- Intermediate categories include academic staff with substantial research or teaching experience, typically granting them the right to lead research projects and to teach at postgraduate level. This category includes titles such as research fellow, post-doctoral fellow, senior assistant, lecturer, senior lecturer, senior teacher, teaching assistant, assistant professor and associate professor.
- Senior categories refer to the highest ranks of academic staff, including professors, senior researchers and scientific directors. Job titles for this category of staff include professor and senior researcher.

Table 4.a. Academic staff categories in higher education institutions in participating jurisdictions (2017)

Category	Estonia	The Flemish Community	The Netherlands	Norway
Junior categories	▪ Early stage researcher (*Nooremteadur*) ▪ Teacher (*Õpetaja*) ▪ Assistant (*Assistent*) ▪ Instructor (*Instruktor*)	▪ Graduate teaching & research assistant (*Assistent*) ▪ Senior research fellow (*Doctor-assistent*) ▪ Junior researcher	▪ Student assistant (*Student assistent*) ▪ Doctorate candidate (*Promovendus*)	▪ Lecturer (*Høgskolelektor/ Universitetslektor/ Høyskolelærer*) ▪ Doctorate research fellow (*Stipendiat*)
Intermediate categories	▪ Lecturer (*Lektor*) ▪ Research fellow (*Teadur*) ▪ Senior assistant (*Vanemassistent*)	▪ Practice tutor (*Praktijklector*) ▪ Tutor (*Lector*) ▪ Assistant professor (*Docent*) ▪ Associate professor (*Hoofdocent*) ▪ Teaching assistant (Praktijkassistent)	▪ Post-doctoral researcher (*Onderzoeker*) ▪ Lecturer (*Universitair docent*) ▪ Associate professor (*Universitair hoofddocent (UHD) - Senior lectere*) ▪ Assistant professor (*Universitair docent (UD) - Lecterer*)	▪ Post-doctoral fellow (*Postdoktor*) ▪ Lecturer (*Forstelektor*) ▪ Associate professor (*Forsteamanuensis*)
Senior categories	▪ Associate professor (*Dotsent*) ▪ Professor ▪ Senior research fellow (*Vanemteadur*) ▪ Research professor (*Juhtivteadur*)	▪ Professor (*Hoogleraar*) ▪ Full professor (*Gewoon hoogleraar*)	▪ Professor (*Hoogleraar/professor*)	▪ Docent (*Dosent*) ▪ Professor (*Professor*)

Note: In Norway and the Flemish Community, contract research staff remunerated from external funds have not been included in the table. Some categories in the Flemish Community exist only in professional HEIs, such as those found in the intermediate categories (practice tutor (*Praktijklector*) and tutor (*Lector*)).
Source: EC, EACEA and Eurydice (2017[5]), *Modernisation of Higher Education in Europe - Academic Staff 2017*, https://doi.org/10.2797/408169; information provided by the participating jurisdictions. See the reader's guide for further information.

4.2.2. Staff qualifications

Academic staff qualifications give an indication of staff competences. The primary qualification for academic staff is usually an advanced degree at the master's or doctorate level, which largely prepares them for a research career. However, this can vary across countries and depend on the level of programmes delivered. Specific qualifications, ranging from education degrees to specific certificates on teaching in higher education or research, are also becoming more important in some countries.

To ensure certain standards in higher education, governments may monitor staff qualifications or impose qualification requirements for access to certain job titles. Information on qualifications and their requirements across OECD countries is not generally available, but evidence shows that they differ among participating jurisdictions.

In **Estonia**, legislation defines each academic position (Box 4.1); the minimum qualification and experience requirements for each position are regulated in the Standards of Higher Education (KHS). For example, KHS sets a master's degree as a requirement for junior positions, and a doctoral degree for senior positions. In 2017, 94% of academic staff with teaching duties across all institutions had a master's or doctoral degree, and this proportion was much higher in universities (99%) than in professional HEIs (75%). Only around 1% of academic staff did not hold a higher education qualification. This proportion was negligible in universities, while it was 4% in professional HEIs.

In **the Flemish Community**, legislation defines the qualification requirements for academic positions. For example, academic staff require at least a bachelor's degree for the lowest rank of teaching, and a doctoral degree for some intermediate positions (e.g. assistant professor and associate professor) and senior categories available to the "autonomous" academic staff.[1] For other intermediate categories, such as teaching assistant (university and professional HEIs) and lector (professional HEIs), staff must have a master's degree.

In **the Netherlands**, the government sets targets on minimum qualifications for academic staff in public institutions, with 80% of staff required to have at least a master's degree.

In **Norway**, there are national regulations on the minimum qualification standards for the various categories of academic staff (Norwegian Act on Universities and University Colleges (*Universitets og høyskoleloven*, 2005), with supporting detailed regulation (*Forskrift om ansettelse og opprykk*, 2006) (Frølich et al., 2018[10]). In 2016, around 9% of academic staff with teaching duties in higher education did not have a higher education qualification, 8% of them had a short-cycle tertiary education qualification, and 74% had either a master's or a doctoral degree.[2] Qualification requirements are regulated for each of the major positions (professor, associate professor, senior lecturer and lecturer). Professors are required to have scientific or artistic competence in alignment with national and international standards and proven pedagogical competence, while lecturers need a master's degree (or relevant professional practice) in addition to pedagogical competence (Frølich et al., 2018[10]). Institutions will accept both doctorate holders and professionals without a doctorate degree but with documented relevant academic competence for associate professor positions. A legal requirement has been put in place, in which peer review of qualifications is a condition for employment in positions at the medium and senior levels.

Qualifications required for teaching

Criteria for career advancement take into consideration qualifications and achievements in research and teaching, although, in some countries, achievements in research are valued more highly than teaching skills (OECD, 2008[11]). Nevertheless, there is increasing focus on improving teaching skills in higher education. For example, a 2013 report by a High Level Group on the Modernisation of Higher Education in the EU recommended pedagogical training for academic staff, with mandatory continuing professional development by 2020. The report also recommended that recruitment and promotion be linked to teaching performance (High Level Group on the Modernisation of Higher Education, 2013[12]).

Individual countries have also taken measures to enhance the consideration of teaching skills when evaluating candidates for teaching positions (e.g. Australia, the Netherlands, Norway and Sweden) (VSNU, 2018[13]; Australian Government, 2015[14]; Frølich et al., 2018[10]).

The Standard of Higher Education (KHS) in **Estonia** requires all staff in teaching positions to have teaching skills and experience. Specific training or teaching qualifications are not required by legislation, but higher education institutions have the autonomy to set them as a requirement. For example, teaching and supervising experience are part of the competences required for doctoral graduates, although the extent to which they must have engaged in these activities during their doctoral programmes is not specified. The KHS also authorises specialists (with at least secondary education and three years of work experience within their profession) to teach practical courses in professional HEIs (referred to as "instructors"). In addition, the government encourages teaching qualifications by including them in performance agreement goals.

In **the Flemish Community**, the *Codex Hoger Onderwijs* (Codex) presents a policy framework for academic staff. There are no specific teaching qualifications required in the Codex, but teaching activities may be undertaken during graduate programmes (master's and doctoral). The Codex does, however, stipulate a minimum amount of time dedicated to the preparation of doctoral degrees. For example, graduate students who undertake teaching activities, as well as research assistants at universities and university colleges, must spend at least half of their time on the preparation of their doctorates.

Teaching qualifications for academic staff in universities and professional HEIs have been developed in **the Netherlands** to strengthen quality of teaching. The university teaching qualification (UTQ) was developed by universities in response to a call by government for better teaching skills (Dutch Ministry of Education, Culture and Science, 2011[15]; 2015[16]) (Box 4.2). The UTQ has contributed to a greater recognition of teaching in higher education and more focused evaluations of lecturer training and teaching. It has also provided a stronger basis for assessing staff quality and human resource policies in the accreditation process (VSNU, 2018[13]). The share of teachers holding a UTQ certificate has been included among the compulsory indicators in the performance agreements with universities (see Chapter 3) in 2012, and as of 2016, 70% of teachers at universities held an UTQ.

Professional HEIs have introduced a policy requiring all teachers with at least a 0.4 full-time equivalent workload to obtain teaching qualifications developed specifically for the subsector – an initial or lower level qualification (*Basis Didactische Bekwaamheid*, BDB), and a further qualification, which builds on the BDB, for senior teaching staff (*Senior Kwalificaties Onderwijs*, SKO).

In **Norway**, criteria for different positions, including professor, associate professor, docent and senior lecturer are described in the Regulations for Employment and Promotion, 2006 (*Forskrift om ansettelse og opprykk, 2006*). Academic staff have two different career tracks: research-oriented (predominantly in universities) and teaching-oriented (predominantly in university colleges) (Frølich et al., 2018[10]).

Box 4.2. University Teaching Qualification (UTQ), the Netherlands

The University Teaching Qualification (UTQ) is a certificate that attests to the teaching competences of staff in scientific and academic education in Dutch universities.

The generic UTQ competences were developed in 2008 and include:

1. Testing, assessment and feedback
2. Education and ICT plus blended learning
3. Diversity and inclusion
4. Ongoing professionalisation.

The key components of the UTQ entail:

- Evaluation of the staff member's teaching portfolio
- Mentoring by a senior lecturer or teaching expert
- Participation in a community of teachers to learn from peers and reflect on teaching practices.

Source: Association of Universities in the Netherlands (2018[13]), *Professionalisation of University Lecturers: The UTQ and Beyond,* http://www.vsnu.nl/files/documenten/Professionalisation%20of%20university%20lecturers.pdf.

4.2.3. Age structure of academic staff

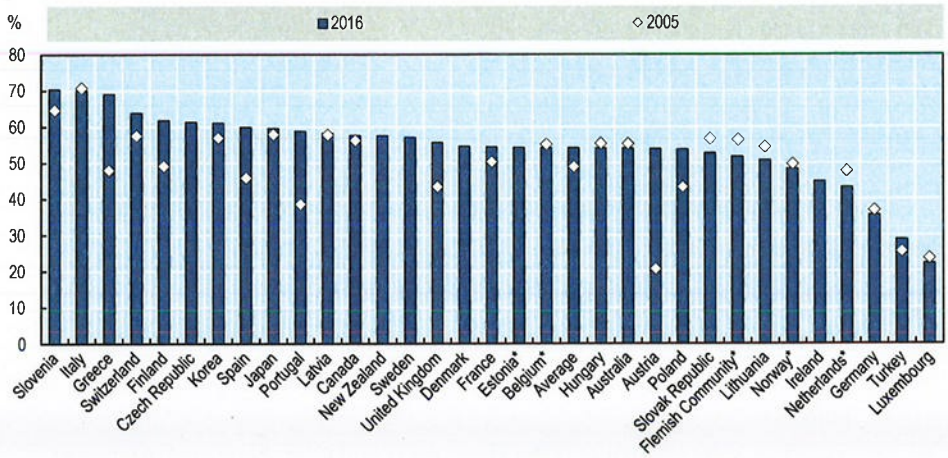
The age structure of the academic workforce has been a concern in many OECD countries since at least the 2000s (OECD, 2008[11]). On average across OECD countries and economies, the majority of academic staff is 45 years of age or older, though the share can reach as high as 70% in some countries (Italy and Slovenia). The share of staff older than 44 increased from 49% to around 54% between 2005 and 2016 (Figure 4.1).

In contrast, in the participating jurisdictions, the share of staff older than 44 decreased in the same period (2005 data for Estonia is not available). Apart from Estonia, which has a level similar to the OECD average, the participating jurisdictions also have a smaller share of staff over the age of 45, compared to the OECD average. This is particularly the case in the Netherlands, where the proportion of staff aged 44 or over is more than ten percentage points below the OECD average.

Older age profiles in some countries are partly related to demographic and social changes leading to an extension of the working life into an older age. The structure of the academic career path in some countries is also a factor, where a long career ladder means that it can take a considerable amount of time for academic staff to work their way up to the professorial level (OECD, 2008[11]). It can also be affected by long training periods for doctoral students in some countries and the age of new academics. For example, while training periods of three to four years are common among the participating jurisdictions, in the case of the United States, doctoral candidates can take from six to nine years to complete, depending on the subject and institution (see Chapter 6).

Figure 4.1. Share of academic staff in higher education older than 44 years old (2005 and 2016)

Full-time equivalent



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Instead of 2016, data refer to 2013 for Australia and Ireland, 2014 for Denmark and Poland, and 2015 for the Czech Republic.
Austria, Latvia, Luxembourg and Norway: Data refers to 2010 instead of 2005.
Czech Republic: Data for 2005 excludes staff who are not only paid through the government budget.
Belgium and the Flemish Community: Data exclude independent private institutions; data on short-cycle tertiary education refer only to the Flemish Community.
Canada, France and Norway: Data for 2005 and 2016 are not entirely comparable because of methodological changes in the data sources or the underlying methodology.
Italy: Data for 2005 excludes private institutions.
Spain: Data for 2005 exclude university research staff without teaching duties.
Source: Adapted from OECD (2018[171]), *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/10.1787/888933940607

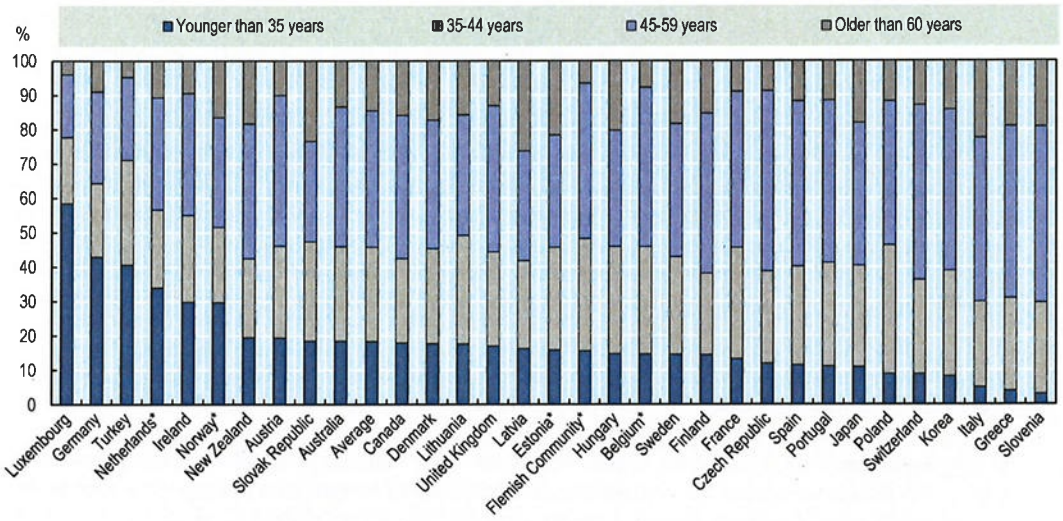
A substantial share of older academic staff may have implications for the sustainability of a higher education system. On average across OECD countries, around 15% of academic staff in higher education is 60 or older, some 40% is between 45 and 59 years of age, about 27% is between 35 and 44, and about 18% is younger than 35 (Figure 4.2). In a number of countries, such as Germany, Luxembourg and Turkey, academic staff tend to be younger, with over 40% under the age of 35. Luxembourg in particular has a majority of staff (almost 60%) aged less than 35, and less than 4% of staff are over 60.

