5.9.3. Labour market data sources

Graduate surveys

Information on the labour market is a particularly important tool to help students choose a higher education programme and ensure they are well prepared for the labour market (OECD, 2016[120]). It can also help governments steer the system to meet labour market needs and assist institutions in planning their programme offerings.

Graduate surveys are commonly used to provide insights into the success of graduates in the labour market, as well as to provide information about how well graduates are meeting the needs of employers. As a result, many countries have national graduate surveys. In the participating jurisdictions, national graduate surveys are conducted in Estonia, the Netherlands and Norway. They typically seek information from graduates about their background, education, employment and earnings situation. In addition, these surveys solicit views on the graduates' satisfaction with their completed higher education programmes and its relevance to the labour market.

Institutions can design and carry out their own graduate surveys. In some cases, graduate surveys are linked to student surveys, and even made available to the scientific community to study questions of general interest on teaching effectiveness (see, for example, Feld, Salamanca and Zölitz (2017[123])).

In Norway the graduate survey (*Kandidatundersøkelsen*) is conducted by the Nordic Institute for Studies in Innovation, Research and Education (NIFU). The graduate survey provides information on employment outcomes following graduation, and describes the quality of jobs, the length of the job search, graduates' job satisfaction, and the alignment between graduates' skills and job requirements. The graduate survey also collects some information about the content of programmes, including the learning and teaching process, and the graduates' assessment of the knowledge and skills they gained in higher education. As in the Netherlands, some institutions, notably the University of Oslo, the University of Bergen and the Norwegian University of Science and Technology (NTNU), survey employers on how well their graduates perform in the labour market, the skills employers need, and their views on how well developed these skills are among their graduates. These one-off surveys of employer satisfaction often focus on specific programmes and are not conducted systematically across the system.

After assessing the feasibility of a graduate survey across Europe (Mühleck, 2015[124]), the European Union is developing a graduate tracking mechanism. This instrument will provide qualitative and quantitative information on what higher education graduates do after they complete their education and training. The graduate tracking system will help new students make informed choices about what to study and help government authorities steer their higher education systems. However, one of the key aims of the new tracking system is to motivate higher education institutions to deal with graduate employability at the institutional level and improve programmes and co-operation with employers.

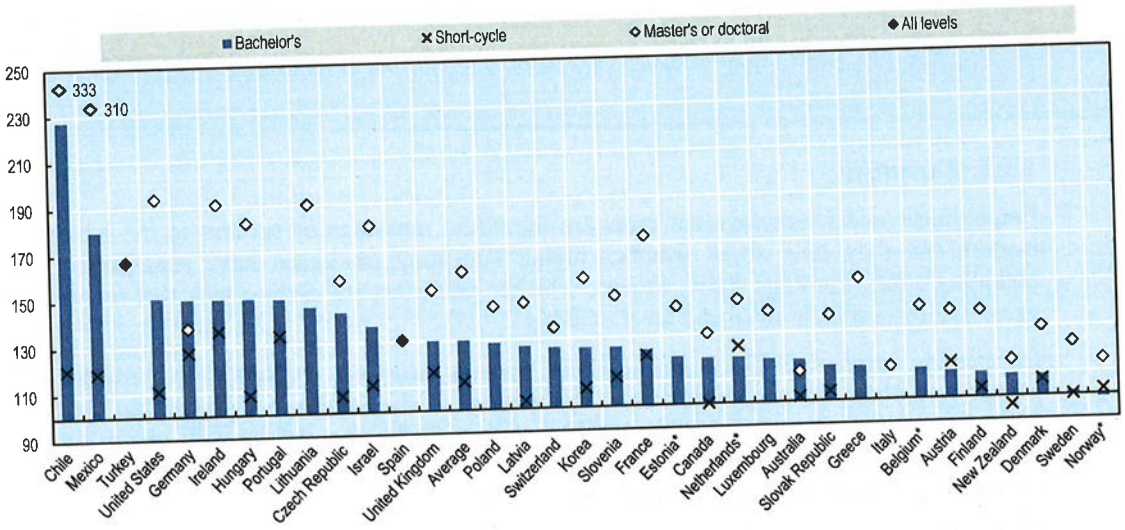
Other sources

Graduate surveys are a useful tool to gather information on what happens after higher education and on the match between skill supply and demand from the point of view of graduates. To ensure a more comprehensive understanding of the needs of the labour market, many OECD countries collect and disseminate information through a variety of other measures (OECD, 2016[120]).

