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across universities and professional higher education institutions), multiplied by the assumed share of 11% of second-time students, yields USD 1 200. However, this estimate neglects at least two factors that could introduce a bias in opposite directions.

First, a large proportion (44%) of second-time students in bachelor's and master's programmes are enrolled in "advanced" bachelor's and master's programmes where they already pay a higher tuition fee. While the annual tuition fees paid by advanced bachelor's and master's students is not known on average, it could reach up to USD 2 400 for bachelor's students and up to USD 7 200 for master's students in 2018 (Flemish Ministry of Education and Training and OECD (2018^[29])). This imposes an upward bias on the estimate.

Second, if the number of second-time students in education would decrease as a result of higher tuition fees, then expenditure per student in the higher education system would increase for any given level of total expenditure. Given the substantial amount of public subsidies per student, this imposes a sizeable downward bias on the estimate.

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Notes

¹ A wider discussion of the topics covered in this note, as well as many other topics spanning the resourcing, missions and performance of higher education can be found in the synthesis report for the project (OECD, 2019^[2]).

² Data for the Flemish Community refer to students who were not enrolled in either bachelor's or master's degrees or equivalent programmes. They could still be enrolled at other levels.

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

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

⁴ The shares of basic research, applied research and experimental development have changed dramatically for Belgium over the last few years, possibly following changes in the underlying definitions and classifications. For example, the share of applied research in higher education R&D expenditure passed from 33% to 74% between 2013 and 2014, while the share of basic research passed from 46% to 19%. Despite these changes, Belgium remained below the OECD median of the share of basic research in higher education R&D expenditure throughout the period 2012-2015.

⁵ *Source:* Data provided by the Flemish Community of Belgium to the OECD and based on the Thomson-Reuters database (a large database of scientific publications).

⁶ Data for Flanders on research productivity are relative to all population, using the Thomson-Reuters database, while the benchmarking indicators on scientific production are based on publications per population aged 25-64, using the SCOPUS database of scientific publications.

⁷ Using "fractional counts" as a metric implies that authors from different research systems who co-author a publication are each attributed a share of that publication. This is in contrast to "whole counts" where each co-author is attributed one full publication in the statistical analysis.

⁸ Data on PCT and EPO patent applications in Flanders were provided directly to the OECD by the Flemish Community of Belgium.

⁹ In contrast to other jurisdictions, expenditure data for the Flemish Community exclude expenditure for independent private institutions. However, independent private institutions play a minor role in the Flemish Community, as compared to other higher education systems. For example, no Flemish independent private institution meets the requirements for inclusion in the European Register of Tertiary Education, implying that none have at least 30 full-time equivalent academic staff or 200 students (Lepori et al., 2017^[28]). Therefore, the expenditure data for the Flemish Community and other jurisdictions are broadly comparable.

¹⁰ In 2015, the annual average expenditure per student in the Flemish Community excluding R&D and ancillary expenditure amounted to around USD 11 100 in universities and 12 100 in professional HEIs (Section 2.1), which can be thought of as an upper limit to the amount that could be charged to students ("full cost"). This compares with an average level of tuition fees in 2016 for bachelor's and master's programmes which was about USD 600 (OECD, 2018^[19]). The difference between the full cost and the average fee currently paid (USD 10 900, averaging the full cost

funds, the IT Academy promotes a range of initiatives in research and training, including scholarships for students in the ICT field of study and grants to institutions to develop ICT curricula.

The Netherlands also offers some examples of stimulating collaboration between higher education institutions and employers. For example, the Dutch government started a pilot project in 2016 to provide focused study activities in the fields of ICT and health and welfare without direct public contributions. The government provides vouchers to students to cover part of the tuition fees, and employers are expected to cover part of the cost as well.

In 2016 in the Netherlands, some 2% of students in professional HEIs were enrolled in dual programmes, i.e. programmes where the training is provided jointly by the higher education institution and by a company employing the student. Establishing partnerships with public and private employers for salaried training periods integrated in higher education programmes is also a goal of the European Association of Institutions in Higher Education (EURASHE, 2010^[26]). These types of programmes, even if they do not involve large proportions of students, stimulate co-operation between higher education institutions and the private sector, which can lead to co-funding of some education activities.

Private research funding outside universities

Research in professional HEIs is generally connected with their mission to provide vocational and professionally oriented education and promote regional development (EURASHE, 2010^[26]; Lepori and Kyvik, 2010^[27]). This makes R&D in professional HEIs suitable for collaboration with stakeholders, such as small and medium enterprises, local government, and other organisations involved in the regional economy.