However, this younger profile is the exception more than the rule. In Estonia, Hungary, Italy, Latvia and Slovakia 20% or more of academic staff is 60 or older. There are also six countries (Poland, Korea. Greece, Italy, Slovenia and Switzerland) where the share of staff younger than 35 is less than 10%.

The high share of academic staff in higher education older than 60 in the participating jurisdictions (around 22% in Estonia and 17% in Norway) implies that it will be necessary to attract a large number of younger academic staff in the near future, as the older employees retire. The ability to attract younger staff appears to vary across jurisdictions. The Netherlands has one of the largest shares of academic staff younger

than 35 (about one-third), while in Norway this share is about 30%, and in Estonia and the Flemish Community it is 16%, just below the OECD average.

Figure 4.2. Share of academic staff in higher education, by age group (2016)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Higher education systems are ranked in descending order of the share of academic staff aged younger than 35 years. For the definition of academic staff, see Box 4.1. Data exclude post-secondary, non-tertiary education in Japan and exclude short-cycle education in Luxembourg. Data refer to public institutions for France and Ireland, and exclude independent private institutions for Norway.
Source: Adapted from OECD (2018[17]), *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/10.1787/888933940626

Legislation around the age of retirement also can affect the age profile of staff. For instance, in the United States, the Federal Age Discrimination in Employment Act came into effect in 1993 for higher education institutions, eliminating the requirement to retire at 70. This was initially thought to have a minimal impact on higher education. However, an empirical study of data from a large metropolitan research university (from 1981 to 2009) indicated that 60% of faculty are expected to remain employed beyond 70 years-old (with the projections of 15% retiring at 80 years-old or over) since the change in law (Weinberg and Scott, 2013[18]). Box 4.3 outlines requirements around the retirement age in the participating jurisdictions.

An ageing academic staff can have significant budgetary implications, as older staff are more likely to be in senior positions and therefore have higher salaries. Current staff in some OECD countries may be members of generous pension schemes that were developed at a time when there were less staff who retired earlier. The effects of massification of higher education systems in the 1960s and 1970s in many countries, with the commensurate recruitment of large numbers of academic staff, are now leading to greater concerns about the workforce and budget implications. In some jurisdictions it is becoming more difficult for younger people to enter the academic workforce or find stable employment. Indeed, younger academic staff are more likely to work under precarious contracts (Section 4.3.2).

Box 4.3. Retirement age in participating jurisdictions

In **Estonia**, requirements around the retirement age vary for different categories of academic staff. Some staff are entitled to remain at work past the retirement age. They can receive the title of professor emeritus or docent emeritus, on the condition of having reached the age of retirement with at least 10-15 years of working experience (depending on the type of higher education institution). A professor emeritus or docent emeritus is entitled to a salary (according to the procedures established by the council), which is paid by the government (Eurydice, 2018[19]).

In **the Flemish Community**, in 2011, the retirement age and the required number of years of service were raised with no fixed minimum age limit. Tenured staff with at least 20 years of work experience at a university college may now opt to go on the reserve list full or part-time prior to retirement (and may be entitled to an allowance). The reserve list start date is aligned with the applicant's minimum pensionable age. A revised reserve list scheme was approved by the trade unions in 2012 with new criteria according to the year of birth and years of work. As of 2012, staff members may continue working after retirement age (65) while respecting the rules for combining pension and paid work (Eurydice, 2018[19]).

In **the Netherlands**, the General Old Age Pensions Act (AOW) defines the age for retirement, and access to an old age pension. The government is implementing incremental changes, so that by 2021 the retirement age will be 67 years-old (currently 66 years). The retirement age will be linked to life expectancy by 2022, with higher education staff entitled to supplementary pension (in addition to the one available for civil servants). Pensions will be based on average salary up to the age of entitlement. Pensions prepared before that date are based on the final salary (Eurydice, 2018[19]).

In **Norway**, social security and pension rights are regulated by law. The retirement age is 67 years and the government has set the maximum deferral age for retirement at 75 years.

Many OECD countries have policies aimed at attracting young academic talent, while some also have initiatives for retaining and training both younger and older staff, as seen in the participating jurisdictions (see Box 4.4). For example, Australia's higher education institutions target early career academic staff with teaching and research skills training and mentoring programmes. In Canada, funding initiatives also focus on young academic staff, providing support and mentoring programmes, in addition to increasing the number of senior academic positions (Hanover Research Council, 2009[20]).

Box 4.4 Policies related to attracting young talent to academia in the participating jurisdictions

Estonia's Research, Development and Innovation Strategy makes information on academic career paths widely available to youth from Estonia and abroad (Estonian Ministry of Education and Research, 2014[21]). Dedicated programmes include the Dora Plus programme (focused on learning and teaching) and the Mobilitas programme (focused on R&D). Both programmes are largely funded by the EU and aim to raise awareness of employment opportunities among young international researchers (and post-doctoral researchers) and support mobility through grants.

In **the Flemish Community**, the Pegasus programme (a programme co-financed by the European Union under the Marie Curie research funding scheme) funds one-year and three-year fellowships for incoming and outgoing young post-doctorate researchers (91 by 2016). Selected fellows are offered the same employment conditions as other researchers employed by the institutions at the same level, in line with the European Charter and Code (EC, 2016[22]).

The **Dutch** government and other stakeholders are responding to a forecasted shortage of engineers and scientists in all sectors of the economy, including higher education. The National Science Pact 2020, signed in 2013 by various stakeholders (including businesses, public authorities and educational institutions), promotes science and engineering programmes to pupils, and as a career for young graduates (Techniekpact, 2015[23]). In addition, the Pact has encouraged recruitment efforts towards young researchers working abroad.

The Research Council of **Norway** (RCN) has launched initiatives to increase an interest in research, such as the Science Knowledge Project for children (*Nysgjerrigper*), the *Proscientia* project (promoting interest in research and science among young people aged 12-21 years-old) and an Annual Science Week. The RCN works in collaboration with other stakeholders, such as the Norwegian Contest for Young Scientists. It also funds awards such as the Young Excellent Researchers award; applicants need to prove scientific quality, leadership skills, and international experience (Benner, Mats; Öquist, 2014[24]).

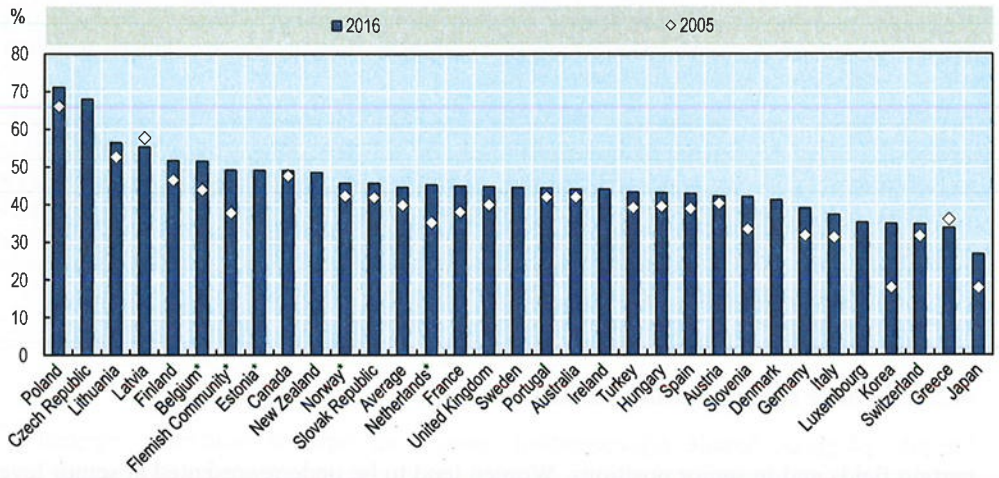
4.2.4. Gender balance among academic staff

Despite progress, female representation remains an issue in academia, especially in certain fields and in senior positions. Women tend to be underrepresented at senior levels of academia and management in higher education. Only 13% of higher education institutions in 27 EU countries were headed by women in 2009 (Morley, 2014[25]). Studies also show that the underrepresentation of women at senior levels of higher education is an important factor in explaining gender pay gaps. For example, reports on pay disparities in UK higher education institutions show an average gender pay gap for academics of around 12%, with the widest gap in favour of men for non-academic staff at the senior management level at 14%; in some institutions this gap can be over 25% (UCU, 2015[26]).

Overall, the gender gap is closing among OECD countries in terms of participation in the academic workforce; the average share of women among academic staff increased by five percentage points from 2005-2016 (Figure 4.3). Among participating jurisdictions with available data, the Flemish Community and the Netherlands had the largest increase in the share of women among academic staff over this period. The Flemish Community increased the share of women to 49% in 2016, from 38% in 2005; and the Netherlands increased to 45% in 2016 from 35% in 2005.

Women accounted for 45% of academic staff of all ages in higher education in 2016, on average across OECD countries. This share ranged from one-third or less in Greece and Japan to more than two-thirds in the Czech Republic and Poland. In Estonia and the Flemish Community, women accounted for close to half of the academic staff.

Figure 4.3. Share of women among academic staff in higher education, all age groups (2005 and 2016)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
See Figure 4.1 for notes on academic staff trend data.
Source: Adapted from OECD (2018[17]), *OECD Education Statistics*, http://dx.doi.org/10.1787/edu-data-en; data provided by the Flemish Ministry of Education and Training.

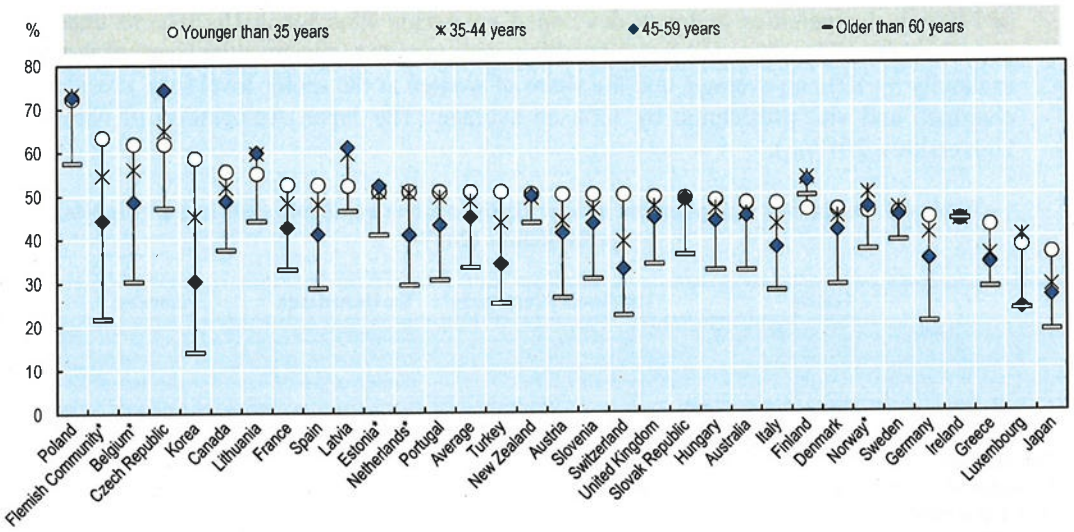
StatLink https://doi.org/10.1787/888933940645

Women are better represented in younger age groups, accounting for about 50% of academic staff younger than 35 on average across OECD countries, a substantially larger share than among academic staff of all ages (Figure 4.4). The share of female academic staff younger than 35 is larger than their overall share among all ages in all countries except for the Czech Republic, Finland, Latvia and Lithuania (who already have a relatively large share of women among academic staff). This suggests that future representation of women among academic staff in the OECD could increase, if young female academics are retained.

The share of women among academic staff in the 35-44 and 45-59 age groups is lower than in the youngest age group in most countries, and the share of women among academic staff aged 60 and older is the lowest, on average across OECD countries (about one-third). The share of women among academic staff aged 60 and older is largest in Poland (almost 60%) while in Japan less than 20% of academic staff over 60 are women (Figure 4.4).

The share of women among academic staff younger than 35 is over 60% in the Flemish Community, one of the highest shares among OECD countries. Women in this age group represent just over half of all academic staff in Estonia and the Netherlands, and around 45% in Norway. The share of female academic staff aged 60 or older is relatively high in Estonia and Norway (about 40%), while it is below 30% in the Flemish Community and the Netherlands (Figure 4.4).

Figure 4.4. Share of women among academic staff in higher education, by age groups (2016)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Data refer to public institutions for France and Ireland, and exclude independent private institutions for Norway.
Source: Adapted from OECD (2018[17]), *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/10.1787/888933940664

The gender gap at senior levels of academia is persistent in many OECD countries, including the United States and Canada. In the United States, only about 39% of women achieved tenure positions in 2015 (National Center for Education Statistics, 2016[27]). Similarly, a study covering the length of service and average years of experience of university presidents in Canada from 1840-2011 showed that female representation increased during the 1980s to close to 20% in the mid-1990s, but has since stagnated (Turpin, De Decker and Boyd, 2014[28]).