(Denmark, Norway and Sweden) are characterised by both a relatively high higher education attainment level and by low levels of income inequality (OECD, 2018[4]) (OECD, 2015[29]).

Figure 5.20. Relative earnings of 25-34 year-olds, selected education levels (2016)

Average earnings of full-time, full-year 25-34 year-old workers with a bachelor's degree compared to those with a short-cycle, master's or doctoral qualification (upper secondary or post-secondary non-tertiary education = 100)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The average for bachelor's and master's or doctoral graduates is calculated across countries with available data for both series, while the average for short-cycle graduates is calculated separately.
Belgium, Canada, Chile, Czech Republic, Finland, Spain: Year of reference 2015.
Czech Republic, Slovak Republic, Switzerland, and the United States: Index 100 refers to upper secondary and post-secondary non-tertiary levels of education.
Denmark, Italy, Lithuania, the Netherlands: Year of reference 2014.
Ireland, Latvia, Luxembourg, Mexico, and Turkey: Earnings net of income tax.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en.

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The earnings of workers with a short-cycle degree tend to be lower than for other levels of higher education, and they can be substantially lower than for upper secondary or post-secondary non-tertiary educated workers as well. For example, in Estonia (where programmes at the short-cycle tertiary level are no longer offered), workers with a short-cycle degree earn about 15% less than workers with an upper secondary qualification. In contrast, in Norway and the Netherlands (where individuals with short-cycle attainment represent only a small fraction of the workforce) their relative earnings are about 5% higher than those of workers with a bachelor's degree.

StatLink https://doi.org/10.1787/888933941215

In all countries, interpersonal skills appear more often on the profiles of graduates with more dynamic career trajectories. The proportion listing at least one interpersonal skill is slightly lower for graduates who had only one job in the 5 years after graduation (57% on average across countries), it is highest for graduates who moved across industries for work (64% on average), and it is in between these two values for graduates who changed jobs but not industry (60% on average).

This association suggests that graduates, especially those moving for work across industries, find interpersonal skills valuable to their professional profile. This result supports the efforts of many higher education institutions to foster the development of students' interpersonal skills.

5.9.2. Earnings

Employment and unemployment rates are important measures of success in the labour market, but they only show whether higher education graduates have succeeded in obtaining a job. Earnings show, in part, whether graduates are getting jobs that require, value and reward their advanced level of skills.

On average across OECD countries, 25-34 year-old full-time workers with a master's degree earn about 60% more than full-time workers of the same age with only an upper secondary degree. Young full-time workers with a bachelor's degree earn about 30% more, and those with a short-cycle degree about 10% more than full-time workers with only an upper secondary qualification (Figure 5.20).

Chile, Mexico and the United States are the countries with the highest earnings premiums, both at the bachelor's and the master's level. In these countries, 25-34 year-old full-time workers with a master's degree earn about twice, or more, as much as full-time workers of the education and same age with only an upper secondary qualification; and those with a bachelor's degree, one-and-half times as much, or more. Workers with a master's degree earn over 10% more than those with an upper secondary qualification in all countries. Workers with a bachelor's degree earn more than those with an upper secondary or post-secondary non-tertiary qualification in all countries except Norway.

The earnings premium is substantial in Belgium, Estonia and the Netherlands, with young master's graduates earning over one-third more than workers of the same age with upper secondary education or post-secondary non-tertiary education in all three countries, and bachelor's graduates earning over 10% more. In Norway, bachelor's graduates in the age group 25-34 earn a similar amount as young people with a lower level of education, but master's graduates earn about 15% more.

The difference in earnings between higher education graduates and people with upper secondary education could depend on the ability of higher education to provide graduates with competences relevant to the labour market, but also on the match between supply and demand of graduates in the labour market, and on the general level of income inequality in a particular country. The countries with the highest earnings premiums for young bachelor's graduates (Chile, Mexico and Turkey) are characterised both by a relatively low share of adults with higher education (low supply of higher educated workers, which could push up their salary) and by a high level of inequality in the income distribution (so that differences in earnings across any socio-economic group tend to be accentuated). The three countries with the lowest bachelor's earnings premium

labour market in France with low stability for young workers, or the relatively stable Norwegian labour market (OECD, 2018[14]; OECD, 2017[121]). However, it is not possible to know whether the level of job stability experienced by graduates depends on their own choices or on the labour market in which they find themselves.