The Netherlands has been actively encouraging the creation of organisational structures separate from universities and professional HEIs to foster their collaboration with private and public organisations for the provision of research and education. For example, through the Valorisation Programme, a budget of EUR 63 million was allocated by the government for the creation of public-private consortia centred on one or more higher education institutions. The consortia carry out initiatives to apply research and knowledge to boost productivity and help address social problems. These initiatives are funded by the government for up to 50% of their cost and by other partners for the rest. The objective is that the consortia continue their activities after the initial government budget is exhausted, stimulating cost sharing between universities, professional higher education institutions and other partners.

The Centres of Expertise (CoE) are organisations established in co-operation between professional HEIs and other private or public partners. CoEs carry out applied research and provide education in the form of practice-oriented research projects. Centres of Expertise receive public funding, for example through competitive grants awarded for their establishment, but are expected to raise substantial funding from the private sector as well. The Flemish Community could also consider encouraging the development of partnerships between professional HEIs and public and private stakeholders, which could take a variety of organisational forms. They could receive some public funding when established, but additional public funding would be conditional on successful fundraising in the private sector (see Chapter 7 of (OECD, 2019^[21])).

may be offered study places under different conditions (Irish Higher Education Authority, 2019^[25]).

Achieving the “non-household private expenditure growth” scenario

The Flemish Community has potential to bring the level of non-household private expenditure per student in line with the top OECD quartile. Available evidence shows a high level of collaboration between the private sector and Flemish higher education institutions, relative to other OECD countries. Flemish universities have the highest share of current revenues earned through third party private funding among European OECD countries (Section 10.5.1). While data are not available for the Flemish Community, Belgium has the third-largest share of higher education R&D expenditure funded by the private business sector. In addition, Belgium ranks in the top OECD quartile of the share of both small-medium and large businesses collaborating on innovation with higher education or research institutions (Section 10.4.2).

The high level of collaboration between Flemish higher education institutions and private businesses could be related, in part, to a number of policies set up by the Flemish government (Section 10.4.2). A part of the government Industrial Research Fund (IOF) for universities is distributed based on indicators such as revenue from licencing institutional intellectual property, and the number of patents and spin-off companies established by the higher education institution. This provides incentives to universities to deploy their research in ways that can potentially generate revenues.

In addition, a part of this fund is earmarked for the establishment of technology transfer offices (TTOs), interface structures facilitating the transfer of knowledge from universities to industry and the wider society. The yearly report on the utilisation of the Industrial Research Fund and the government evaluation occurring every five years provide tools to verify that this fund is sufficiently effective in stimulating technology transfer and co-operation between higher education and the business sector. An effective co-operation between university and the business sector can stimulate R&D fundraising (see Chapter 7 of (OECD, 2019^[21])).

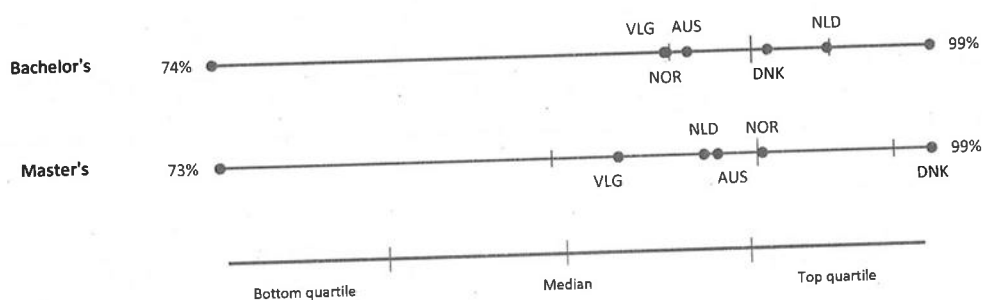
Despite the high levels of collaboration with business and of third party private funding in universities, the available data show that the Flemish Community has an overall share of non-household private expenditure just in line with the OECD median. A way to increase the overall share of non-household private expenditure could be to stimulate the generation of additional private revenue outside the university-business R&D collaboration, e.g. in the professional HEI sector and through education activities.

Non-household private funding for education activities

Across OECD countries, there are many examples of partnerships between higher education institutions and the private sector for the provision of educational activities, which can deliver financial benefits for the higher education sector. These partnerships mostly develop out of joint interests between higher education and the private sector. The government can encourage and provide platforms for interaction between higher education institutions and the private sector, so that opportunities for collaboration are more likely to develop (see Chapter 3 of (OECD, 2019^[21])).

For example, in Estonia, the government launched the IT Academy, a partnership with higher education institutions and businesses in the IT sector, with the purpose of ensuring the necessary skilled workforce for the IT sector. Through a mixture of public and private

Figure 10.19. First-time graduates as a share of all graduates, by higher education level (2016)



Note: AUS = Australia; DNK = Denmark; NLD = Netherlands; NOR = Norway; VLG = Flemish Community.
Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>.