In Australia, national frameworks such as the Australian Vice Chancellors' Committee Action Plan for Women Employed in Australian Universities, 1999 to 2003, supported female leadership in higher education (Winchester and Browning, 2015[29]). This action plan and subsequent initiatives led to the inclusion of equity strategies and performance indicators in the institutional planning of many higher education institutions. Monitoring gender representation in academia over the past three decades has shown a significant improvement in gender balance. In the mid-1980s, women composed only 20% of academic staff (6% of senior positions), while in 2014 this share had increased to 44% of academic staff (31% of senior positions) (Winchester and Browning, 2015[29]). Nonetheless, a 2016 report by Universities Australia indicates that only 15% of chancellors and 25% of vice chancellors in Australia were women in 2016. Furthermore, while the majority of university councils were gender balanced and the majority of academic board chairs were women, they only represented 20% of chairs of key boards and committees. In addition, only 34% were heads of faculties or schools (Universities Australia, 2016[30]).

In Japan, where the share of women in academia is the lowest in OECD countries with available data (Figure 4.3), the government has addressed gender inequity through the

Promotion of Women's Participation and Advancement in the Workplace Act 2016 (Japanese Gender Equality Bureau Cabinet Office, 2016[31]). In response, the Association of National Universities in Japan developed an Action Plan for 2016-2020 to improve gender equity in Japanese public universities, with targets to increase the share of women in faculty by 10% on average, and the share of women at the senior level (e.g. presidents, chairmen and vice-presidents) by 12% on average (The Japan Association of National Universities, 2017[32]).

Table 4.1. Initiatives that promote gender equity among academic staff in participating jurisdictions (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
European Charter for Researchers and the Code of Conduct for Recruitment of Researchers (EU initiative)	Endorsed by five organisations, including the Research Council and the Academy of Arts	Endorsed by 20 organisations, including higher education institutions, ministries, funding and research organisations*	Endorsed by 10 organisations, including the Association of Universities on behalf of all members	Endorsed by 22 organisations, including the Research Council of Universities Norway
European Research Area and Innovation Committee (ERAC) (EU initiative)	Member	Member*	Member	Observer
European Research Area (ERA) Roadmap (EU initiative)	Implementation Plan 2016-2019	Belgian ERA Roadmap 2016-2020*	Top Action Priority in the ERA Roadmap 2015-2020	Norwegian ERA Roadmap 2016–2020
National initiatives: funding		Inclusion of a gender diversity indicator (the share of women in research positions at different levels) in indicators for research formula funding – 2% of the Special Research Fund (see Chapter 3)	Funds for the recruitment of 100 female professors (*Westerdijk Impuls*) (NWO, 2017[33]); Government target: 200 new female professors by 2020; Government grants for women in physics research (NWO, 2017[33])	Additional funding for institutions appointing female faculty members
National initiatives: networking		Public-private co-funding of research fellowships for women in biomedical sciences (with the involvement of L'Oréal Belgilux, the Flemish Research Foundation and other organisations (FWO, 2018[34])	The Dutch Network of Women Professors (LNVH), of over 1 100 female (associate) professors, promotes equal representation of women within the academic community (LNVH, 2018[35])	Several networking platforms (e.g. Women's Information Network of Europe), store and share information and academic publications on gender related studies; and connect doctoral students and junior researchers
National initiatives: monitoring processes	Monitor gender balance when hiring researchers, allocating grants and filling positions in decision-making bodies (Research and Development and Innovation Strategy 2014-2020)	Gender monitoring programme that reviews and assesses policies. Further monitoring is also undertaken by the Flemish Interuniversity Council	All higher education institutions are encouraged to increase the diversity of staff (including gender, migrant background, etc.), monitor and report on progress in this area (Dutch Ministry of Education, Culture and Science, 2017[36])	

Note: *Initiatives implemented at the national (Belgian) level.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

Numerous initiatives have been put in place in recent years at EU and national levels to promote gender equity among academic staff in Europe (Table 4.1). Many national policy actions in the participating jurisdictions are aligned with EU policy initiatives such as the Charter and the Code of Conduct for the Recruitment of Researchers, the European Research Area Innovation Committee and the European Research Area,[3] all of which embed principles and encourage practices to promote gender balance at all levels. However, available evidence suggests that the gender gap is not closing in certain fields of work, for example technology and engineering, as well as in the commercialisation of research (see Chapter 6). Internationally comparable data on gender balance by seniority would be required to assess whether there is still a gender gap in the most senior positions across countries.

All participating jurisdictions are also recipients of the Marie-Sklodwaska-Curie Actions (MSCA), another EU initiative. A 2012 study prepared indicated that female academics are generally found to be less mobile than their male peers, at least in terms of international mobility (Euraxess, 2017[37]). The MSCA provides grants to researchers at all stages of their careers supporting international, intersectoral and interdisciplinary mobility (EC, 2018[38]). MSCA practices for gender equality include training on unconscious gender bias for evaluators of proposals; equal opportunities in projects regarding support for researchers and project supervision; balanced gender representation in decision-making bodies, with a higher representation of women in the MSCA Advisory Group; and a higher weight on gender dimension as a component of the research itself (Euraxess, 2017[37]).

Gender equity is also promoted through many practices at the national level (Table 4.1), indicating government efforts to improve the system effectiveness in terms of equity. In **Estonia**, the Gender Equality Act 2004 (*Soolise võrdõiguslikkuse seadus 2004*), amended in 2014, makes references to the responsibility of educational and research institutions, as well as employers, to promote equality between men and women (Estonia Official Gazette, 2013[39]). Gender balance is also included in R&D objectives within the Research and Development and Innovation Strategy when filling positions, allocating grants and composing decision-making bodies (Estonian Ministry of Education and Research, 2014[21]).

In **the Flemish Community**, the Flemish Ministry of Higher Education and Training, and the Ministry of Work, Economy, Innovation and Sport are jointly responsible for gender equality in research. Following a consultation process in 2012 which included input from faculty deans and other stakeholders, regulations were developed to set targets for the participation of both genders in public universities' decision-making bodies (i.e. university boards, research councils and selection juries).

In **the Netherlands**, gender equality and diversity are featured in the strategic plans of many higher education institutions and promoted through gender equity frameworks. For example, the *Westerdijk Talentimpuls* programme offers universities the opportunity to apply for premiums if they appoint female researchers as professors (Table 4.1). The Ministry of Education, Culture and Science has also made a one-off investment of EUR 5 million for the appointment of 100 female professors. An amount of EUR 50 000 (per appointment) can be applied to additional salary costs associated with the promotion of UD/UHD (Box 4.1) to professor, or with the research budget of the appointed professor.

In **Norway**, all public institutions are obliged by law to take active steps to promote gender equality (Norwegian Research Council, 2017[40]). The Research Council of Norway is responsible for initiating, implementing and monitoring research activities on

gender equality in higher education. The Committee for Gender Balance and Diversity in Research provides advice on matters related to the recruitment and promotion of women in research in senior and management positions in higher education institutions.

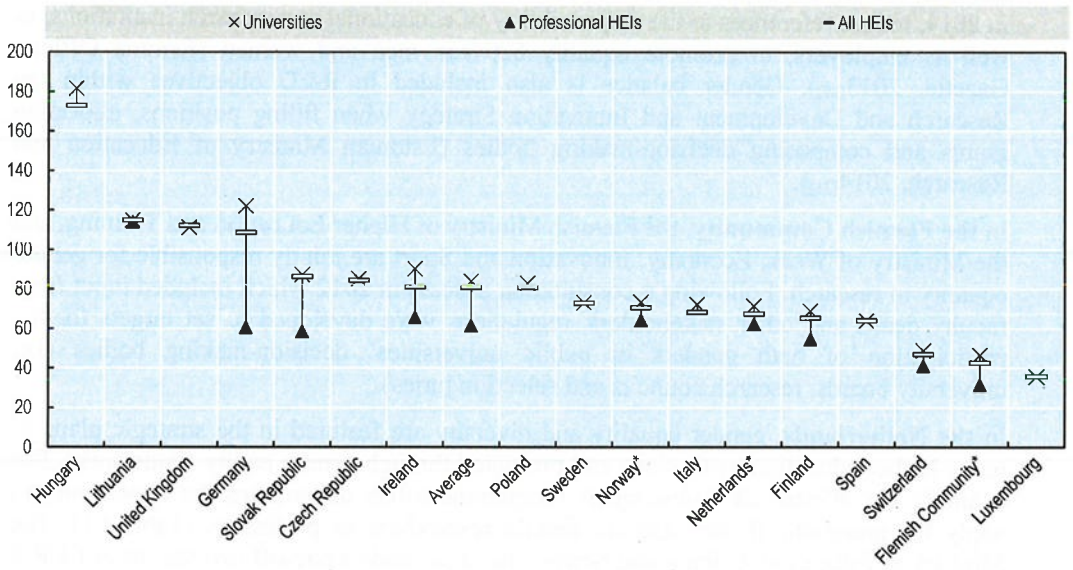
4.2.5. Non-academic staff categories

The role of non-academic staff in higher education has gained prominence due to an increase in numbers in recent decades in some countries. In the United Kingdom, data collected by the Higher Education Funding Council for England (HEFCE) for 2015 and 2016 indicated that more than half of the staff employed in higher education institutions were professional and support staff (non-academic). The number of non-academic staff has increased by 6% since 2012-2013 (a substantial increase, although not as large as the increase in academic staff by 9%) (HEFCE, 2017[41]; HESA, 2017[42]).

Research suggests that the ratio of non-academic staff to academic staff may not have varied over time, although the nature of non-academic staff work has evolved over time to meet changing needs. For instance, in Australia, the ratio of 1.3 non-academic staff to academic staff members is the same as it was before the 1990s, when a large number of support staff were engaged in tasks such as typing documents (Watts, 2017[43]).

Figure 4.5 shows the ratio of non-academic staff per 100 academic staff in European countries by subsector. Among countries with available data, the Flemish Community has one of the lowest ratios of non-academic staff to 100 academic staff when looking at all higher education institutions, while the Netherlands and Norway are closer to the average.

Figure 4.5. Non-academic staff per 100 academic staff, by subsector (2015)



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Flemish Community: Data may exclude academic staff working in academic hospitals; data for professional HEIs exclude staff that is not paid by the institutions.
Norway: Data include only staff working a minimum of 40% of a full-time workload.
Source: Adapted from European Tertiary Education Register (2018[44]), *ETER Database*, www.eter-project.com.

StatLink https://doi.org/10.1787/888933940683

Overall, universities tend to have higher ratios than professional HEIs. This may reflect their distinct nature of work, i.e. the need for support staff in R&D activity. Figure 4.5 also highlights that different systems appear to have very different requirements for non-academic staff, which may indicate differences in the functions carried out by different job categories across countries.

The expansion which has occurred in many higher education systems has also created changes in the profile and tasks of administrators, technicians and support staff. Increased internationalisation, engagement, technology transfer and commercialisation of research has led to the creation of more specialist positions (Di Leo, 2017[45]). Demands for accountability have also led to greater numbers of staff responsible for reporting. The development and implementation of technology-led programmes (including online delivery) has required staff to often perform a hybrid role (a mix of academic and non-academic) that requires expertise in the areas of innovation, technology and pedagogy.

Non-academic staff are increasingly highly qualified and well paid, professionalised and demanding more specialised career paths (Fahnert, 2015[46]). As a result, many higher education systems have witnessed a "managerial revolution" of non-academic professionals in management and specialist roles in the university administration infrastructure. Their impact on higher education performance is as yet unclear (Baltaru, 2018[47]), but highly skilled specialist staff could, in principle, contribute to a more efficient use of resources in higher education.

4.2.6. Senior management in higher education institutions

Table 4.2. Senior management roles in higher education (2017)

	Estonia	The Flemish Community	The Netherlands	Norway	Examples from other jurisdictions (universities)
Level 1 (Chief Executive)	Universities and professional HEIs: rector	Universities: rector; Professional HEIs: general director	Universities: rector, president	Universities and university colleges: rector	Chancellor, vice chancellor, president, provost, principal
Level 2	Universities and professional HEIs: chancellor/ director for non-academic units	Universities: vice rector	Universities: vice president	Universities and university colleges: vice rector	Deputy vice chancellor, pro-vice chancellor
Level 3	Universities: dean; Professional HEIs: head of department, director	Universities: dean; Professional HEIs: head of department	Universities: dean	Universities and university colleges: dean	Dean

Source: Eurydice (2018[19]), *National Education Systems*, https://eacea.ec.europa.eu/national-policies/eurydice/national-description_en; information provided by the participating jurisdictions. See the reader's guide for further information.

The transformation of universities in many countries from collegial communities of academics into hierarchical organisations incorporating elements of private sector management has led to changes in the way universities are managed (Broucker and De

Wit, 2015[48]). However, senior management roles in higher education, from the executive head (rectors, presidents, vice chancellors, general directors, etc.) to deans or heads of faculties (Table 4.2), are usually held by academic staff. This reflects the long tradition of internal governance in higher education and the importance of maintaining a strong relationship and credibility with the academy.

However, in the modern higher education institution, a strong academic background needs to be complemented by management and business skills to deal with large and diversified funding streams, multiple internal governance structures, and an external representative profile (locally, nationally and internationally) (Middlehurst, 2013[49]). Senior managers need to be able to engage effectively in complex negotiations with government and understand a vast array of laws and regulations related to higher education.

The processes to select senior management staff and the selection criteria and qualifications for these roles vary across countries, reflecting management practices within jurisdictions. In some countries, legislation prescribes mandatory qualifications and selection criteria for executive heads, including the academic staff level. Requirements vary across the participating jurisdictions, as seen in the qualification requirements for executive heads in universities (Table 4.3). The process to select senior management may entail an election by staff or the appointment by the council or board (executive heads) or senior managers (those below executive heads). The European Universities Association (EUA) Autonomy Tool notes four categories of selection procedures for executive heads in European universities:

- elected by a specific electoral body that is usually large, representing (directly or indirectly) the different groups of the university community (academic staff, other staff, students), and whose votes may be weighted
- elected by the governing body that is democratically elected within the university community (i.e. the body that decides on academic issues)
- appointed by the council/board of the university (i.e. the governing body that decides on strategic issues)
- appointed through a two-step process in which both the senate and the council or board are involved (Bennetot Pruvot and Estermann, 2017[50]).

The election or appointment of executive heads in some jurisdictions needs to be validated by external authorities, such as minister or head of government.