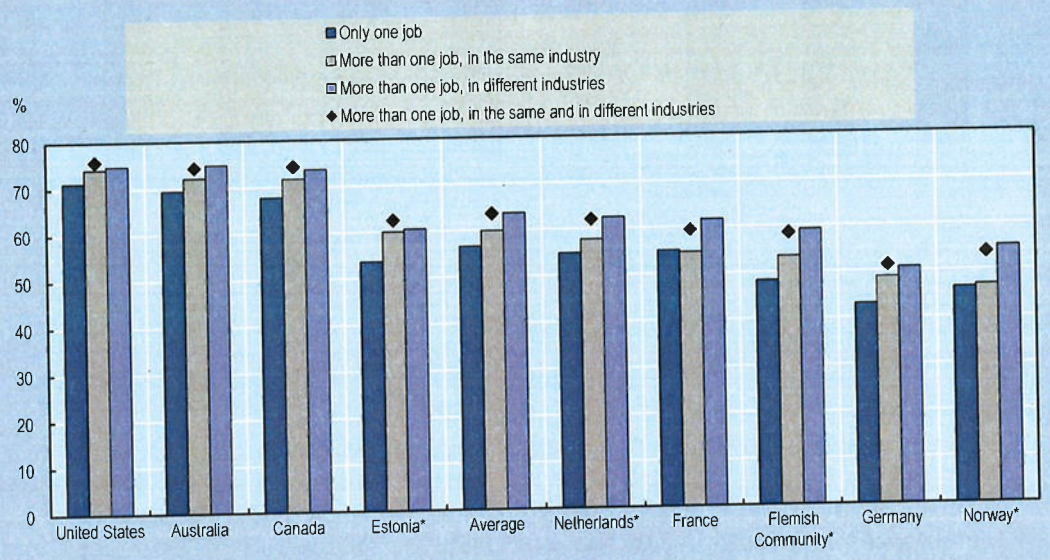
Interpersonal skills

Navigating the labour market successfully requires a diverse set of skills, including technical skills, but also creative thinking, and social and behavioural skills. Many higher education institutions have introduced teaching methods (e.g. problem-based learning) aimed at better developing such a diverse set of skills (Hoidn and Kärkkäinen, 2014[122]).

Interpersonal skills are one of a number of categories of skills (together with industry knowledge, tools and technologies, languages and other skills) that LinkedIn members can add on their profile. They include communication, time management, contract negotiation, and many others. Figure 5.d shows, for master's graduates with different labour market trajectories, the proportion reporting at least one interpersonal skill on their LinkedIn profile. While overall there are high levels of reporting of interpersonal skills in the graduate cohorts, there are differences in the levels of interpersonal skills reported across countries, suggesting that there may be differences in perceived values of interpersonal skills by graduates from different higher education systems.

Figure 5.d. Percentage of master's graduates reporting at least one interpersonal skill on their LinkedIn profile, by labour market trajectory (2010-2013)

LinkedIn members reporting to have earned their first master's degree between 2010 and 2013, who during the five years following their graduation had:



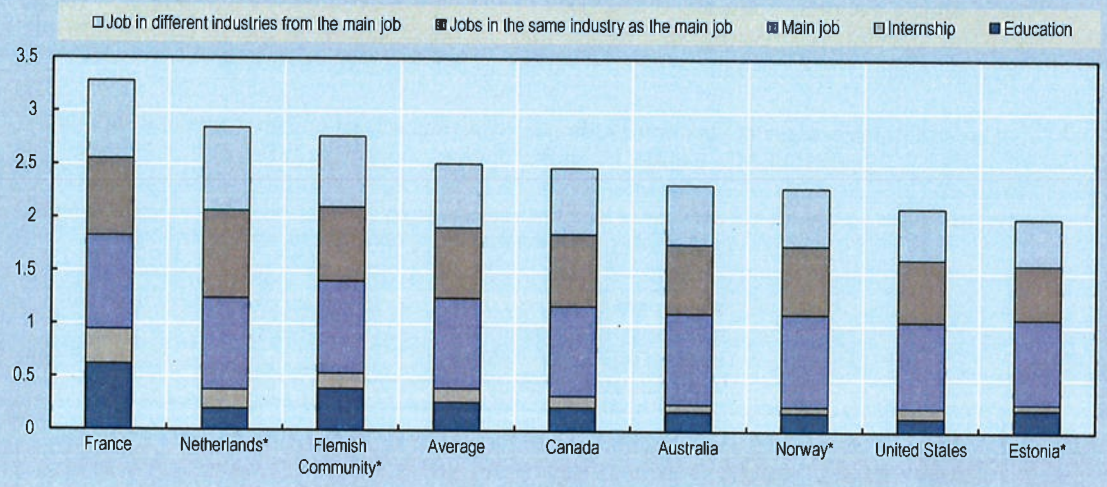
Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018. Graduates without work experience are excluded from the chart. The level of education has been derived from the participants' own recording, and may not coincide exactly with the master's level as defined in the ISCED classification.
Source: LinkedIn aggregate data provided at OECD's request.