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A “one bachelor’s, one master’s” policy could potentially raise a substantial amount in tuition fees, although it would be unlikely, on its own, to realise the expenditure gains estimated in the “household expenditure growth” scenario. The combined share of graduates who were not first-time graduates in 2016 at the bachelor’s and master’s level was 11% in the Flemish Community. Under the assumption that the share of “second-time students” (i.e. students studying at a level at which they already obtained a degree) is in line with that of graduates, this is the maximum share of students for whom higher fees would apply (if all students would remain enrolled despite the higher fees). Assuming these 11% of students were charged at the full cost of their education (proxied by the average expenditure per student, excluding R&D), instead of the average tuition fees in 2015, this could yield an increase in household expenditure of about USD 1 200. This estimate, while suffering from a number of limitations,¹⁰ can put into perspective the financial gain that a “one master’s, one bachelor’s” policy can yield.

Higher tuition fees for second-time students risk decreasing the incentives for graduates to enrol in higher education, even in cases in which the economy and society could benefit from them obtaining a second degree. A partial solution to this problem could be to lift the “one bachelor’s, one master’s” rule in some circumstances. In both Estonia and the Netherlands, exceptions to the general rule that second-time students pay higher tuition fees exist. In both countries, students in the fields of study of education and health and welfare pay the regular tuition fee regardless of having earned a degree at the same level of education. In addition, in Estonia, second-time students do not pay higher tuition fees if they start the programme after a certain period (three times the nominal duration of the programme) has passed since they earned their last degree. For example, a bachelor’s graduate in Estonia can enrol in a bachelor’s programme without paying tuition fees after 9 years from the date of graduation (see Chapter 5 of (OECD, 2019^[2])).

A second solution would be to provide short, subsidised courses for which second-time students are eligible where there is a strong demand from the labour market. For example, in Ireland the Springboard+ upskilling initiative in higher education provides free vocational courses related to enterprise sectors with well-defined skills needs and growing employment. Courses are usually free or subsidised, part-time and a maximum of 12 months. Employed, self-employed and unemployed people are all eligible, but they

Table 10.7. Average annual tuition fees in bachelor's programmes (2016)

In brackets: enrolment rate to bachelor's programmes in 2016 for 18-24 year-olds, 2006=100

Australia	Austria	Canada	England (UK)	Italy	Japan	Latvia	Luxembourg	Netherlands	New Zealand	United States
117 (124)	83 (338)	123	415 (108)	113	108	65	75	115 (103)	121 (104)	120 (96)

Notes: The enrolment rate excludes international students. For England, the enrolment rate refers to all higher education and to all of the United Kingdom. For the United States, it is reported the entry rate for all higher education.

Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; OECD (2018^[19]), *Education at a Glance 2018: OECD Indicators*, <https://doi.org/10.1787/eag-2018-en>.

The effect of an increase in tuition fees on participation partly depends on the financial student support mechanisms in place. If students have access to financial resources to pay for their education and living costs, either through grants and scholarships or through loans, then the enrolment impact of raising tuition fees may be minimal or absent. Research indicates that income-contingent loans have succeeded in removing financial barriers to participation while avoiding the burden of debt if students are not successful in the labour market (Chapman, 2016^[23]). One option for the Flemish Community to increase household expenditure on higher education would be to increase tuition fees and provide public or government guaranteed income-contingent loans (OECD, 2017^[24]). In the Netherlands, the government coupled the introduction of a student support system based on income-contingent loans with a legal commitment to spend the additional resources (derived through the repayment of the loan) on higher education.

The Flemish Community has both a relatively high entry rate to higher education and a relatively small gap in higher education access between young people without higher educated parents and other people (compared to other OECD countries). This is an important accomplishment and relative strength of the Flemish higher education system, and it is an important consideration when planning additional household contributions.

The “one bachelor’s, one master’s” policy

An alternative option to increase household expenditure could be to increase tuition fees for those who have already obtained their first degree. This policy, sometimes called the “one bachelor’s, one master’s” policy, is used with some exceptions in the Netherlands and Estonia. It implies that, for example, a person who already has a bachelor’s degree pays a higher fee when enrolling in a bachelor’s programme than a person without a bachelor’s degree.

A “one bachelor’s, one master’s” policy would permit an increase in the tuition fees without decreasing first-time access to higher education. In the Flemish Community, 10% of bachelor’s graduates are not first-time graduates, indicating that they already obtained a bachelor’s degree. This is among the largest shares among OECD countries. By comparison, this share is only 4% in the Netherlands, in the top quartile of OECD countries. The share of graduates who are not first-time graduates is 13% at the master’s level for the Flemish Community, larger than at the bachelor’s level and also larger than the OECD median (Figure 10.19).

grants) or for additional three years (for loans). Institutions receive financial resources through the block grant formula funding for each student enrolled, except if they have been enrolled longer than the nominal study duration (see Chapter 5 of (OECD, 2019^[21])).