Some jurisdictions have specific protocols for the selection of executive heads of higher education institutions. For example, in Estonia, the selection process for the appointment of executive heads of universities is organised differently in four universities, according to the University Act (UnA) (*Ülikooliseadus*, 1995), as Tartu University and Tallinn University of Technology have separate Acts (Estonia Official Gazette, 1995[51]). While in Tartu University they are elected by council and senate, in Tallinn University of Technology they are elected by university council (the highest decisive body). In professional HEIs under the Ministry of Education and Research, the selection process requires a public competition. The candidates are selected by an electoral body composed of seven members, where two are named by the ministry, two by the academic body (one of them being a student), two by the advisory body, and one representing organisations and companies from the field of professional HEIs. (Table 4.3).

In addition, in Estonia there is no practice or mechanism for external validation concerning the selection of the rector. However, the Minister of Higher Education and Research appoints five out of 11 members of the university council and the senate for the two largest universities in Estonia (Tartu University and Tallinn University of Technology). Meanwhile, the position of vice rector is defined in legislation (Estonian Ministry of Education and Research, 2014[21]). Professional higher education institutions have ministry representatives in their committees (Table 4.3). In the case of universities, according to the UnA, the most senior member of the council shall enter into a contract with the rector for five years.

Table 4.3. Selection of executive heads of higher education institutions in participating jurisdictions (2017)

	Estonia	Flemish Community	The Netherlands	Norway
Selection criteria	▪ Universities: open to all professors ▪ Professional HEIs: open to all Estonian citizens who are professors or have at least a master's degree	Universities: determined at the institutional level	Universities: determined at the institutional level	Universities: determined at the institutional level
Selection process	▪ Universities: rectors are elected in accordance with procedures established under the statute of each institution ▪ Professional HEIs: elected in accordance with the procedure established by a government regulation	Universities: determined at the institutional level	Universities: members of the executive board, i.e. the president, vice president and rector of the university, are selected by the supervisory board (*Raad van Toezicht*)	Universities: determined at the institutional level. A change in the law (April 2016), has made the appointment of the rector by the university board the main model to be used by universities, rather than an election model
External validation of decision	Not required	Not required	Universities: must be confirmed by the Minister of Science and Education	Not required

Note: In Norway, around half of the universities appoint their rector through the university board or council, while the other half elect their rector through a process involving the university staff and students.
Source: For universities, Bennetot Pruvot and Estermann (2017[50]), *University Autonomy in Europe III The Scorecard 2017*, www.eua.be/Libraries/publications/University-Autonomy-in-Europe-2017. For professional HEIs and independent private institutions, the OECD collected the information from the Estonian Ministry of Education and Research and from national higher education institution associations (for the Flemish Community, the Netherlands and Norway), based on the instruments developed by the European University Association (Bennetot Pruvot and Estermann, 2017[50]).

As demands for efficiency and effectiveness increase, executive heads are being asked to lead in a more proactive way, acting as CEOs of higher education institutions. They need to prove management (including financial matters), leadership and business skills (Dinya, 2010[52]), although the provision of training is not done systematically across (nor within) countries. This may have an effect on the capacity of higher education institutions to implement reforms and perform efficiently.

4.3. Working in higher education

High quality working conditions are necessary to attract and retain excellent academic staff. Across the OECD countries covered in the Changing Academic Profession (CAP) international survey in 2007, 2008 or 2010, there is a perception that working conditions for academic staff are deteriorating. On average across these countries, the surveyed staff

reported working 48 hours a week and almost half of them considered their job as a source of considerable personal strain (Section 4.3.7) (Teichler, Arimoto and Cummings, 2013[53]). In addition, evidence from the OECD Survey of Adult Skills shows that higher education offers young doctorate holders careers with similar job satisfaction, but less job stability than other sectors of employment (Box 4.5). Good working conditions can help to ensure an effective and sustainable higher education system; satisfied staff have the right environment to produce better outputs and can be more easily retained in the profession.

Box 4.5. Job stability and job satisfaction among doctorate holders

Within a representative sample of 16-65 year-olds in OECD countries and economies participating in the OECD Survey of Adult Skills, 26% of doctorate holders younger than 45 worked in higher education at the time the survey was conducted (in either 2012 or 2015), a proportion slightly (but not significantly) lower than among 45-65 year-olds (28%).

Doctorate holders in the 45-65 age group working outside higher education were slightly less satisfied with their job than those working in higher education, but they were also slightly more likely to report holding a permanent job (neither result is significant). The differences between those working in higher education and other sectors were sharper among doctorate holders younger than 45. In particular, younger doctorate holders in higher education were about 2.5 times less likely to be employed on a permanent basis than those working in other sectors (this difference is significant at the 1% confidence level).

Table 6.a. Job stability and job satisfaction among doctorate holders (2012 or 2015)

Percentage reporting to be satisfied or very satisfied with their job and to have indefinite contracts, by sector of employment and age group

	Satisfied with their job		With indefinite contracts	
Age group	Younger than 45	45-65	Younger than 45	45-65
Higher education	70%	88%	24%*	69%
Other sectors	83%	79%	61%*	73%

Note: * The difference between higher education and other sectors is significant at the 5% confidence level (also when controlling for country fixed effects). The sample size for the test is 582 for Column 1, 574 for Column 2, 519 for Column 3, and for 475 for Column 4.
Source: Adapted from OECD (2016[54]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

These results are consistent with the findings from recent studies. However, the difficulty in developing a sampling frame containing the full population of doctorate holders (McDowell, 2016[55]) implies that such evidence is often not generalizable. For example, based on an online survey, Sinche et al. (2017[56]) found that US doctorate holders in research-intensive (including academic) and non-research-intensive careers had similar levels of job satisfaction. Starting from the premise that longitudinal data on career destinations for doctoral graduates are not routinely collected in Australia, McGagh et al. (2016[57]) review a small number of existing studies suggesting that doctorate holders working in the academic sector have lower job stability than others. In addition, based on a survey of recent doctoral graduates from selected universities in various European countries, the European Science Foundation (2017[58]) found that doctorate holders in universities were less likely to be employed on permanent contracts than in other sectors, while enjoying similar levels of job satisfaction.

4.3.1. Career paths in academia

Clear and well-designed academic career paths help ensure the sustainability of higher education systems. An ideal academic career path will attract excellent staff, reward productivity, promote stability, enable high quality teaching and innovative research, and help to build a "world-class" reputation (Altbach and Musselin, 2015[59]). Career paths in academia entail training,[4] employment contracts, hierarchy and the option of tenure (Pechar and Andres, 2015[60]).

Employment contracts can be permanent or fixed term (for an overview of permanent and non-permanent staff, see Section 4.3.2). Permanent or indefinite contracts in higher education are often referred to as tenure. Staff on a tenured appointment are employed under a permanent contract following a probation period and can only be dismissed for a specific cause or under extraordinary circumstances. The process to obtain tenure may comprise an agreed evaluation procedure with a peer-reviewed assessment of academic accomplishments. However, the tenure system and academic staff career structures remain very much national in form, with substantial variation across countries (OECD, 2008[11]).

There are different types of tenure due to different contexts; for example, in many European countries, academic staff have the status of civil servants, in which case they already have special treatment for job termination (only under special circumstances). Academic tenure in North America follows a long probation period and rigorous (internal and external) peer review. In some countries, the career model of tenure has been abolished (e.g. the United Kingdom), and employment contracts are limited to permanent and fixed term.

While there is no single model for career paths across countries, initiatives such as the European Union's Charter for Researchers and the Code of Conduct for the Recruitment of Researchers facilitate academic mobility and help higher education institutions in the region ensure that an academic's experience is recognised equally across the EU countries. Associated guidelines for the recruitment process of academic staff include advice on qualification requirements, working conditions and entitlements (i.e. career development prospects), information to include in the advertisement for the post and what is expected from applicants in their curriculum vitae (EC, 2005[61]) (see Chapter 6).

Table 4.4. Academic career structure, public institutions (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
Criteria for career progression within the national career structure	Accomplishments as a researcher; academic qualifications	Determined at the institutional level	Determined at the institutional level	Accomplishments as a researcher and teacher (academic qualifications, alternate academic career path)
Basis for promotion to a higher position	Position needs to be vacant	Position needs to be vacant	Determined at the institutional level	Promotion is possible upon fulfilment of given requirements or on a vacant position

Note: National academic career structure varies according to the type of higher education institutions. The information in this table applies to all public and government-dependent universities and professional HEIs.

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

Table 4.4 provides a brief description of national frameworks for the career structure of academic staff established in the participating jurisdictions.

Estonia and Norway have similar criteria for career progression (i.e. accomplishments as a researcher, teacher and academic qualifications). The career structure is the same for all higher education institutions in Norway. In addition, criteria for recruitment of new staff in Norway are laid down in regulations that apply to all higher education institutions (including some restrictions on the composition of selection panels and promotion requirements). The same criteria may vary in the Flemish Community and the Netherlands, as they are determined at the institutional level.

In the Flemish Community, within the Codex framework, higher education institutions define their own standards and procedures for professional ethics and evaluation, as well as the appointment and dismissal of officials. If institutions use non-government funds, candidates can be hired without going through the required recruitment procedure for academic staff, which includes public advertising and a formal selection process (EC, EACEA, Eurydice, 2017[5]). In the other participating jurisdictions, higher education institutions enjoy a large degree of autonomy in the hiring of new staff, provided that the vacancies are made public.[5]

Higher education institutions have a relatively high level of autonomy in deciding on promotion processes in the participating jurisdictions. Academic staff can be promoted only when a position is vacant in Estonia, the Flemish Community and Norway (universities). Meanwhile, in the Netherlands, rules for promotion are determined at the institutional level.

In Norway, the criteria for promotion are similar to those for recruitment (including the restrictions) (Norwegian Ministry of Education and Research, 2006[62]). Employees may initiate the promotion process by requesting the appointment of a panel of academics to take a decision on their promotion, e.g. from associate professor to professor. The recruitment process follows public administration rules. Working conditions that are not directly specified in the civil service regulations (such as salaries and provisions on career development) are drawn from collective agreements between unions and higher education institutions (Eurydice, 2018[19]).

Based on the categories presented in Box 4.1, Table 4.5 presents a typical career path in academia in the participating jurisdictions.

Table 4.5. Typical career path by type and subsector in participating jurisdictions (2017)

	Step 1		Step 2		Step 3		Step 4		Step 5		Step 6
Estonia	Teacher	→	Lecturer	→	Associate professor	→	Professor				
The Flemish Community	Graduate teaching and research assistant	→	Senior research fellow	→	Assistant professor	→	Associate professor	→	Professor	→	Full professor
The Netherlands	Doctorate fellow (paid position)	→	Post-doc (*onderzoeker*)	→	Senior lecturer	→	Professor				
Norway	Lecturer, research fellow, post-doc	→	Associate professor	→	Professor						

Source: EC, EACEA and Eurydice (2017[5]), *Modernisation of Higher Education in Europe - Academic Staff 2017*, https://doi.org/10.2797/408169; information provided by the participating jurisdictions. See the reader's guide for further information.

In the case of Estonia, existing statutes (UnA, Standard of Higher Education) in addition to presenting staff categories and responsibilities, also state the minimum qualification requirements, requirement for public competition and open application procedures for the election of teaching and research staff (with exceptions when the competition has failed or the position is of temporary nature).

Estonian higher education institutions are free to promote academic staff, with minimum requirements set in legislation. A typical academic career follows four steps (Table 4.5). A doctorate is a requirement for a professorship under the Universities Act 1995 (Estonia Official Gazette, 1995[51]). Appointments to professorial positions in public universities are usually based on research performance and the successful supervision of doctoral students. Performance and experience in other levels of teaching is also considered, but it receives less weight in the evaluation of a candidate. Associate professors (*dotsent* – teaching as main activity) are also required to have a doctorate, but the successful supervision of doctoral students is not as important (Estonian Ministry of Education and Research, 2014[63]). There is a growing interest from higher education institutions in adopting a framework of regulations that applies to academic career models, including the awarding of tenure (Kanep, 2017[64]). Such developments are being prepared within the new higher education legislation.

In the Flemish Community, there are six steps to reach the most senior academic level. Higher education institutions are free to promote senior academic staff (although the promotion of administrative staff is more regulated) (Table 4.5). The Flemish government also introduced a number of measures to provide more career stability to staff. Tenure track for assistant professors was introduced in 2008, leading to a position of associate professor with an ongoing contract upon positive evaluation at the end of a five-year tenure period. The government has set a target of success rate for the Research Foundation Flanders (*Fonds voor Wetenschappelijk Onderzoek* (FWO)) grant applicants of at least one-third, from the current 20% to allow sufficient competition among researchers, without discouraging the submission of proposals. The aim is to retain

Flemish researchers who would apply abroad otherwise, and also to attract researchers from abroad.

To ensure the sustainability of human resources in higher education, the Human Resources in Research database in Flanders has been tracking academic career progression of researchers connected to one of the five main universities since 1990-91, collecting data on gender, discipline and funding. This data provides a solid base for the planning and monitoring of short-term research contracts at entry and doctoral level, post-doctoral appointments, tenure positions and retirement (Debacker and Vandevelde, 2016[65]).

There are four main steps in the academic career in the Netherlands (student assistant, lecturer, senior lecturer and professor) (Table 4.5). Tenure tracks are a common step in Dutch career paths. Each institution can autonomously define the length of tenure track contracts (within the existing regulation) and the criteria for conversion to an ongoing contract. The Netherlands also offers tenure track options for positions that are more focused on teaching, such as lecturer. Under a job classification system (*universitair functieordeningssysteem*, UFO) (Section 4.2.2), all Dutch university employees are assigned a job profile at a corresponding level.

The government has also implemented two programmes to assist professional higher education institutions in improving the beginning of new teachers' academic careers, as well as introduce new teaching ideas and practices in the higher education system. The Vliegende programme aims to attract, select, and guide new teachers in their goals with the aim to improve the career development of teachers (career launch and retention of good teachers). The Comenius programme recognises outstanding and innovative teaching by offering fellowships to academic staff, thereby increasing the status of teaching within higher education institutions and advancing the careers of fellows (see Chapters 3 and 5).

The typical academic career in Norway goes from lecturer, to associate professor, and then professor (Table 4.5). At large universities, the typical career starts as a doctoral fellow, then on to post-doc, associate professor and professor. While the associate professors and professors are more common in universities, lecturers are most prominent in other institutions. Career progression follows the rules applying to civil service and the criteria laid down in the regulations on qualifications requirements and promotion for academic staff.