Box 5.10. Using LinkedIn data to explore dynamic labour market transitions early in the career of higher education graduates

Master's graduates go through a variety of training and professional experiences in the five years after graduation (Figure 5.c). While many graduates opt for further education, the data show that graduates also tend to go through a range of professional transitions early in their careers. On average across countries with data, there are 2.5 education and labour market experiences per graduate in the five years after graduation, but with large differences across countries. For example, the number of additional education experiences per graduate ranges from 0.2 in Estonia to 0.6 in France, while the number of professional experiences per graduate ranges from 1.8 in Estonia to 2.7 in France.

Figure 5.c. The education and labour market experiences of master's graduates (2010-2013)

Average number of experiences in the 5 years after graduation for LinkedIn members reporting to have earned their first master's degree between 2010 and 2013, by type of experience



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The level of education has been derived from the participants own recording, and may not coincide exactly with the master's level as defined in the ISCED classification.
Source: LinkedIn aggregate data provided at OECD's request.

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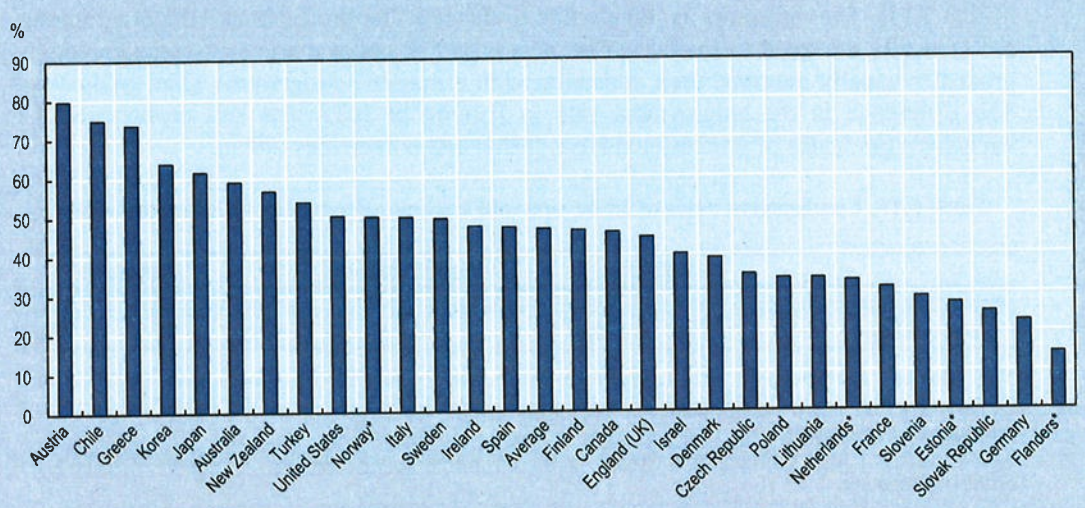
Figure 5.c makes a distinction between the job which graduates held for the longest time after graduation ("main job") and other jobs either in the same industry as the main job, or in another industry. On average, in the first five years after graduation, there were 0.7 job changes per graduate within the same industry. The number of job changes per graduate into a different industry was even larger (0.8 on average). Further work could examine the question of whether graduates tend to work in a different industry before starting their main job (e.g. to gain work experience before moving to their preferred industry) or afterwards.