In the Flemish Community, the principle of a tighter link between public subsidies and the expected study progress can inspire policy measures to increase timely completion. For some categories of students, an implicit link already exists. Formula funding for students enrolled in single modules (credit contracts), for example, is given to higher education institutions only based on the completion of the modules.

Table 10.6. Policies to improve timely study completion, the Netherlands (2017)

Study checks	Higher education institutions are required to offer students a non-binding "study check" on demand, assessing the match between the programme and the student competencies and expectations (e.g. self-assessment tests, evaluation of motivation letters, or intake interviews)
Online self-assessment test	Prospective students are required to take a non-binding online self-assessment test
Study Choice 123 (Studiekeuze 123)	Government-funded web-based tool providing information for each higher education programme, including labour market prospects, and results from the national student satisfaction survey
Binding study advice	Institutions can provide students with binding study advice at the end of the first year that results in their expulsion from a programme if they have not made sufficient progress
Time-limited financial support	Students who qualify for means-tested grants can receive them only for the expected duration of the programme
Formula funding indicators	Funding formula excludes students who have been enrolled longer than the nominal study duration

Source: Adapted from information provided by the Dutch Ministry of Education, Culture and Science.

Achieving the "household expenditure growth" scenario

A generalised increase in tuition fees

Household expenditure on higher education institutions consists of tuition and other fees paid by students for services offered by higher education institutions. A substantial increase in this source of funding would therefore imply an increase in tuition fees. Increasing tuition fees can find some justification in contexts where there are strong private returns on the acquisition of higher education (OECD, 2008^[18]). Most OECD jurisdictions have implemented some changes in the level or structure of tuition fees over the past decade. This includes the Flemish Community, where the annual fees for a full-time bachelor's or master's student paying full tuition increased by EUR 270 between 2015 and 2016 (OECD, 2018^[19]).

For most countries with available data, tuition fees have increased in the past 10 years, sometimes substantially. This has not resulted in a visible decrease in the enrolment rates of 18-24 year-olds (Table 10.7). Even in England, where tuition fees in bachelor's programmes rose nine-fold between 1998 and 2013, the increase in student contributions did not lead to a lower participation in higher education, neither in general nor for students from lower socio-economic backgrounds (Geven, 2015^[20]; Murphy, Scott-Clayton and Wyness, 2017^[21]; Azmat and Simion, 2017^[22]).

from both private sources increases, overall expenditure per student in Flemish higher education institutions matches the OECD top quartile, i.e. the Flemish Community maintains its position within the OECD distribution into the future.

Based on these assumptions, it is clear that neither an increase in household expenditure alone, nor an increase in other private expenditure will suffice to maintain higher education expenditure levels near the projected top quartile among OECD countries. Only in the “composite” scenario, which assumes that the positive changes of other scenarios occur together, does expenditure per student remain at its current relative position in the OECD distribution.

10.5.4. Implications for policy

Increases in student-to-academic staff ratios and falling academic staff wages relative to other skilled labour pose risks to the quality of teaching and research. The following subsections outline some policy options for the Flemish Community to increase expenditure per student in the coming years.

The baseline scenario: stabilising expenditure per student in higher education

The baseline scenario assumes that expenditure per student remains constant between 2015 and 2025. This means that, compared to the period 2008-2015 (when expenditure per student decreased), the government has to provide additional financial resources or the increase in the number of students must be more moderate.

If student demand continues to increase, the Flemish government could consider options to reduce the amount of time that students spend in higher education. This would reduce the number of students, without decreasing the rate of access to higher education.

In the Flemish Community, 38% of those who entered a full-time bachelor’s programme in 2008 with a degree contract (i.e. intending to graduate) graduated on time (Section 10.3.1). The others graduated within three additional years (34%), left higher education without completing (22%), or were still enrolled (but had not graduated) three years after the expected graduation time (5%) (see Chapter 5 of (OECD, 2019^[2])). A variety of factors can influence timely completion. Some students may choose a study programme not in line with their expectations or their previous knowledge, and consequently either not graduate or change study programmes. In some cases, students or institutions may lack the financial incentives to progress until completion of the degree.