4.3.2. Permanent and non-permanent staff

Academic staff careers have changed significantly over recent decades. Previously, they were based on a two-stage process, with a first period characterised by apprenticeship, selection and time-limited positions; and the second beginning with access to a permanent position (OECD, 2008[66]). However, academic staff nowadays have varying types of contracts, leading to different levels of job security. Similar to many other regions, higher education staff in the European Union can be classified according to the type of contract with which they are employed (EC, EACEA, Eurydice, 2017[5]):

- Hourly contract staff denotes staff employed and paid by the hour, usually on termly or annual contracts (including "zero hours contracts" with no guarantee of work).
- Fixed-length contract staff refers to staff on contracts which expire at the end of the period specified.

- Ongoing contract staff refers to staff on contracts without an expiration date; these are also referred to as indefinite or permanent contracts.

Internationally comparable data on job performance and satisfaction of staff with different contract modalities are not available. Although, according to Education International, a federation of teachers' unions, employment on fixed-term contracts negatively affects the motivation and professional identity of academic staff, harming the ability of higher education institutions to carry out their missions (Stromquist, 2017[67]). In addition, job security is considered important for academic freedom (Box 4.6).

Box 4.6. Academic freedom in higher education institutions

Academic freedom is generally characterised as the freedom to teach and conduct research (for academics) and to learn (for students) without constraints imposed from outside the academic community, although it is a concept inherently difficult to define (Altbach, 2001[68]; Åkerlind and Kayrooz, 2003[69]). It is related to working conditions through regulations at the institutional, national and international levels, while shaped in direct and more subtle ways by the dynamics of relationships between academic staff, non-academic staff, students, communities and governmental bodies. The reconciliation of academic freedom with institutions' contributions to society points requires institutions to develop frameworks that link institutional goals to individual academic work. Such reconciliation efforts aim to benefit society and make the academic profession more attractive (OECD, 2008[11]).

The 1997 UNESCO Recommendation concerning the Status of Higher Education Teaching Personnel (UNESCO and ILO, 2008[70]) identified a number of elements which support academic freedom, including institutional autonomy; individual rights and freedoms; self-governance and collegiality; and tenure (Karran, 2009[71]). In terms of self-governance and collegiality, UNESCO recommended that academic staff should have the right and opportunity to participate in governing bodies and be able to elect the majority of representatives to academic bodies. Furthermore, it suggested that collegial decision-making should encompass decisions regarding the administration and determination of policies of higher education, curricula, research, extension work, the allocation of resources and other related activities. However, self-governance will not ensure academic freedom if it translates into bad management; and tenure may limit the freedom of young, non-tenured academic staff to criticise the academic establishment (OECD, 2008[11]).

Academic freedom is ensured by legislation in all the participating jurisdictions, through Acts related to higher education or through the constitution (Estonia Official Gazette, 1992[72]; Legal Affairs and Parliamentary Documentation Department, 2017[73]; Dutch Ministry of the Interior and Kingdom Relations, 2002[74]; Norway Acts and Regulations, 2005[75]).

There are also no internationally comparable data covering a large number of OECD countries on the share and profile of staff by type of contract, although some data have been collected by academics and various organisations. In Australia, only one of four newly appointed faculty is hired on an ongoing basis (Ryan et al., 2013[76]). In Canada, one-third of university faculty members are on fixed-length positions and not on a tenure track, and in the United States, this applies to 70% of new faculty appointments as reported by Education International (Stromquist, 2017[67]). In France, approximately 60% of the total faculty are adjunct faculty (academic staff in fixed-length contracts) (ILO, 2018[77]). The share of academic staff without ongoing contracts also differs by gender, with women representing on average more than 60% of the fixed-length or hourly positions across European countries (Stromquist, 2017[67]). In addition, women in Europe represent more than 30% of the professors (permanent faculty position) in only six

countries whose institutions are listed in the European Tertiary Education Register (Stromquist, 2017[67]).

Table 4.6 shows the percentage of staff with ongoing contracts across different age groups for the participating jurisdictions (this data excludes staff without teaching duties and doctoral students with temporary contracts). In all jurisdictions, having an ongoing contract is equivalent to tenure in terms of job security, as the labour law protects workers with ongoing contracts from dismissal without just cause. In addition, Norwegian public institutions, Dutch public universities and the Flemish Community (in that which relates to autonomous academic staff) must follow the stricter regulations applying to civil servants for the dismissal of staff with ongoing contracts.

Table 4.6. Share of teaching staff with ongoing contracts, by age (2016)

Academic staff with teaching duties, excluding doctoral students

Age group	Estonia	The Flemish Community	The Netherlands	Norway
34 and younger	46.9	9.8	25.2	23.1
35-44	44.7	47.4	72.0	59.9
45-59	42.4	73.1	93.4	77.5
60 and older	46.9	79.4	93.5	85.3
All ages	44.8	51.9	74.4	70.4

Note: For the definition of academic staff, see Box 4.1.
Source: Adapted from information provided by the participating jurisdictions. See the reader's guide for further information.

In **Estonia**, 45% of academic staff with teaching duties across all age groups are on ongoing contracts. The share of ongoing contracts does not differ much across age groups, with very close values for the age groups 60 and older and 34 and younger. The share is slightly lower in the age group 45-59 years (42%). In principle, academic staff in Estonia should be employed with ongoing contracts, after an open competition process designed by the university council or, for professional HEIs, by the ministry. Fixed-length or hourly contracts can be used if a position cannot be filled through regular procedure. Temporary employment with the same employer cannot last longer than five continuous years, after which the work relationship must end or the person should be offered an ongoing contract.

In **the Flemish Community**, the total share of academic staff with teaching duties in ongoing contracts is 52%. Fixed-length contracts are much more common across younger academic staff. The share of academic staff younger than 34 in this type of contract in the Flemish Community is about 10%. In contrast, the share of academic staff in ongoing contracts is above 70% for the age groups 45-59 and 60 and older.

In **the Netherlands**, the share of academic staff with teaching duties in ongoing contracts for all ages is about 74%, much higher than for Estonia and the Flemish Community. The share is in line with the cap of 22% of fixed-length or hourly contracts set in 2015 by the Association of Universities in the Netherlands (VSNU, 2015[78]). Collective labour agreements in the Netherlands have ensured more contractual stability for academic staff including a maximum duration (six years) for work on fixed-length or hourly contracts with the same employer and a limit to the number of renewals (two) of hourly or fixed-term contracts (Dutch Ministry of Education, Culture and Science, 2017[36]).

In **Norway**, the share of academic staff with teaching duties in ongoing contracts for all ages is 70%. The remaining 30% in temporary posts include contract staff hired with funds external to the institutional budget. The shares show a higher percentage of staff in fixed-length positions in the youngest age group, as just 23% of staff younger than 35 have an ongoing contract.

4.3.3. Part-time academic staff

Working hours for academic staff differ across countries, institutions and staff categories. In this discussion, part-time staff are defined as academic staff employed for less than 90% of the normal or statutory working hours in the same job or role at a given level of education. This implies that part-time academic staff may work additional hours outside the education sector.

Part-time academic staff working outside the academic sector may help establish enduring links with the world of work, thus contributing to the effectiveness of higher education in preparing students for the labour market. It has been argued that part-time positions help institutions reduce costs, more easily adjust to fluctuations in enrolments and increase flexibility for employees. Others argue that part-time staff are often underpaid and lack benefits such as medical insurance (Benjamin, 2015[79]).

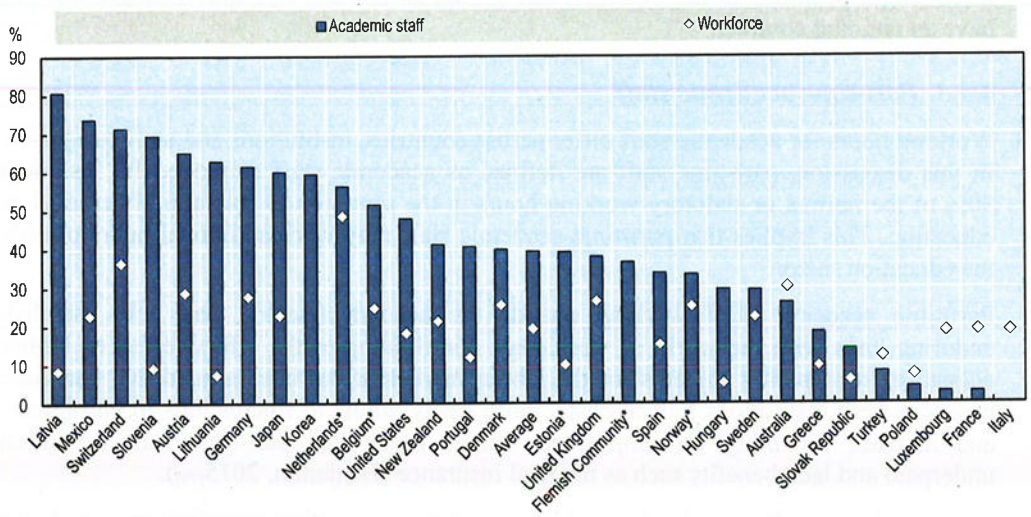
Some academic staff may also be working in enterprises or other organisations which can bring benefits to both sectors. Academic staff working part-time in enterprises or other sectors can bring research expertise into the business environment and public sector. Non-academic professionals working part-time as lecturers in higher education can also help bring valuable professional experience into the classroom (Arnhold et al., 2018[4]).

Among EU countries, the variation in working hours for academic staff is often due to factors related to professional norms, system structures, institutional expectations, and the proportion of staff by academic field (EC, EACEA, Eurydice, 2017, p. 71[5]). Part-time work (as well as work on fixed-length contracts) is associated more with junior and intermediate staff categories across EU countries. On average across EU systems with different subsectors, the average number of working hours is lower for academic staff in universities than other subsectors (EC, EACEA, Eurydice, 2017[5]).

On average across OECD countries, around 40% of academic staff in higher education are employed by higher education institutions part-time. Latvia, Mexico and Switzerland present the largest share of part-time academic staff. Among the participating jurisdictions, the share of part-time academic staff is higher than the OECD average in the Netherlands (over one-half), while the share is around the average in Estonia. About 35% of academic staff are employed part-time in the Flemish Community and about one-third in Norway (Figure 4.6). While in some countries, such as the Netherlands, a large share of part-time academic staff goes hand in hand with a large share of part-time workers in the overall economy, in other countries, such as Latvia, this appears to not be the case. In Norway, most of the part-time academic staff has their main employment outside of academia (according to background information from the Norwegian Ministry of Education and Research).

Figure 4.6. Share of higher education academic staff working part-time (2016)

As compared to the share part-time workers in the workforce; based on headcount



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018. Data on academic staff refer to 2013 for Australia and Turkey, 2014 for Denmark, France and Norway, and 2015 for Poland. Data for Belgium, Denmark, the Flemish Community and France exclude independent private institutions. Data include post-secondary non-tertiary education for France, Portugal and the United States and exclude short-cycle tertiary programmes for Australia.
Source: Adapted from OECD (2018[17]), *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/10.1787/888933940702

It must be noted that the incidence of part-time work among academic staff in higher education and among workers in the population are not directly comparable because of the differences in their definitions. Part-time workers are those who usually work less than 30 hours per week in their main job (OECD, 2017[80]), so an academic who is classified as part-time academic staff may not be classified as a part-time worker (and vice versa). Despite this limitation, comparing the two series allows an investigation of whether the share of part-time academic staff is related to the labour market context of a country. There is a mild positive relationship between the two series in Figure 4.6 (correlation coefficient of 0.29), suggesting that while the share of part-time academic staff is somewhat associated with the prevalence of part-time work in a country, many other factors play a role in determining it.

In 1998, the Dutch government set a standard work year (the exact number of work hours per year) as 1,659 hours, for all sectors of education. The working intensity is negotiated with the employer, and the extent to which an individual works (part-time or full-time) is referred to as the "working hours factor". Academic staff can choose to work 36, 38 or 40 hours. The government has implemented a system of age-related leave, where employees with a contract of at least 0.4 full-time equivalent and at least three years of experience (within the last five years) in professional higher education institutions, are entitled to an annual sustainable employability budget (45 hours for full-time employees – 40 hours for the period between 2015 and 2019). Employees in similar position who are within 10

years of retirement (with at least five years of work experience in higher education) are also entitled to reduce their annual hours by 20% for five years (Eurydice, 2018[19]).

4.3.4. Salaries of academic staff

Higher education systems vary in their approaches to compensation of staff. In Europe, many countries determine salaries through collective bargaining, while a few countries classify academic staff as civil servants, in which case salaries follow public sector rules.

In the United Kingdom, a national Framework Agreement for the Modernisation of Pay Structures is in place since 2006, as a result of national negotiation. The Framework provides a reference salary base with five salary grades for the majority of higher education staff (academic and non-academic staff). Based on the framework, higher education institutions can create their own salary and grading structures (UCEA, 2013[81]). Another approach is that of countries that develop collective agreements by subsector (e.g. Finland and Malta) (ILO, 2018[77]). Meanwhile, in the United States, academic staff salaries can differ significantly within the country. There are different salary regimes within higher education institutions and unions negotiate with employers at the local level (i.e. enterprise agreements), rather than at the national level. (Angermuller, 2017[82]).

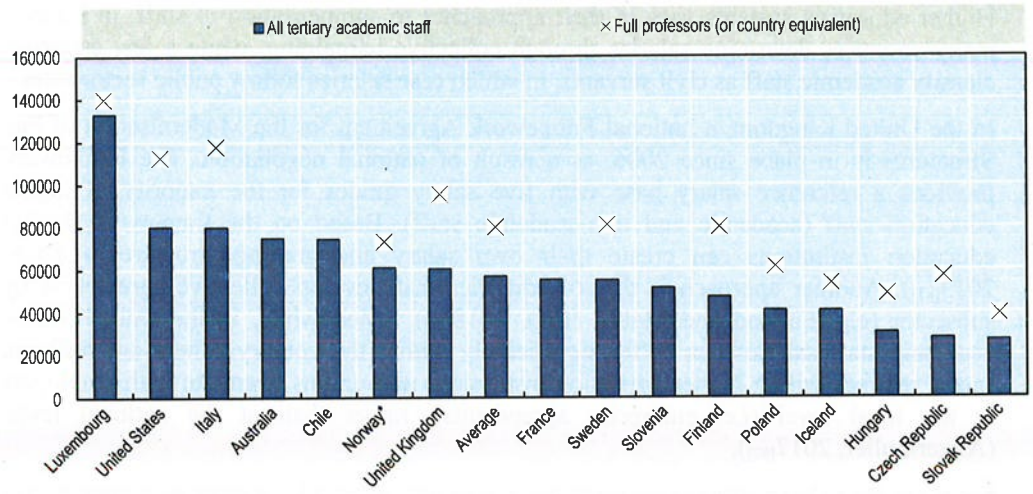
Some countries have adopted performance-based pay, aiming for a more economic higher education system. For example, in Finland, the salary of academic staff entails two components: the position-specific salary and the personal performance salary component. For the first, the requirement level is assessed within six months from the start date (and is only reassessed if management notices changes in duties to an extent that calls for a reassessment or if there is a request for reassessment) (The Finnish Union of University Researchers and Teachers, 2016[83]). The second component is often based on performance appraisal (see Chapter 5).