These results suggest varying degrees of job stability across countries, consistent with the different labour markets and institutional settings of different countries (e.g. the dual

2015)

Proportion of employed individuals younger than 35 with higher education reporting to be unable to choose or change "the sequence of tasks" and "how to do the work" (upper secondary education = 1)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Source: Adapted from OECD (2016[101]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

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Alternative sources of labour market information

New sources of data, including social and professional network data provide new possibilities to follow graduates over their transition in the labour market, and to analyse their profiles and skills. Insights from new sources of data therefore have the potential to feed into policy discussion and decisions. While not generally representative of the whole population, these data benefit from high coverage, being based on the informatics records from very large numbers of people. It also offers a better picture of transitional dynamics, as it follows individuals as long as they keep updating their records.

Data from LinkedIn, a platform for professional networking with over 590 million members worldwide, offer the potential to follow the pathways of graduates as they transition from education to employment and explore the relationships between their skills and qualifications and how they navigate the labour market. The OECD and LinkedIn jointly carried out an exploratory analysis of the transitions of first-time master's graduates in the five years after graduation. In total, the transitions of around 5 million LinkedIn members graduating between 2010 and 2013 from eight higher education systems (Australia, Canada, Estonia, the Flemish Community, France, the Netherlands, Norway and the United States) were analysed (Box 5.10). The analysis focuses on individual professional and educational trajectories, and on their relationship with interpersonal skills. This is particularly relevant to modern economies, as they are in continuous evolution, often requiring individuals to adapt to change and disruption by re-training and switching jobs (OECD, 2016[120]).

Employment rates also vary by type of higher education institution. In the Netherlands, the average employment rate of 25-34 year-old bachelor's graduates masks large differences between graduates of universities and professional HEIs. Some 70% of Dutch university graduates are employed, whereas the employment rate for professional HEI graduates is over 90%. This is the same rate for professional HEI graduates in Flanders (Table 5.14). The difference is largely due to the fact that professional HEI programmes are generally designed to provide direct access to the labour market, whereas university graduates usually continue their education with a master's programme after graduating. The difference in the employment rate in Estonia in 2015 was less pronounced for bachelor's graduates of professional HEIs (83%) and universities (79%).

Table 5.14. Employment rates of 25-34 year-old bachelor graduates, by subsector (2016)

	Estonia	Flemish Community	Netherlands
Universities	79.3	m	73.3
Professional HEIs	82.5	93.2	92.9

Note: The year of reference is 2013 for the Flemish Community, and 2015 for the Estonia. In the Flemish Community, only a small percentage of university bachelor's graduates enter the labour market before earning a master's degree.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Employment, unemployment and inactivity rates are not the only measures of labour market outcomes. Some graduates may be employed, but they may not find the opportunities to deploy their skills effectively and maintain the level of skills and competences acquired in higher education (Box 5.9). The skills earned with higher education are important in the transition of graduates to the labour market, but even more important is the extent to which these are utilised and enriched on the job (Tomlinson, 2012[118]).

Box 5.9. Higher education graduates with routine jobs

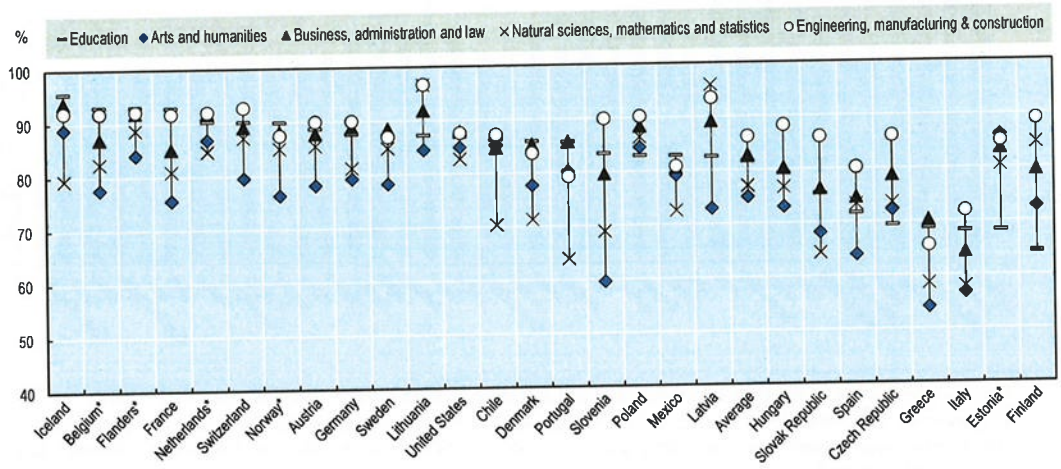
The OECD Survey of Adult Skills identifies jobs in which workers are unable to "change the sequence of tasks" and "how to do the work", which can be considered as a type of routine job (OECD, 2015[119]). In absolute terms, the share of workers with higher education who are younger than 35 and are in jobs with routine tasks is just below 10%, compared to about 20% for workers with upper secondary education, on average across OECD countries and economies. In all participating jurisdictions, less than 5% of young higher education graduates are in routine jobs (OECD calculation based on data from the Survey of Adults Skills).