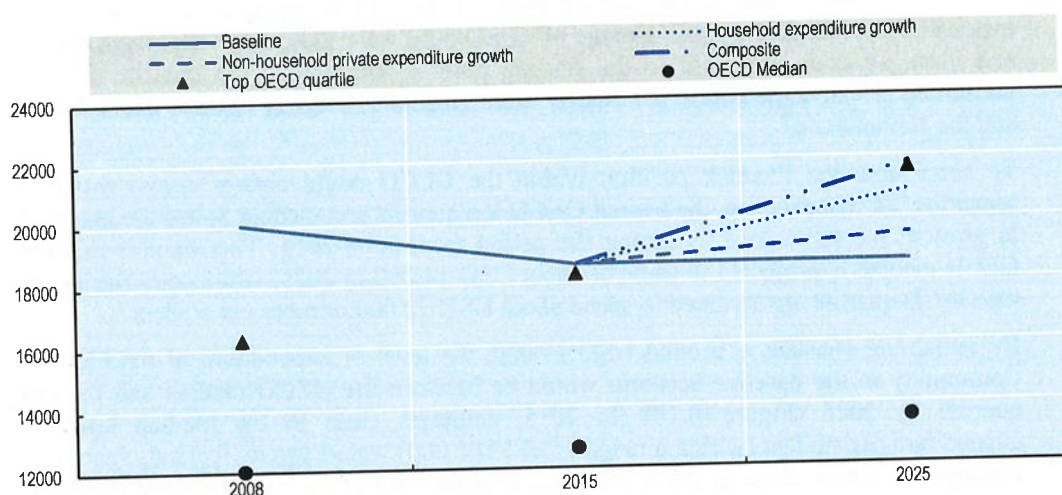
The Netherlands have had a similar problem of low timely completion, and introduced a number of policy measures to tackle this issue. The first three measures in Table 10.6 (study checks, online self-assessment tests, and the study choice web tool) aim at better aligning student skills, prior knowledge and expectations with the programme they choose. The Flemish Community is already starting to implement some similar measures. For example, students are being encouraged or required to take some non-binding tests assessing their overall motivation, interests, skills and (for teacher education and civil engineering) their subject-specific competencies. The Flemish Community is also introducing some forms of binding study advice. This means that, under certain conditions, institutions can refuse to keep students enrolled if they do not make the necessary study progress.

The final two measures reported in Table 10.6 ensure that students and institutions do not have financial incentives to delay graduation. In the Netherlands, students receive public financial support only for the nominal duration of the programme (for means-tested

Table 10.5. Assumptions for the calculations of expenditure scenarios

	Expenditure per student from government sources	Expenditure per student from international sources	Expenditure per student from households	Expenditure per student from other private sources
Baseline	Remains constant between 2015 and 2025 in real terms	Remains constant between 2015 and 2025 in real terms	Remains constant between 2015 and 2025 in real terms	Remains constant between 2015 and 2025 in real terms
Household expenditure growth scenario	Same as in the baseline scenario	Same as in the baseline scenario	Reaches by 2025 the top quartile of OECD countries in 2015	Same as in the baseline scenario
Non-household private expenditure growth scenario	Same as in the baseline scenario	Same as in the baseline scenario	Same as in the baseline scenario	Reaches by 2025 the top quartile of OECD countries in 2015
Composite scenario	Same as in the baseline scenario	Same as in the baseline scenario	Same as in the household expenditure growth scenario	Same as in the non-household private expenditure growth scenario
Top OECD quartile, 2025	Determined by extrapolating the annualised rate of growth during 2008-2015 of the starting point of the top OECD quartile, over the period 2015-2025			
OECD median, 2025	Determined by extrapolating the annualised rate of growth during 2008-2015 of the OECD median, over the period 2015-2025			

Note: All monetary amounts are expressed in PPP USD at the price level of 2015. The starting point of the top OECD quartile is the lowest amount belonging to the top quartile.

Figure 10.18. Higher education expenditure per student in the Flemish Community: four possible scenarios

Note: The assumptions underlying these calculations are reported in Table 10.5.

Source: Adapted from data provided by the Flemish Ministry of Education and Training.

StatLink <https://doi.org/10.1787/888933942659>

The future impacts of the assumptions outlined in Table 10.5 on expenditure per student are reported in Figure 10.18. In the household expenditure growth scenario, expenditure per student in the Flemish Community would increase by over USD 2 000 above the baseline scenario by 2025. In the non-household expenditure growth scenario, it would increase by almost USD 1 000 as compared to the baseline. In the composite scenario, where expenditure

students). In 2017, the government granted some additional funding based on the number of students, helping expenditure to keep the pace with the number of students.

However, the assumption of a constant level of expenditure per student in the Flemish Community is justified when looking at the broader international situation. Across the OECD area, the presence of competing public priorities makes it difficult to increase higher education expenditure per student based on government funding while facing increasing student numbers (OECD, 2017^[17]; OECD, 2008^[18]). Therefore, a baseline assumption of constant public funding stresses the potential challenges for the Flemish government in substantially increasing expenditure per student in the future, given the current level of private funding.

Other scenarios are based on the assumption that the Flemish Community could work to bring the level of expenditure from private sources in line with the current levels in the top quartile of the OECD distribution by 2025. Therefore, the results of our scenario calculations are based on the observed current performance of actual countries, and aim to answer the question: “where would the Flemish higher education system stand if it were able to reach spending targets already observed in other countries?”.

Under the “household expenditure growth” scenario, household expenditure per student in the Flemish Community increases by about USD 2 300 until the current (2015) top quartile of the OECD distribution by 2025. In the “non-household private expenditure growth” scenario, other private expenditure increases by about USD 900, again reaching the top OECD quartile. Expenditure from governmental and international sources is assumed to remain in the top quartile of OECD countries (Table 10.5).

