangements for programmes that do not yield direct access to tertiary education. In most countries with such programmes, VET graduates have access to a bridging programme at upper secondary or post-secondary non-tertiary level. In a few countries this may involve entering another vocational programme which is not specifically designed as a bridging programme but may serve as one. For example, students in Switzerland who complete a two-year apprenticeship may transition into the second year of a three- or four-year apprenticeship, which in turn yields access to the professional sector of tertiary education.

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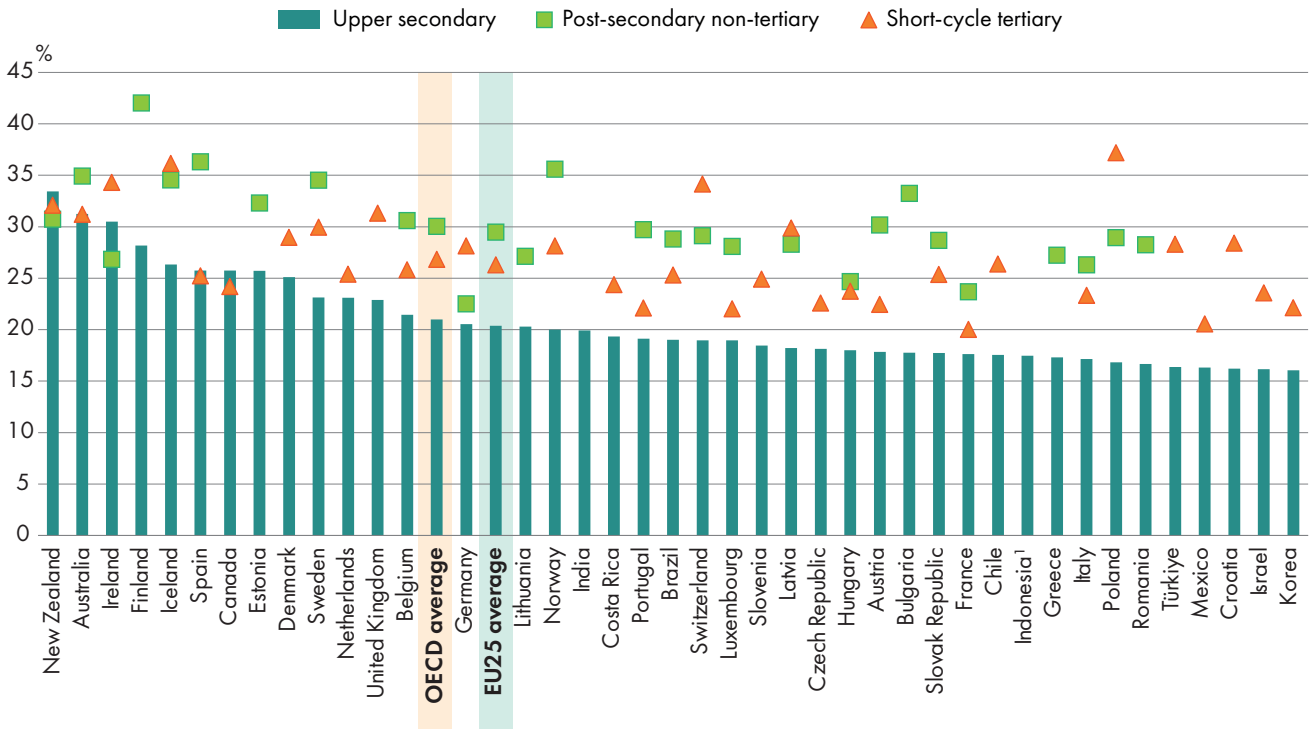
How is VET provided at higher levels?

Vocational programmes above upper secondary level play an important role in the further skills development of upper secondary VET graduates, in providing initial occupational training to graduates of general upper secondary education, or in facilitating career changes. The average age of vocational students at different levels reflects the different functions played by these programmes (Figure 12).