Figure 5.b shows the relative probability for young workers with higher education qualifications to end up working routine jobs compared to workers with upper secondary education attainment. On average across OECD countries, employed individuals younger than 35 with higher education are less than half as likely to be employed in jobs with routine tasks. In Estonia, Flanders, France, Germany, the Netherlands, the Slovak Republic and Slovenia, they are less than one-third as likely. At the other extreme, in Austria, Chile, Greece and Northern Ireland they are over 70% as likely as workers with upper secondary education.

Figure 5.b. Relative share of workers in jobs with routine tasks, higher education (2012 or

the five selected fields of study presented in Figure 5.19. In contrast, the spread is 25 percentage points, or more, in Finland and Slovenia.

Figure 5.19. Employment rates of 25-34 year-old higher education graduates, selected fields of study (2017)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Countries are ranked in descending order of the employment rate of 25-34 year-olds who graduated from a programme in the field of study of education.
Chile, United States: Year of reference 2015.
USA: Data refer to bachelor's degree field, even for those with additional higher education degrees.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en.

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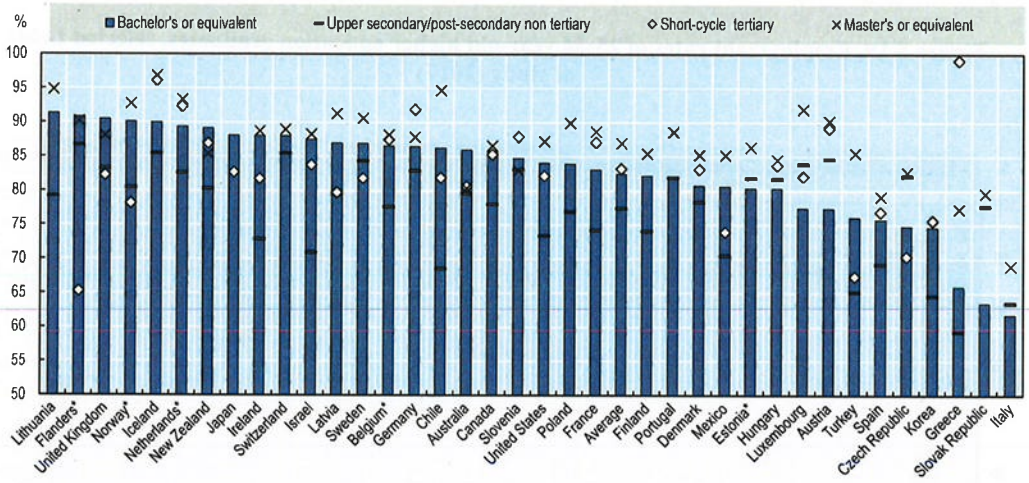
The employment rate for Estonian young graduates in the field of study of education is considerably lower than the employment rate of young graduates in other fields of study, but the government is nevertheless incentivising enrolment in this field (Section 5.2.1). This could be partly due to the fact that, while an overall oversupply of teachers characterises the Estonian education system, shortages are experienced for some particular positions (e.g. Estonian language teachers in regions where Russian as a mother tongue is prevalent; teachers for students with special needs) (OECD, 2016[20]).

In Flanders and the Netherlands, the employment rate is relatively high across all fields of study. The Netherlands has in place some policy initiatives to encourage enrolment in the fields of study of education and health and welfare, and in fields related to science and technology, where a potential shortage of workforce and skills has been identified 5.2.2.