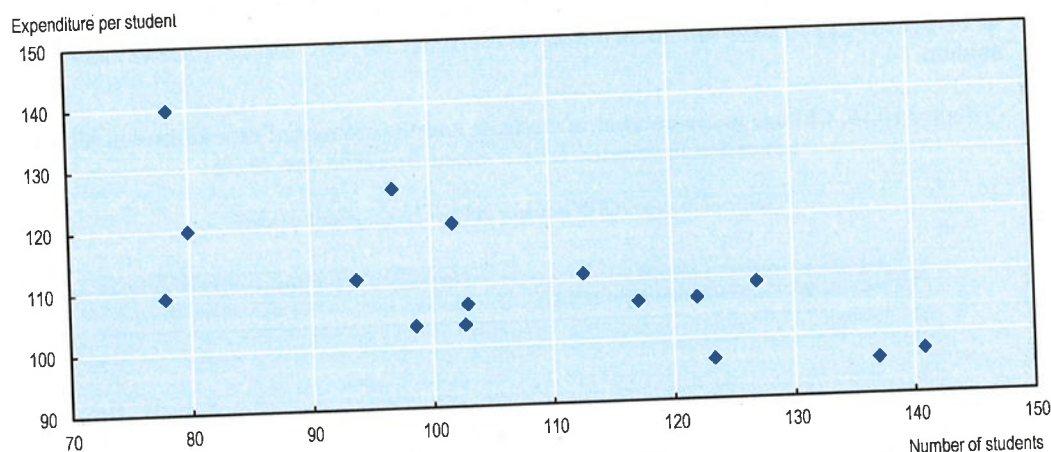
In 2015, countries close to the starting point of the OECD top quartile of household expenditure per student (within a range of \pm USD 500) were Italy, the Netherlands, Spain and Portugal; countries close to the starting point of the OECD top quartile of non-household private expenditure per student were Australia, Estonia, France, Israel, Korea and the Netherlands.⁹

To show how the Flemish position within the OECD could change across different scenarios, for this exercise, the overall OECD top quartile and median points are assumed to grow at the same pace as during the period from 2008-2015. This implies that the OECD median is projected to stand at about USD 14 000 in 2025, while countries in the top OECD quartile are assumed to spend about USD 22 000 or more per student.

By remaining constant at around USD 19 000, the level of expenditure of the Flemish Community in the baseline scenario would be between the OECD median and the top quartile by 2025 (Figure 10.18). In 2015, countries close to the median level of expenditure per student (within a range of \pm USD 1 000) were Estonia, Iceland, Spain and Portugal; countries close to the starting point of the OECD top quartile were Belgium, Finland, Japan and the Netherlands.

Figure 10.17. Number of students and expenditure per student in Flemish higher education institutions (2015)

2011 = 100



Note: Data are shown for 16 of the 17 Flemish institutions with available, validated data.
Source: European Tertiary Education Register (ETER) (2019_[4]), *ETER Database*, www.eter-project.com/.

StatLink  <https://doi.org/10.1787/888933942640>

10.5.3. Scenarios for the Flemish Community up to 2025

Managing funding requirements and planning for financial stability and sustainability in diverse higher education systems is a challenge many OECD governments face. Stable and efficient investment in higher education is required to ensure that higher education systems can continue to make progress in providing accessible high quality education (OECD, 2017_[17]). Table 10.5 outlines a set of assumptions used to create scenarios for the possible evolution of higher education expenditure per student in the Flemish Community covering the period 2015 to 2025. These assumptions are based on:

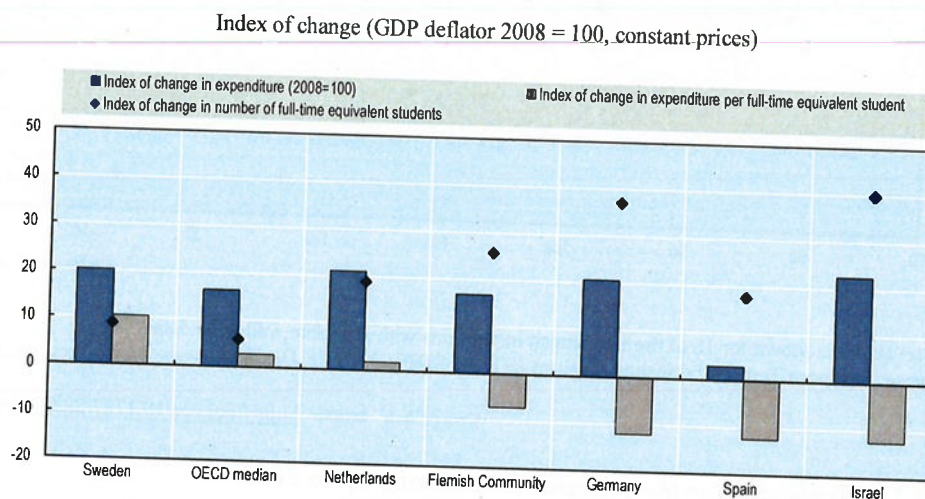
- trends and levels of expenditure on higher education institutions per student in the Flemish Community and in OECD countries
- the share of expenditure on higher education institutions by source of funding.