Across the OECD higher education systems with available data for 2014, the average annual salary of teaching staff (academic staff with teaching duties) in public and government-dependent private higher education institutions ranged from less than USD 30 000 in the Slovak Republic to over USD 130 000 in Luxembourg. The average salary for all teaching staff was equal to about USD 60 000 in Norway, while the average salary for full-time professors was about USD 73 000 (Figure 4.7).

The average annual salary of full professors (or staff with an equivalent title), in countries where data is available, is higher than the average for all teaching staff. The difference in salary between full professors and all teaching staff ranges from USD 7 000 in Luxembourg to USD 38 000 in Italy. Full professors are at the top of the academic hierarchy. Their activities usually entail both teaching and research, and a doctoral degree is usually a requirement for this job title (although it is not officially required in the Netherlands). However, this job title may be understood slightly differently in different countries, so that the comparability of the data in Figure 4.7 is not perfect.

Figure 4.7. Average annual salaries of teaching staff in public and government-dependent institutions (2014)

Calculations based on full-time equivalent in USD converted using PPPs



Note: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Data exclude academic staff without teaching duties for all jurisdictions. Staff working at the short-cycle tertiary level are also excluded in Finland, Italy, Luxembourg, Norway, Poland, the Slovak Republic and Slovenia. Data include only universities for Finland, and only professional HEIs for the French Community of Belgium.
Source: Adapted from OECD (2016[84]), *Education at a Glance 2016: OECD Indicators*, https://doi.org/10.1787/eag-2016-en.

StatLink https://doi.org/10.1787/888933940721

Salaries of higher education teachers[6] are nominally higher than those of teachers at lower levels of education comparable to other teachers and graduates, but are around similar levels once their higher levels of attainment and skills are accounted for (Box 4.7).

Box 4.7. Higher education teachers in the Survey of Adult Skills

Academic staff tend to be very skilled and highly qualified, as graduation from doctoral or master's programmes with a strong research orientation is often required to enter the profession. Therefore, a relatively high salary can be considered as a structural characteristic of higher education (see Chapter 3).

Across OECD countries and economies participating in the Survey of Adult Skills (PIAAC), higher education teachers are 25 times more likely to have an advanced research degree than other higher education graduates, and almost 50% more likely than secondary education teachers to score at the highest numeracy proficiency levels (levels 4 and 5) (see table below). Individuals at these proficiency levels can understand a broad range of mathematical information that may be complex, abstract or embedded in unfamiliar contexts.

Higher education teachers earn 17% more than secondary education teachers and 24% more than other higher education graduates, after controlling for age, gender and the average earnings of graduates in each economy. However, once their higher levels of education attainment and numeracy skills are taken into account, they earn a similar amount as secondary education teachers

and other higher education graduates.

Table 4.b. Skills, education attainment and earnings of higher education teachers (2012 or 2015)

Across OECD countries and economies participating in the Survey of Adult Skills (PIAAC), as compared to secondary education teachers and other graduates

	Higher education teachers	Secondary education teachers	Other higher education graduates
Proportion reaching numeracy proficiency level 4 or 5	40*	28	23
Proportion with an advanced research degree	45*	1	2
Hourly earnings, relative to other higher education graduates	124*	106*	100
Hourly earnings, relative to other higher education graduates, conditional on skills and having an advanced research degree	105	104	100

Note: The asterisk indicates statistics that are significantly different (5% confidence level) from "other higher education graduates". The relative hourly earnings refer to the average hourly earnings, including bonuses, for wage and salary earners, measured in USD at purchasing power parity (PPP). It is derived from a regression of log earnings on two binary variables (for higher education and secondary education teachers), age, gender and the average earnings of graduates in each economy. The numeracy proficiency score and a binary variable for having an advanced research degree have been added as control variables for the regressions whose coefficients are displayed in the fourth row. All estimates are based on a sample of 670 higher education teachers, 1 590 secondary education teachers and 36 519 other higher education graduates across the 30 OECD countries and economies participating to the Survey of Adult Skills (PIAAC).
Source: Adapted from OECD (2016[54]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

Table 4.7. Determination of academic salaries in public and government-dependent institutions in participating jurisdictions (2017)

	Estonia	The Flemish Community	The Netherlands	Norway
Basis to determine academic salaries	Case by case negotiation between higher education institution and individual academic staff (and salary scale at the level of the higher education institution)	National salary scales	Salary scale at the level of higher education institution (within the collective agreement negotiated between the association of universities or professional HEIs and the staff unions)	National salary scale (collective agreement) and negotiations between higher education institution and trade unions at the institutional level
Criteria influencing progression within the national salary scale	Determined at the institutional level	Qualifications and years of experience in the job	▪ Universities: years of experience in the job, performance evaluations ▪ Professional HEIs: years of experience in the job, field of expertise, performance evaluation, academic qualifications and experience in the industry	Criteria agreed through negotiations between higher education institution leadership and trade unions within the higher education institution

Note: A salary scale is based on a minimum and a maximum salary, with several intermediary grades of pay, which are due at the time of salary increase.
Source: Eurydice (2018[19]), *National Education Systems*, https://eacea.ec.europa.eu/national-policies/eurydice/national-description_en; information provided by the participating jurisdictions. See the reader's guide for further information.

The autonomy of institutions to determine the salary for senior staff, both by promoting and by increasing the salary within a given grade, varies greatly from country to country (see Chapter 2). The basis for determining and increasing salaries for academic staff also varies across countries (see Table 4.7 for participating jurisdictions).

In **Estonia**, higher education institutions have full autonomy over the decision of salary levels for academic staff. Salaries differ according to the position, work load, number of years worked and qualification. Participation in R&D projects may also affect the income of academics (Eurydice, 2018[19]).

In **the Flemish Community**, salary scales are defined through regulation and reflect qualifications and years of work experience, therefore determining the evolution of the compensation through time, according to the work experience within the job and the individual qualifications. In recent years, additional salary scales have been added for assistant and associate professor at universities. In Flemish universities, it is the institutions that pay the salaries for academic staff. In the case of professional HEIs, most of the salaries are paid directly by the government. To avoid situations in which personnel compensation constitutes an excessive share of institutional expenditure, the government requires that no more than 80% of institutional funding can be spent on personnel.

In **the Netherlands**, there is a single salary scale system that frames negotiations around the starting step (*trede*) on a scale (*schaal*) (The Young Academy, 2018[85]). Salaries in public institutions are negotiated between the associations of higher education institutions and the unions representing their employees. There are no regulations concerning salaries in the private higher education sector. Within the labour agreement, there are also arrangements for the award of performance-based allowances or bonuses. The rate of salary increase between one year and the next can be doubled for staff with an excellent performance evaluation. When reaching the maximum of the salary scale for their job title, staff members can be allocated a permanent allowance (up to 15% of their salary) in recognition of their performance (Eurydice, 2018[19]). In addition, the Public and Semi-Public Sector Senior Officials (Standard Remuneration) Act states that senior government officials' salaries must not exceed those of government ministers. This Act applies to salaries of senior officials of organisations in the semi-public sector, such as universities (The Young Academy, 2018[85]).

In **Norway**, a national minimum salary is defined for each category of staff. Higher education institutions have full autonomy to pay more than the minimum salary. Publicly funded higher education institutions must abide by the Civil Service Act and conditions drawn from previous collective agreements apply to all higher education institutions. Academic staff are considered to be civil servants for regulatory purposes (Box 4.8), and are entitled to social security, pension rights, parental leave, kindergarten coverage, etc. Some of these benefits, such as social security and pension rights are regulated by law. Salaries and career prospects are set out in collective agreements (Eurydice, 2018[19]).

Likewise, salaries for senior management staff can vary greatly among participating jurisdictions. For example, Estonian universities have the autonomy to decide their salaries. Universities in the Flemish Community may also decide on salaries, however they are restricted to conditions that apply to civil servants (including salary grids). Salary bands are negotiated with other parties in Dutch and Norwegian universities (Bennetot Pruvot and Estermann, 2017[50]).

Box 4.8. Regulatory frameworks for higher education staff in the participating jurisdictions

In Estonia, regulations to define academic positions (including categories and their responsibilities) and their minimum qualification requirements are outlined in the legislation for universities (Universities Act - *Ülikooliseadus* 1995), professional HEIs (Institutes of Professional Higher Education Act - *Rakenduskõrgkooli seadus* 2003), associated regulations, and the Standards of Higher Education (Estonian Official Gazette, 2009[86]). The Research and Development Organisation Act (RDOA - *Teadus- ja arendustegevuse korralduse seadus* 2002) provides the requirements for research staff, who may also perform teaching activities (Estonian Official Gazette, 2014[87]).

In the Flemish Community, the *Codex Hoger Onderwijs* (Codex) presents the policy framework for autonomous academic staff, including staff categories, responsibilities, minimum qualifications, requirements for recruitment and criteria for evaluation. Autonomous academic staff (i.e. assistant, associate or full professors) are considered to be civil servants, hence following the applicable regulations (and are entitled to a government pension). This group represents 58% of all academic staff (EC, EACEA, Eurydice, 2017[5]). Contract research staff, i.e. staff on scholarship or on contract, usually paid with international, private or public third party funding (see Chapter 3), are outside of this regulatory framework.

In 2003, the Dutch government created a job classification system (*universitair functieordeningssysteem*, UFO) for all academic and non-academic staff in Dutch universities (VSNU, 2003[88]). This job classification includes an overview of the job titles and levels with 115 job descriptions; and a Competence Instrument list linking 32 staff competences to academic job profiles (VSNU, 2003[88]). Detailed terms and conditions of employment (including salary scales) for permanent staff can be found in the Collective Labour Agreement of Dutch Universities (*Collectieve Arbeidsovereenkomst voor de Nederlandse Universiteiten* - CAO NU) (The Young Academy, 2018[85]).

In Norway, similar to the autonomous academic staff in the Flemish community, all staff in public higher education institutions are civil servants, following the applicable regulations.

4.3.5. Ratio of students to academic staff

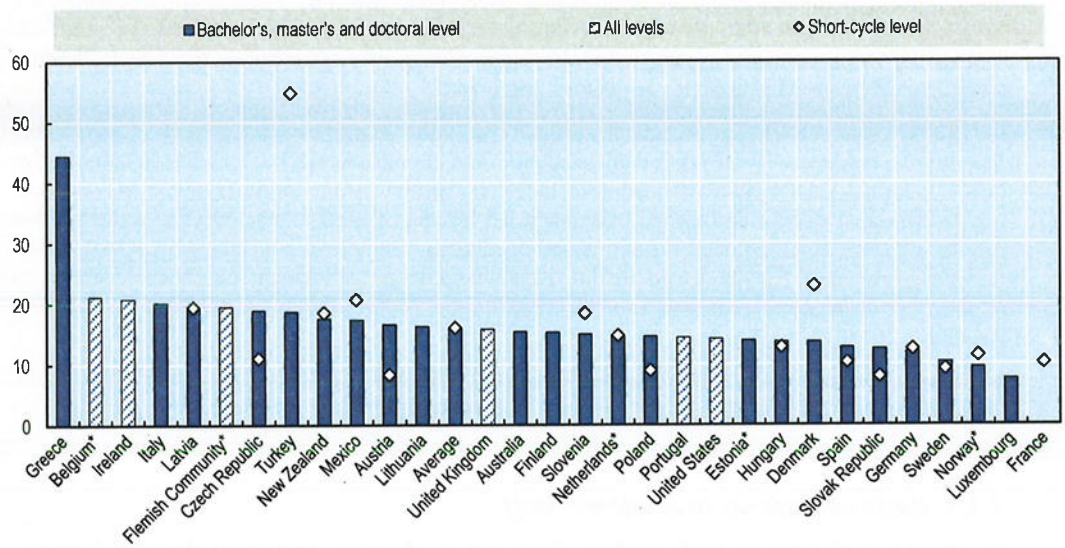
Academic staff interact with students in a range of ways, including through lectures, tutorials, seminars, laboratories, and so on. They also provide individual students advice and feedback outside the classroom. Student-staff ratios are often used as a proxy for quality in higher education on the basis that fewer students per academic staff member means that staff are able to give students more attention and therefore help them learn. However, the indicator fails to provide a direct relationship between the time allocated on teaching, research and engagement and the number of students. While the indicator is still commonly used to inform student choice through rankings and by institutions (as a proxy to assess quality), it provides an incomplete picture and does not guarantee good quality of teaching or access to academic staff.

Gibbs (2010[89]) identifies a range of dimensions of quality and examines the extent to which they could be considered a valid indicator. Variables related to learning and teaching include class size, the amount of class contact and the amount of feedback provided to students. Class size, for instance, can affect the quantity and quality of the effort teaching staff put into study and how engaged they are. However, these variables interact with numerous other dimensions of quality in higher education, including the quality of students and academic staff, the selectivity of institutions, resources, and the nature of research, as well as the outcomes of the educational processes.

On average across OECD countries, there are 16 students per academic staff member in higher education (Figure 4.8). The ratio of students to academic staff is 45 in Greece for bachelor's, master's and doctoral programmes combined, and it exceeds 50 students per staff in Turkey for short-cycle tertiary education programmes. In contrast, the ratio of students to academic staff is close to 10:1, or lower, in Luxembourg, Norway and Sweden for bachelor's, master's and doctoral programmes combined. For short-cycle tertiary education programmes, this ratio is 10:1 or lower in Austria, France, Poland, the Slovak Republic, Spain and Sweden. There are 14 students per academic staff in all levels in Estonia, 20 in the Flemish Community (excluding junior academic staff, e.g. post-doctoral researchers), about 15 in the Netherlands and 10 in Norway.