Post-secondary non-tertiary vocational programmes are part of higher vocational education in some countries, typically serving graduates of upper secondary vocational programmes. Examples include Finland, Norway and Sweden, where programmes at this level offer advanced, specialised vocational skills to upper secondary graduates, typically those from VET. In these countries, participants are adults, with an average age of 42 in Finland, 36 in Norway and 35 in Sweden. In other countries, programmes at this level serve younger adults, including recent upper secondary graduates. In Germany they include apprenticeships and vocational programmes in the health sector, serving general upper secondary graduates and the average age of students is 23. In Ireland and New Zealand post-secondary non-tertiary VET students are younger on average than their peers in upper secondary VET. A reason is that post-secondary programmes do not always build on upper secondary VET, but can be an alternative learning opportunity for adults. Another reason is that many post-secondary vocational programmes can be taken directly with just one's initial upper secondary general qualification and that access criteria are often set dependent on the institution or the field or industry of learning. In Ireland, post-secondary non-tertiary programmes include apprenticeships and post leaving certificate programmes (which serve graduates of general upper secondary education). In New Zealand both upper secondary and post-secondary non-tertiary vocational programmes also serve adults seeking to upskill, reskill or otherwise further their education and training.

Figure 12•Average age of students in vocational programmes, by level of education (2021)



1. Year of reference 2019.

Countries are ranked in descending order of the average age of upper secondary vocational students.

Source: Education at a Glance 2023, Table B1.3 (web columns).

Short-cycle tertiary programmes also play different roles across OECD countries. In some countries, such as Austria, Canada, France, Luxembourg, Portugal and Spain, they mostly serve recent upper secondary graduates. In these countries the average age of students is 25 or below. In Austria, for example, this level includes a two-year programme that is the continuation of an upper secondary vocational programme (both offered at higher technical and vocational colleges). In Canada, college diploma and advanced certificate programmes play a key part in offering occupational training to young people, as upper secondary education is predominantly general. In Spain, programmes at this level offer advanced vocational training to both general and vocational upper secondary graduates. Short-cycle tertiary programmes can, however, also serve a broader adult population. The average age for students at this level is 27 across OECD countries, and there are nine OECD countries where it is 30 or above. In these countries, programmes at this level include higher VET, such as higher VET in Sweden or VET for adults in New Zealand. Worth noting is that in some countries with a high average age, the short-cycle tertiary sector is relatively small. For example, short-cycle tertiary students represent less than 1% of VET students in Germany, Switzerland and Poland.

Even though short-cycle tertiary programmes are vocational, they also enrol students coming from upper secondary general programmes seeking to develop vocational skills. Addressing concerns that VET graduates might be squeezed out of learning opportunities by their peers from general education, some countries have implemented reforms to improve VET 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 since the July 2013 Law on Higher Education and Research (OECD, 2018[10]).

Several countries offer vocational or professional programmes at bachelor's and master's level, and these play a major role in developing advanced technical skills (OECD, 2022[13]). However, programmes at these levels are excluded from this analysis, as high-quality comparative data are currently not available due to a lack of international definitions. In Denmark professional bachelor's programmes are typically provided by university colleges and some business academies, and take three to four years to complete. Most of these programmes prepare for public-sector employment (e.g. teacher, nurse or social worker), but some target private sector jobs (e.g. engineering or business). In France, professional bachelor's degrees and the recently introduced bachelor of technology programmes target a diverse range of fields, and may be pursued through an apprenticeship (otherwise an internship is mandatory). In Romania, current investments and reforms in the National Recovery and Resilience Plan (NRRP) prioritise necessary infrastructure for dual education and the setting up of at least 16 regional consortia and 16 VET integrated campuses, accompanied by a redesign of learning pathways towards a complete route for dual education from upper secondary to university level. In Germany and Switzerland programmes at this level build on a prior vocational qualification, typically combined with relevant work experience. For example, professional examinations in Germany lead to professional bachelor's and master's titles available in a wide range of fields (examples of target professions include certified accountant and mechatronics master). Similarly, in Switzerland, most higher vocational qualifications are at bachelor's level. Professional examinations require a relevant vocational qualification and work experience (e.g. candidates for the examination to become a cyber security specialist need to have completed an apprenticeship in computer science and at least two years of work experience).

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Notes

1. It should be noted that vocational programmes at lower secondary level also exist in some countries, but account for only a very small proportion of enrolments at this level. VET programmes at this level are often designed for adults and are not part of initial education. These programmes are not included in the Spotlight.
2. These programmes in principle have a large work-based learning component, but in the end not all learners will indeed take up work-based learning, sometimes because this is not mandatory, sometimes because it is not available).

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