The basis for the formulation of the assumptions is the observed recent trends in higher education per student expenditure in the Flemish Community and in the top quartile of OECD countries. In 2008, the Flemish Community spent over USD 20 000 per student, in the top quartile of OECD countries. However, the decline in expenditure per student in the Flemish Community, and the concomitant increase in other OECD countries meant that by 2015, the relative position of the Flemish Community had deteriorated compared to the other OECD countries in the top quartile.

The baseline scenario assumes that real (i.e., inflation-adjusted) expenditure per student in the Flemish Community remains constant at its 2015 level in the near future. This is a conservative assumption, as the most recent government data show that expenditure per student increased by 3% between 2015 and 2016 (in combination with a stable number of

due to the rapid growth in student numbers, which increased by around 25% (Figure 10.16). A similar situation is also occurring in some other OECD countries. For example, in Germany, Israel and Spain, the growth in higher education funding was substantially smaller than the growth in student numbers. By contrast, in the Netherlands, enrolment growth was matched by a nearly proportional increase in the funding available to higher education institutions, resulting in a modest increase in overall expenditure per student.

Figure 10.16. Change in the number of students and the amount of expenditure in higher education in selected OECD countries (2008 and 2015)



Source: Adapted from OECD (2018^[31]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942621>

Projected growth in the younger population in Belgium in the coming years implies that demand for higher education could continue to rise (Eurostat, 2019^[16]), creating additional funding pressure. A decrease in funding per student implies increasing pressure on the resources available to hire staff, carry out research and educate students. In the absence of successful efforts to improve efficiency, this can result in a reduction in quality of teaching, learning and research over time.

Depending on how changes in funding and student numbers are distributed throughout the higher education system, individual institutions can be impacted in different ways. The decrease in expenditure per student has been particularly sharp in those higher education institutions where student numbers grew more rapidly (Figure 10.17). The negative relationship between the change in expenditure per student and student number growth at the institutional level is due, at least in part, to public funding in the Flemish higher education system adjusting to student numbers over the course of a few years. Nonetheless, it illustrates the difficulty in promptly matching the rapid increase in student numbers with a corresponding increase in financial resources.

10.5.1. Higher education expenditure has not been growing at the same pace as the number of students

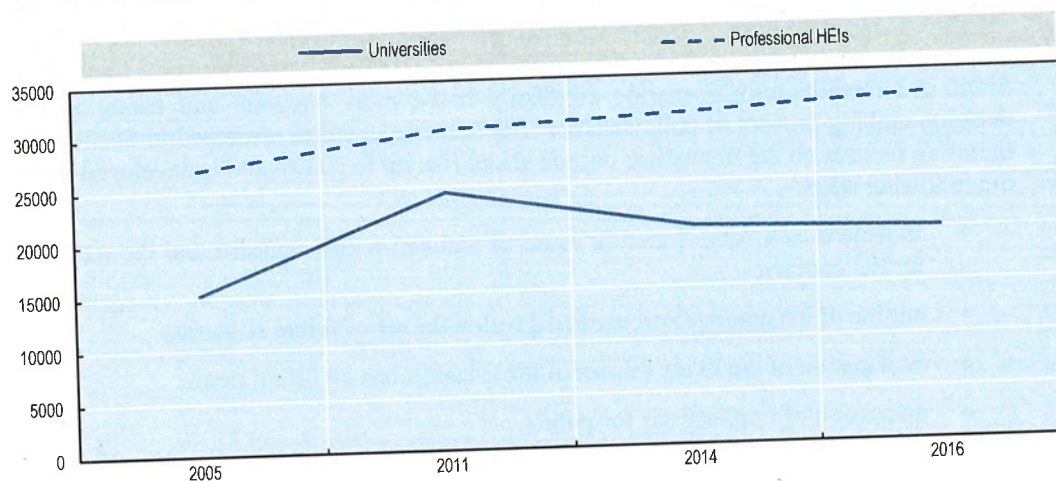
Summary of policy concern

Funding per student decreased by 7% in the Flemish Community between 2008 and 2015 (although it has partly recovered since then), while increasing in most OECD countries. Total expenditure on higher education institutions increased in the Flemish Community during this period, but not at the same pace as the number of students. The salaries of academic staff tend to increase over time. Decreasing expenditure per student typically implies that student-staff ratios are rising, or the salaries of academic staff relative to other highly trained workers is decreasing. To maintain current instructional practices and ensure the attractiveness of higher education for highly qualified staff, the Flemish Community may need to consider options for maintaining or increasing funding per student in higher education.