Figure 4.8. Ratio of students to academic staff in higher education institutions (2016)

By higher education level; estimates based on full-time equivalent



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
Data for the Flemish Community exclude junior academic staff (e.g. employed doctoral students and post-doctoral researchers).
France, Portugal and the United States: data include post-secondary non-tertiary education. For Luxembourg, short-cycle tertiary education is not included.
Ireland: data refer to public institutions only.
Source: Adapted from OECD (2018[17]), *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/10.1787/888933940740

Table 4.8 presents the ratio of students to academic staff by subsector in Estonia, the Netherlands and the Flemish Community (in contrast to Figure 4.8, data for the Flemish Community in Table 4.8 include junior academic staff). The number of students per academic staff member in the Flemish Community, the Netherlands and Estonia is substantially higher at professional HEIs when compared to universities. In the Flemish Community and the Netherlands, the ratio of students for each member of academic staff is more than two times higher in professional HEIs than in universities.

The higher number of students per academic staff in professional HEIs is probably due to the lower research intensity, which implies a lower allocation of academic staff per

student. However, internationally comparable data on the repartition of academic staff workload between teaching and research would be needed to answer this question more precisely.

Table 4.8. Ratio of students to academic staff in higher education institutions, by subsector (2016)

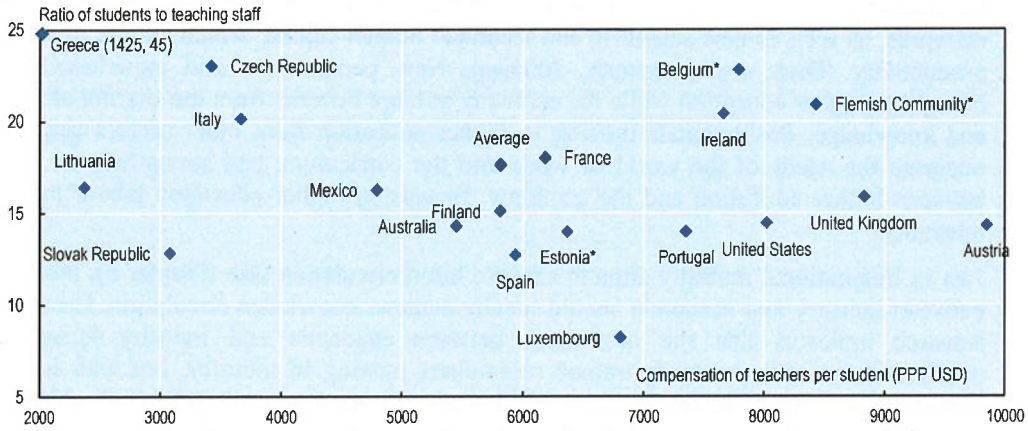
Estimates based on full-time equivalent

	Estonia	The Flemish Community	The Netherlands
Universities	14.7	6.7	8.2
Professional HEIs	19.0	15.4	18.4

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

Figure 4.9. Ratio of students to academic staff and expenditure on compensation of academic staff per student (2015)

Based on full-time equivalent



Notes: *Participating in the Benchmarking Higher Education System Performance exercise 2017/2018.
See Figure 4.8 for notes on the ratio of students to academic staff. The expenditure on compensation of academic staff excludes the salary of staff without teaching duties.
Source: Adapted from OECD (2018[17]), *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/10.1787/888933940759

A low student-to-staff ratio can reflect a large financial investment in academic staff in a higher education system, but this can also be related to expenditure on staff compensation. For example, Figure 4.9 indicates that Austria spends the most in comparison to the average on academic staff per student, while also having a below-average student-staff ratio. However, this is not always the case. In the Flemish community, the student-staff ratio is relatively large despite a high level of expenditure on academic staff per student. The level of staff compensation in Greece is much lower, and the student-staff ratio is substantially higher than the average. The same applies to the

Czech Republic, to a lesser extent. This is probably due to the relatively low level of academic staff salaries in these countries.

Some countries have developed new methods to track the cost of higher education activities. An example is the Transparent Approach to Costing (TRAC) in the UK, in place since 1997. Institutions collect data on the time allocation by academics, and this data shows a wide range of time spent on teaching across academic staff (HEFCE, 2018[90]). This aligns with previous conclusions that lower student-staff ratio is not necessarily an indication of higher interaction between student and staff.

4.3.6. Academic staff mobility

Academic mobility does not only refer to international mobility, but also to institutional mobility and inter-sectoral mobility. Academic staff experience institutional mobility when moving for work to a different higher education institution. A lack of institutional mobility is referred to as inbreeding (Horta, 2013[91]; Sugimoto, Robinson-Garcia and Costas, 2014[92]).

Inter-sectoral mobility

Inter-sectoral mobility denotes a job transfer from higher education to another sector of the economy, or vice versa. This type of academic mobility can give access to new social networks, as well as new scientific and technical human capital, which results in higher productivity (Dietz and Bozeman, 2005[93]). New perspectives and experiences are brought to higher education while the economy at large benefits from the sharing of ideas and knowledge. Professionals moving to higher education from other sectors can help integrate the needs of the world of work into the curriculum, and strengthen the links between higher education and the economy, increasing higher education labour market relevance.

Just as international mobility aims to achieve brain circulation (see Chapter 6), mobility between industry and academia should ideally achieve knowledge circulation. However, research indicates that the movement between academia and industry is mostly unidirectional, with university-trained researchers moving to industry, but with low or almost no movement in return (from the industry to academia) (Scholz et al., 2009[7]). Reasons outlined for this include the lower salary levels in academia, the different working cultures, restrictions in employment legislation of researchers in public universities, and limited resourcing interactions with small and medium-sized enterprises (SMEs) (Scholz et al., 2009[7]; Scholz, 2012[94]). There also appear to be bottlenecks for those professionals who go to the private sector for long periods of time and try to return to academia (Scholz et al., 2009[7]).

Good practices to help bridge the industry-academia gap include: academic or industrial sabbaticals, secondments and part-time professorships or industrial sabbaticals, and the reassessment of merit parameters so that they acknowledge the needs of academia and the industry (Scholz et al., 2009[7]; Scholz, 2012[94]). This can be done through initiatives such as industrial doctoral programmes (industry-oriented research, partly funded by the industry). On the other side, for researchers working in the private sector, incentives to support peer-reviewed publications, while in compliance with intellectual property rights rules, can be encouraged (Scholz, 2012[94]).

Inter-sectoral mobility is well established in professional HEIs in the Flemish Community and the Netherlands. In Belgium and the Netherlands, over one-third of doctorate holders

are employed in the business enterprise sector (Cameron, Horta and Vandevelde, 2014[95]).

The Research Council Norway has developed recommendations to support the European Union's efforts to address "grand challenges", which include inter-sectoral mobility across academia, the industry and public sectors (including public research institutes, health trusts, business enterprises, public administration, etc.) (Borchgrevink, 2013[96]). Initiatives include the Industrial PhD Scheme (managed by the Research Council through a scheme that aims to fund industry-oriented doctoral research fellowships) (Millard, 2014[97]).

International mobility

International academic mobility is the movement of academic staff across borders to perform teaching or research activities. It has been argued that academic mobility affects the productivity and quality of academic staff output (Horta, 2013[91]; Sugimoto, Robinson-Garcia and Costas, 2014[92]). Internationally comparable data on the mobility of academic staff are not available, with the exception of some specific mobility programmes.

European temporary mobility schemes such as Erasmus+ play a role in fostering academic staff mobility in all participating jurisdictions. Erasmus+ funds short stays abroad (with a typical duration of a few days) for teaching assignments (e.g. the development of teaching material or of inter-institutional education co-operation) or professional development. In the period 2014-2016, around 170 000 higher education staff have been mobile through Erasmus+ in EU countries, of which around 60% went abroad to teach and 40% for professional development (EC, 2017[98]).

Many European countries established national mobility centres in the context of the EURAXESS network (Ferencz, Irina; Wächter, 2012[99]). Some programmes are common to all participating jurisdictions, such as Erasmus+ and Fulbright. Others are specific to some regions, such as Nordplus[7] for Estonia and Norway.

Academic mobility can be temporary and possibly related to internationally or nationally funded programmes (e.g. Erasmus+), or it can be permanent (staff moving abroad for a new job without the intention to return). International staff mobility can be integrated in national immigration and other policies; some examples include the design of special pension schemes, the provision of social security and childcare, special tax, salary and career arrangements for mobile staff, and special provisions regarding work and residence permits (Bennion, Alice; Locke, 2010[100]).

In Belgium, the government and higher education institutions try to stimulate international and interregional mobility as well as co-operation. One example is the Belgian inter-community exchanges for higher education within the framework of the Prince Philippe Fund for the development of common course material. Another example is Erasmus Belgica, a collaboration project between the communities of Belgium supporting staff and students participating in education in different linguistic communities (Eurydice, 2018[19]).

In Estonia the government offers scholarships to encourage incoming mobility and outgoing mobility of staff working in Estonia. Examples include:

- The Dora Plus programme supporting international visiting doctoral students, and attendance to conferences, seminars and other professional activities abroad by Estonian young researchers;
- The Kristjan Jaak scholarship programme, offering secondments abroad to teaching staff and researchers up to 35 years-old;
- Government scholarship programmes for academic staff of foreign universities coming to work in Estonia and the organisation of summer schools and other international events; and
- The Mobilitas Plus programme, financing Estonian and international researchers who work abroad and want to move to work in Estonia (Eurydice, 2018[19]).

The Flemish Community, the Netherlands and Norway have mechanisms for monitoring incoming and outgoing mobility, while Estonia has mechanisms for monitoring only outgoing mobility.

In the Netherlands, the development of initiatives to foster academic mobility falls under the responsibility of higher education institutions. The Association of Universities in the Netherlands and the Netherlands Association of Universities of Applied Sciences have developed regulations on salaries and remuneration, and have agreed on a plan to guarantee social security provision for staff involved in mobility programmes (background information from the Dutch Ministry of Education, Culture and Science).

Norway has also developed a few programmes that enhance academic co-operation with non-European countries. For example, the UTFORSK programme supports academic co-operation at an institutional level with Brazil, China, India, Japan, Russia and South Africa. Similarly, the INTPART programme funds collaboration at an institutional level with the above six countries, Canada and the United States. In addition, the government funds a number of programmes supporting training experiences abroad for interested staff. Internationally mobile staff reported that mobility has improved their competences (e.g. by exposing them to new teaching methods), in addition to providing opportunities to develop their international network (Nordhagen and Dahle, 2017[101]).

Institutional mobility

Endogamy (academic inbreeding) refers to academic staff whose last degree was earned at the institution where they currently work. This happens to some extent in all higher education systems, and in some cases it can also be an indication of institutions' attractiveness and their ability to retain excellent academics.

Endogamy is not necessarily a negative outcome in a higher education system. Academic staff working in the institutions from which they hold a degree may still experience institutional mobility in the academic career, for example of a temporary nature. Some evidence suggests that if these staff are mobile at least once in the course of their academic career, they have a similar research performance as other academic staff. In addition, they may contribute disproportionally more to teaching and outreach activities (teaching and engagement) (Horta, 2013[91]). Nevertheless, there is little research on the relationship of endogamy with the three functions of higher education (teaching, research and third mission).

High levels of endogamy may also signal that higher education institutions deviate from merit-based recruitment practices (Altbach, Yudkevich and Rumbley, 2015[3]; Lundgren, Pipping and Åmossa, 2018[102]). Endogamy has been associated with lower publication

rates and less internationally-oriented publications, as inbred academic staff tend to focus on the knowledge within their institutions rather than the international developments of their subject domain (Horta, Veloso and Grediaga, 2010[103]). Higher education institutions with a high rate of endogamous staff could also become more rigid and slower to respond to social needs, decreasing their social legitimacy (Horta, Veloso and Grediaga, 2010[103]) as well as ability to update teaching methods and contents. Causes of endogamy include, among others, the absence of a fluid national academic labour market, the economic context (i.e. limited apartment rentals or housing prices), and cultural values (Altbach, Yudkevich and Rumbley, 2015[3]).

Internationally comparable data on endogamy are not available for the OECD area, but evidence from European countries shows that it is quite common. Researchers estimate high shares of academic staff holding a doctoral degree from the institution where they work in many countries, including Belgium (52%), the Netherlands (40%) and Norway (56%) (Seeber and Lepori, 2014[104]). In Estonia, in 2017, more than half of academic staff held their highest level degree from the institution where they worked. Endogamy in Estonia also appears more common in universities than in professional HEIs. According to national data, in professional HEIs the share of endogamy is about 15% and in universities it is four times higher (about 60%).

In the Flemish Community, about 60% of the academic staff at universities who started their employment between 2010 and 2014 held a doctorate degree from the university where they worked. This share declined after 2014, the year in which association between universities and professional HEIs was completed (see Chapter 2).

4.3.7. Staff professional development

Higher education learning and teaching is informed by research and professional practice (UNESCO, 2012[105]), making it necessary for academic staff to learn and keep up to date with new ideas and methods. In many OECD countries, systematic approaches to the professional development of academic staff have not been traditionally embedded in the higher education system (OECD, 2008[11]), except for sabbatical leave (Box 4.9). A number of countries are supporting education and training programmes for doctoral students and academic staff. Nonetheless, the overall focus of professional development for academic staff tends to be towards the development of research skills rather than teaching skills.

Development of the professional capacity of teachers and researchers does not come without challenges. For example, the more successful academic staff are in their activities and roles, the higher the expectation on their performance in engagement (in addition to their core activities, namely, teaching and research) (Enders, 2007[106]). This added responsibility (combined with increasing number of students, concerns with quality levels and worldwide competition) can lead to additional work pressure and stress in higher education. Findings from a systematic review of the literature on stress in higher education indicate four main problem areas: workload and time constraints; professional role identity and content; disincentives and mismanagement; leadership and organisation (Persson, 2017[107]). Opportunities for professional development and appraisal (see Chapter 5) of higher education staff aim to contribute to their performance and well-being.

Box 4.9. Sabbatical leave

A sabbatical term is a period of leave (usually one semester to one year) that academics can use for professional and personal development. Sabbatical leave can enhance the well-being of academics and reduce their stress (Davidson et al., 2010[108]), as well as giving them opportunities to update their skills (Otto and Kroth, 2011[109]).