Differences in the employment rate by field of study are not very large in Norway, but they are apparent at the transition to the labour market and may persist throughout graduates' professional lives, with those from arts and the humanities less likely to find jobs. The recent economic slowdown in Norway has slightly hindered the transition to the labour market of recent graduates, particularly from the engineering and natural sciences fields of study. Usually, every tenth graduate from these fields works in the resource extracting industries, which were the most affected following the sudden decline in oil prices in 2013 (OECD, 2018[14]).

Figure 5.18. Employment rates of 25-34 year-old graduates, by education level (2017)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
The average for bachelor's, master's and upper secondary or post-secondary non-tertiary graduates is calculated across countries with available data for all three series, while the average for short-cycle graduates is calculated separately.
Chile: Year of reference 2015.
Japan: Data for higher education include upper secondary or post-secondary non-tertiary programmes (less than 5% of the adults are under this group).
United Kingdom: 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 (16% of the adults aged 25-64 are in this group).
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933941101

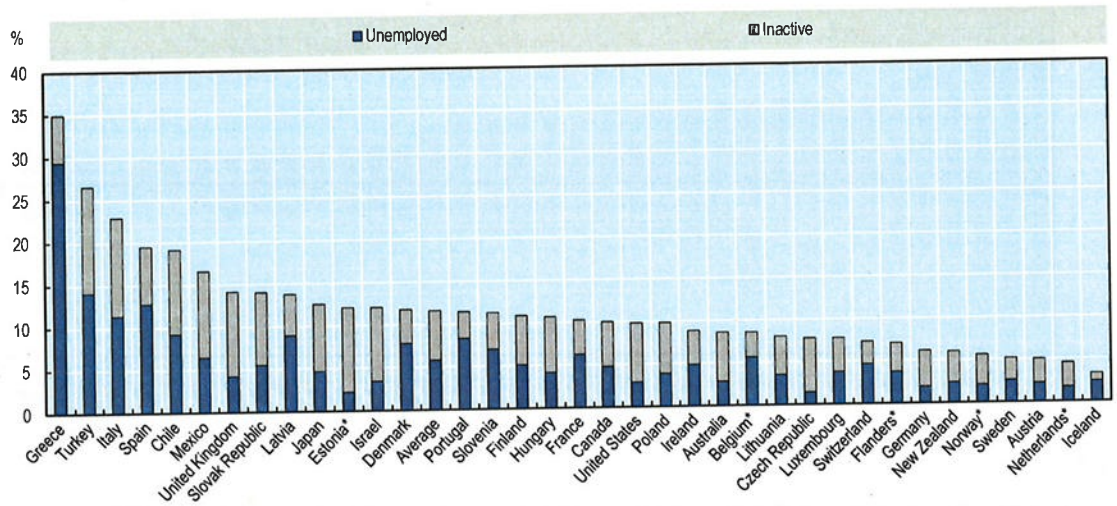
There can be large differences in the employment rate of higher education graduates across education levels in some countries or jurisdictions. For example, in Flanders and Norway, the employment rate of 25-34 year-olds with a short-cycle degree is lower than for those with only an upper secondary degree, and it is over 15 percentage points lower than for those with a master's degree. In Austria, Luxembourg and the Slovak Republic, the employment rates of young bachelor's graduates is over 10 percentage points lower than for 25-34 year-olds with a master's degree. In these same countries, 25-34 year-old bachelor's graduates are also less likely to be employed than people of the same age with only an upper secondary or post-secondary non-tertiary degree. There is not much of an advantage in completing a master's programme in Flanders and Norway in terms of the probability to find a job, with employment rates around the same as those for graduates from bachelor's programmes.

The employment rate varies substantially by field of study. On average across OECD countries, 87% of 25-34 year-olds with a degree in engineering, manufacturing and construction are employed, compared to 76% of those with a degree in arts and humanities and 78% of those with a degree in natural sciences, mathematics and statistics (Figure 5.19). The Flemish Community, the Netherlands, Poland and the United States have the smallest spread in the employment rate (less than 10 percentage points) among

almost 30% of young graduates are unemployed and not in education, and only 6% are inactive and not in education.