Regulations on sabbatical leave relate to the duration and frequency of paid and unpaid sabbatical leave. In many European countries, sabbatical leave is only available for academic staff at the most senior ranks, such as professors (EC, EACEA, Eurydice, 2017[5]). Internationally comparable data on the number of staff on sabbatical leave are not available, although some information on the duration and conditions for the leave are available for European countries.

Table 4.c. Academic staff sabbatical leave regulations in participating jurisdictions

Most recent available year

	Estonia	The Flemish Community	The Netherlands	Norway
Remuneration	Paid	Paid	Negotiated at the institutional level	Negotiated at the institutional level
Duration	1 semester	Up to 2 years during the academic career	Negotiated at the institutional level	Negotiated at the institutional level
Frequency	Every 5 years	Negotiated at the institutional level	Negotiated at the institutional level	Negotiated at the institutional level

Source: Adapted from European Commission, EACEA, Eurydice (2017[5]), *Modernisation of Higher Education in Europe - Academic Staff 2017*, https://doi.org/10.2797/408169; Research Council of Norway (2018[110]), *Evaluation of Norwegian education research*; Association of Universities in the Netherlands (VSNU) (2015[78]), *Collective Labour Agreement of Dutch Universities*, https://www.vsnu.nl/files/documenten/CAO/Januari%202016/CAO_NU%20ENG%20jan2016.pdf.

In Estonia, sabbatical leave is a right for all academic staff, not only those at senior levels. Paid sabbatical leave can take place every five to seven years and it can last one semester. In the Flemish Community, a member of the autonomous academic personnel can take up to two years of paid sabbatical leave over one's entire career. For countries where there is no specific legislation concerning sabbaticals, as in the case of the Netherlands and Norway, it is common that such arrangements are decided at the institutional level, indicating a high level of institutional autonomy on academic staff leave.

Among EU countries, there are almost no large-scale continuing professional development (CPD) initiatives focusing on teaching skills. Most initiatives in this area are isolated examples of individual higher education institutions (Eurydice, 2017[111]). In Australia, the Research Workforce Strategy 2020 has identified research skills definition and career development as key policy priorities (Australian Government, 2011[112]). Box 4.10 provides more examples of professional development strategies for academic staff.

Box 4.10. Professional development strategies in the higher education sector

A number of countries across the OECD have developed strategies aimed at enhancing the development of academic staff. For example, the National Research Council (NRC) in Canada works with the education community to provide innovation support, strategic research, and scientific and technical services, such as career tools and resources for researchers (including behavioural competences) (National Research Council Canada, 2018[113]). Professional development programmes are provided to faculty (mostly new instructors) targeting specific core competences and the use of technology in teaching and learning (Jacob, Weiyan and Ye, 2015[114]). Faculty self-reports indicate a positive impact on teaching, faculty interest and enthusiasm, self-confidence, sense of belonging and educational leadership. Evaluations on the effectiveness of such teaching development programmes are not common (Jacob, Weiyan and Ye, 2015[114]).

In other cases, dedicated government agencies are also training providers. This is the case of the Training and Educational Korea Institute of R&D Human Resources Development (KIRD), which offers transferable skills training programmes for researchers and master's students, as part of its Long-Term Development Strategy for 2020 (e.g. leadership, English academic writing, research methods and data analysis, intellectual property management and research performance) (OECD, 2012[115]).

In Poland, the Foundation for Polish Science (FNP) is a non-profit organisation that supports science, and is one of the largest sources of R&D funding in the country. FNP has developed training and mentoring initiatives to give researchers the opportunity to improve their research project management, research team management, interdisciplinary collaboration, technology transfer and entrepreneurship skills through the "Skills programmes" (Foundation for Polish Science, 2016[116]). These programmes include: the Skills-coaching and Skills-FNP programmes, which provide coaching and mentoring to young scholars to progress in their scientific careers; the Skills-science and Skills-engage competitions to foster interdisciplinary research among young scientists and the dissemination of results; Skills training for academics at all levels of seniority on the management of scientific research, technology transfer and enterprise, and scientific communication; and the Skills-internships programme aiming to provide work-based learning to young researchers.

In **Estonia**, higher education institutions undertake the responsibility to provide professional development opportunities, which include teaching, training and supervising skills of academic staff. The government provides targeted funding, through the Mobilitas Plus programme, which is largely financed by the European Union, to support the participation of researchers in training programmes and study visits, nationally and abroad. The targeted funding for agreed delivery contributes to control costs. Until 2014, the Primus programme (also funded by the European Union) funded some pedagogic training for academic staff.

The Flemish Community has been providing targeted funding (EUR 4 million per year, as of 2013) for training in a wide range of transferable skills to doctoral students and junior researchers (but also to senior academic staff) employed both in academia and industry (the OJO programme – *Omkadering Jonge Onderzoekers*). Some institutions made this training a compulsory component of their doctoral programmes. Training focuses on career guidance and transferable skills (e.g. project management, grant writing, communication, and research ethics). Attendees also have the opportunity to develop research-specific skills through their interaction with group members, mentoring relationships, as well as exposure to new methods and techniques (Wastyn and Steurs, 2014[117]) (EC, 2016[22]). For example, at Ghent University, doctoral students and post-

docs are offered external mentoring support, career coaching programmes and courses on transferable skills as part of their doctoral training (Euraxess, 2016[118]). In addition, Flemish higher education institutions receive some targeted funding for the training and education of their staff (see Chapter 3).

In **the Netherlands**, there have been some changes in the past years in the collective labour agreement in research universities concerning career development regulations for academic staff. Training is to be provided to staff on fixed-length or hourly contracts and doctoral students in research writing proposals, in order to facilitate career progression. Professional HEIs have also adopted a common set of guidelines for professionalisation, including: allocation of at least 6% of the annual budget and a share of working hours to training or education for academic staff; additional incentives for continuing education, life-long learning and opportunities for professional development. For example, teaching personnel (or supporting staff) with a workload of at least 0.4 full-time equivalent are entitled to at least 40 hours per year of training and education (Box 4.1). The UTQ also supports assessment and professional development for teaching skills of academic staff (Section 4.2.2).

The Dutch government has also introduced Vliegende Start; a programme to introduce new teaching ideas and practices in higher education. Vliegende Start is focused on professional higher education institutions, and aims at attracting, selecting, and guiding new teachers in their goals with the aim to improve the career development of teachers.

Additionally, in the Netherlands, higher education institutions are adopting the Career Framework for University Teaching, designed to support the career progression of academics on the basis of their contribution to teaching and learning. It offers a pathway for academic career progression and an evidence base with which to demonstrate and evaluate teaching achievement. The framework can be adapted to higher education institutions' academic career structures and progression points, and used at each stage of the academic career, including appointment, professional development, appraisal and promotion. The Framework's design draws on educational research, feedback from the higher education community and global best practice. It was developed in partnership with pedagogical experts and partner universities from across the world (Graham, 2018[119]).

In **Norway**, as a follow-up of the 2017 White Paper 'Quality Culture in Higher Education', a requirement to undergo educational training will take effect in 2019, both for employment and promotion in academic posts.

4.4. Concluding remarks

This chapter explored data, policies and practices related to higher education staff and concerning their profile, working conditions, mobility and professional development. The analysis of human resources in this chapter focused on academic staff, but also considered other staff categories. The remainder of this section reviews some key messages from this analysis of human resources in higher education, and identifies some important information gaps which limited the analysis.

- Higher education institutions rely on the support of non-academic staff to ensure the strategic, technological, administrative, financial and operational aspects of teaching, research and engagement. If their utilisation is well planned, non-academic staff can fulfil these tasks more efficiently than if they were assigned to academic staff. The benchmarking exercise uses data from the ETER project to

estimate the non-academic to academic staff ratio, but this is limited to European countries. There is no internationally comparable data available on academic and non-academic staff for the further exploration of the size, tasks and role of non-academic staff.

- Two-fifths of academic staff work part-time, on average across OECD countries. However, this indicates little about whether part-time work is used as a strategy to ensure better work-life balance of academic staff, to reduce costs or to encourage academic staff to work some time outside higher education (and contribute to the development of an effective connection with the world of work). A better understanding of part-time work among academic staff would require collection of more detailed data on work intensity, and also of data on the distinction between academic staff who are effectively working part-time and staff who have other jobs outside higher education (i.e. share of academic staff holding multiple jobs).
- There is not a very clear relationship between the ratio of students to academic staff and expenditure on compensation of academic staff. However, neither of these two measures is an accurate indicator of the input to the teaching process, because it is not possible to distinguish between the time spent by staff teaching and doing research. Data on the teaching time of academic staff would allow better evaluation of the efficiency of higher education systems in producing the outcomes discussed in the following chapters.
- The available evidence from past surveys of academic staff suggests that they may be working well over 40 hours a week in some countries, and that they may be subject to a considerable level of work-related strain. Staff satisfaction and motivation are key to ensuring the sustainability and effectiveness of higher education systems. The collection of comparative data to explore the opinions, level of stress and working conditions of academic staff would yield an up-to-date view of these issues.
- Academic staff can play very different roles within higher education institutions, based on their seniority and specialisation. Having agreed definitions of academic staff categories would facilitate the investigation of a range of policy-relevant topics, such as gender representation in academia and the role of teaching and research among staff.
- Women are bridging the gap in terms of participation in the academic labour force, but the available evidence suggests that they are still under-represented at the top of the academic hierarchy. Data on gender representation disaggregated by seniority level would allow to provide evidence across countries more systematically, and to assess how effective higher education systems are in terms of providing an equitable working environment.
- Working conditions differ among academic staff. For example, professors can earn much more than other academic staff in some countries, while young academic staff are much more likely to be employed on a temporary basis in some jurisdictions. Data by academic staff categories would contribute to the understanding of academic staff working conditions at different career stages. This would help designing policies to improve the sustainability and effectiveness of the higher education system, by making it easier to retain and motivate academic staff.

The participating jurisdictions responded to some of the challenges related to academic staff with specific policies. Table 4.9 summarises some selected policies presented in the chapter.

Table 4.9. Selected policies from the participating jurisdictions (2017)

	Motivation	Policies
Estonia	Giving higher education institutions autonomy in staff decisions	▪ Higher education institutions have full autonomy over the decision of salaries for academic and non-academic staff ▪ Higher education institutions have autonomy over promotions and salary increase ▪ Some restrictions are placed on the hiring of academic staff through temporary contracts
The Flemish Community	Bridging the research gender gap	▪ Inclusion of a gender diversity indicator (the share of women in research positions at different levels) in indicators for research formula funding ▪ Public-private co-funding of research fellowships for women in biomedical sciences ▪ Regulations on set targets for the participation of both genders in public universities' decision-making bodies (i.e. university boards, research councils and selection juries).
The Netherlands	Improving staff teaching qualifications	▪ The university teaching qualification (UTQ) was developed by universities in response to a call by government for better teaching skills ▪ The UTQ attests to the teaching competences of staff in scientific and academic education in universities in the Netherlands (e.g. assessment and feedback, inclusion of diverse students) ▪ The share of teachers holding a UTQ certificate has been included among the indicators in the performance agreements with universities ▪ The certification of competences is based on peer evaluation, mentoring and participation in a community of teachers from different institutions ▪ Professional HEIs also developed a teaching qualification, divided into an initial or lower level qualification and a further qualification for senior staff
Norway	Stimulating interest in research and a research career among young people	▪ The Research Council of Norway (RCN) runs various initiatives to increase interest in research and a research career, such as the Annual Science Week, the Science Knowledge Project for children (*Nysgjerrigper*) and the *Proscientia*.

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

The policies reviewed in this chapter constitute only a part of the policy solutions designed across OECD countries to tackle the most pressing challenges facing human resources in higher education. Future benchmarking exercises would benefit from a more systematic and standardised data collection of human resource policies in a larger number of countries.

Notes

[1] In the Flemish Community, autonomous academic staff refers to academic staff with civil servant status who work in universities.

[2] Short-cycle programmes at the ISCED 5 level are not recognised as part of the higher education system in Norway and are offered through vocational colleges (see Chapter 2). However, Norway offers a two-year bachelor's programme at ISCED 6 level (*høgskolekandidat*) and students who successfully complete the two-year programme can enter into the third year of a bachelor's programme.

[3] The ERA Roadmap, a tool developed by EU member countries with related stakeholder groups and the Commission, aims to provide a framework for change. It was launched in May 2015 for the period 2015-2020 with a defined set of goals (Council of the European Union, 2015[123]). Participating jurisdictions have developed national plans on their contributions towards achieving the goals in each of the priority areas, including gender equality in Research (Table 4.1). In addition, ERAC has been established, which includes a Standing Working Group on Gender in Research and Innovation, with the goal to facilitate the exchange of practice and the monitoring of gender policy in research and innovation at the European level (Council of the European Union, 2018[121]).

[4] Academic training is covered more extensively in Chapters 5 and 6.

[5] Flemish institutions have considerable autonomy to hire and promote staff, but applicants for some positions must meet some language requirements. Academic staff whose role will require the delivery of courses (*titularis van een vak*) must demonstrate a high level of proficiency in the Dutch language. Applicants to administrative positions must also demonstrate proficiency in the language, but at a lower level. Similarly, the Estonian Language Act (*Keeleseadus*) also requires proficiency by academic staff in the Estonian language (Riigi Teataja, 2011[120]). Lecturers and researchers whose first language is not Estonian do not have to abide by the proficiency regulations before five years of work experience in Estonia. In addition, regulations also require language proficiency in Estonian at the level C1 for Directors (Heads), their Deputies and Heads of Study Affairs of education institutions (Riigi Teataja, 2013[124]).

[6] Higher education teachers here follow the definition used in the Survey of Adult Skills (Standard Classification of Professions – ISCO). "University and higher education teachers prepare and deliver lectures and conduct tutorials in one or more subjects within a course of study at a university or other higher educational institution. They conduct research, and prepare scholarly papers and books" (ILO, 2012[122]). Educational attainment in Box 4.7 also follows the classification of the Survey of Adult Skills (ISCED 1997), with "advanced research degrees" instead of doctoral degrees.

[7] The Nordplus programme supports teacher mobility in various ways. Among various purposes, the programme aims to contribute to the establishment of a Nordic-Baltic educational region, contribute to quality and innovation in higher education and promote Nordic languages.

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