Figure 5.17. Graduates not in education and not in employment by labour force status, 15-29 year-olds (2016)

Percentage of unemployed and inactive individuals among 15-29 year-old higher education graduates



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Chile: Year of reference 2015. Japan: Year of reference 2014.
Source: Adapted from OECD (2018[3]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933941082

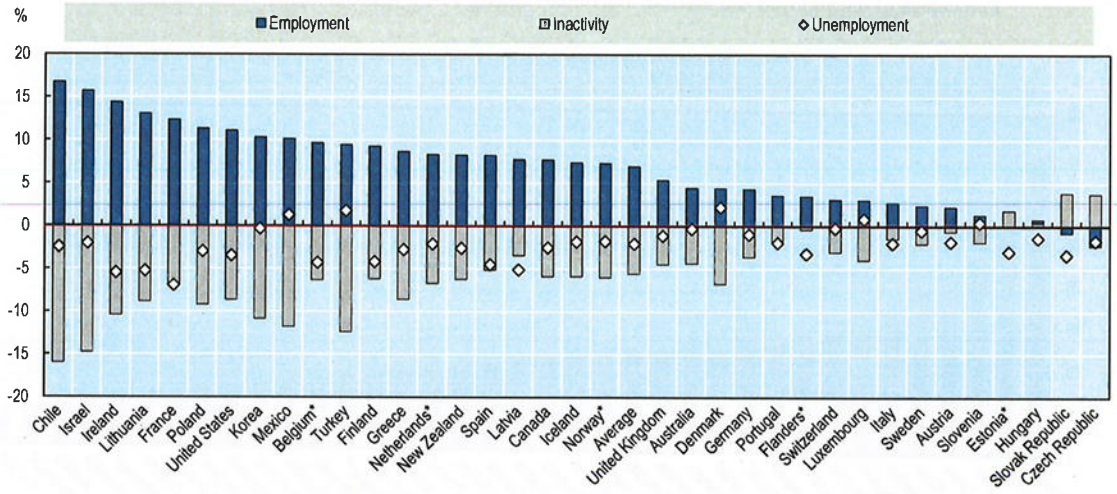
Higher education graduates enjoy higher employment rates than individuals with lower levels of education, but there are large differences between graduates as well. For example, the employment rate varies by higher education level, field of study and subsector.

On average across OECD countries, the employment rate of 25-34 year-olds with a master's degree is over 85%, a few percentage points higher than for those with a short-cycle or a bachelor's degree as their highest level of education (Figure 5.18). This compares with an employment rate of about 75% for upper secondary and post-secondary non-tertiary education graduates.

As is the case with most OECD countries, graduates from bachelor's programmes in Flanders, the Netherlands and Norway all have better employment outcomes than those who have only completed upper secondary education or post-secondary, non-tertiary education. In contrast, in Estonia, the employment rate of bachelor's graduates is slightly lower than among individuals with upper secondary education.

Figure 5.16. Difference in the employment, unemployment and inactivity rates between 25-34 year-olds with higher education and with upper secondary or post-secondary non-tertiary education (2017)

Percentage points



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Japan: Data for higher education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group). United Kingdom: Data for upper secondary or post-secondary non-tertiary programmes are included in higher education (less than 5% of adults are in this group).
Source: Adapted from OECD (2018[31]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

StatLink https://doi.org/10.1787/888933941063

The share of young higher education graduates who are neither employed nor in education[10] is a concern in many countries because it suggests that the skills of many young graduates are not being properly deployed in further education or the labour market. This measure captures not only those who have not managed to find a job (unemployed), but also those who are not actively seeking employment (inactive). The number of graduates who end up in this category is relatively high throughout OECD countries and, on average across OECD countries, about half of 15-29 year-olds are in education, one-third are not in education but employed, and the others are neither employed nor in education.

There may be a range of reasons why a graduate is not in employment or education. For example, they could be discouraged at their job prospects and be no longer looking for work; they may be parents of young children who have withdrawn from the labour force to devote more time to parenting activities; or they may be taking a break after graduation, before starting to look for a job or enrol in another education programme. On average across OECD countries, 12% of 15-29 year-old graduates are not in employment and not in education, half of whom are inactive. Inactive individuals account for a large proportion of graduates not in employment and not in education in some countries. For example, in Estonia 10% of graduates younger than 30 are inactive and not in education, and only 2% are unemployed and not in education (Figure 5.17). In contrast, in Greece