10.5.2. Rationale

The Flemish higher education system experienced a substantial increase in the number of students in the last decade. The numbers of new entrants to bachelor's programmes in professional HEIs increased by over 20% between 2005 and 2016 (Figure 10.15). In universities, new entrants have increased by almost one-third in the same period, although the increase has levelled off since 2011.

Figure 10.15. New entrants to bachelor's programmes, by subsector (2005-2016)



Source: Adapted from data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942602>

Rising student numbers can pose some challenges to governments trying to maintain a stable level of higher education funding. In the Flemish Community, expenditure on higher education institutions increased by 17% between 2008 and 2015. Despite this increase in total spending, expenditure per student decreased by 7% in the same period.

SCOPUS database). In the Flemish Community, as part of the Work, Economy, Science and Innovation 2014-2019 Strategy, Flemish universities have been encouraged by the government to develop a consistent open access and open data policy (Flemish Ministry for Work, Economy, Innovation and Sport, 2014^[13]).

10.5. Scenarios for policy

This section of the note extends the comparisons drawn in the previous sections by looking forward, and presents a set of scenarios for the future of the Flemish Community's higher education system. The purpose of these scenarios is to provide evidence-based conjectures about future trends in areas of national policy importance, which can stimulate debate and support policy-planning exercises (Box 9.1).

Box 10.2. Scenario development for policy analysis

Governments plan for the future of higher education in the context of a number of sources of uncertainty. Scenarios can be defined as descriptions of hypothetical futures that could occur and that, although somewhat speculative in nature, are nonetheless internally consistent and causally coherent (OECD, 2006^[14]). The development of scenarios can provide support to national discussions on contextual and systemic trends, highlight possible consequences of current circumstances on higher education and the economy, and outline the main available policy directions.

In a context of increasing complexity in societies and economies, more emphasis is being placed on anticipatory exercises in the policy process (OECD, 2015^[15]). Contemplating different policy scenarios can feed into the development of broad long-term strategic planning for higher education systems or pre-policy research related to particular policy topics.

Short and medium-term scenarios are likely to be more accurate and useful to the decision-making process of policymakers. The scenario exercise presented in Section 5.1 therefore focuses on the immediate decade ahead (i.e. up to 2030), and is developed using the following steps:

- statement of a subject area or issue of national policy concern and the rationale for the concern
- outline of the assumptions used to develop the set of future scenarios
- explanation of the likely impact of the assumptions on future trends
- discussion of implications for policy.

2014, a proportion in line with the national average in Belgium (66%).⁴ This represents an increase of more than 12 percentage points on the proportion of publications produced in Flanders with international collaboration since 2005.

Using the benchmarking indicator on international collaboration (the percentage of domestically authored documents involving some collaboration with researchers in other countries), Belgium scores in the top quartile of OECD countries, with almost 40% of publications in 2015 involving some foreign collaboration (based on fractional counts⁷).

Belgium has one of the higher rates of “brain circulation” in OECD countries, as measured by flows of scientific authors between jurisdictions. Net inflows and outflows were at similar levels in 2016 (around 9% and 8% of all scientific authors respectively), implying a very slight net “brain gain” for Belgium, though at a level below the OECD median.

The share of patent applications from the higher education sector in Belgium is in line with the OECD median

Patent application statistics are one way to measure innovative activity. The proportion of Patent Co-operation Treaty (PCT) published patent applications in Belgium that originated in the higher education sector in 2016 was the same as the OECD median, at 6%. This is above neighbouring France, Germany and the Netherlands (between 2% and 3%), and just below Denmark. The share of patent applications from the higher education sector is an indicator of the structure of the national innovation system, and it does not necessarily reflect higher education research productivity. For example, a low share of patents from higher education in a country may indicate the presence of an innovative private sector with strong patenting activity.

Regional data indicate that Flanders is responsible for the greater portion of patents coming from Belgium. In 2014, just under 65% of PCT patent applications in Belgium originated with a Flemish requester or inventor. However, the overall numbers of patents filed have decreased slightly in recent years (from 1 320 in 2012 to 1 169 in 2014). Furthermore, national data indicate that the proportion of patent applications to the European Patents Office originating from the higher education sector in Flanders has also been in decline, from almost 14% in 2012 to 10% in 2014.⁸

The Flemish Community has been working to strengthen higher education research capacity. This includes capacity to transfer knowledge for innovation through increasing the overall levels of investment in the system, and through specific funding incentives such as Industrial Research Funds (IOF), which are available to institutions that engage in technology transfer activities (see Chapter 6 of (OECD, 2019^[2])).

Belgium has a level of open access to scientific publications in line with the median for OECD countries

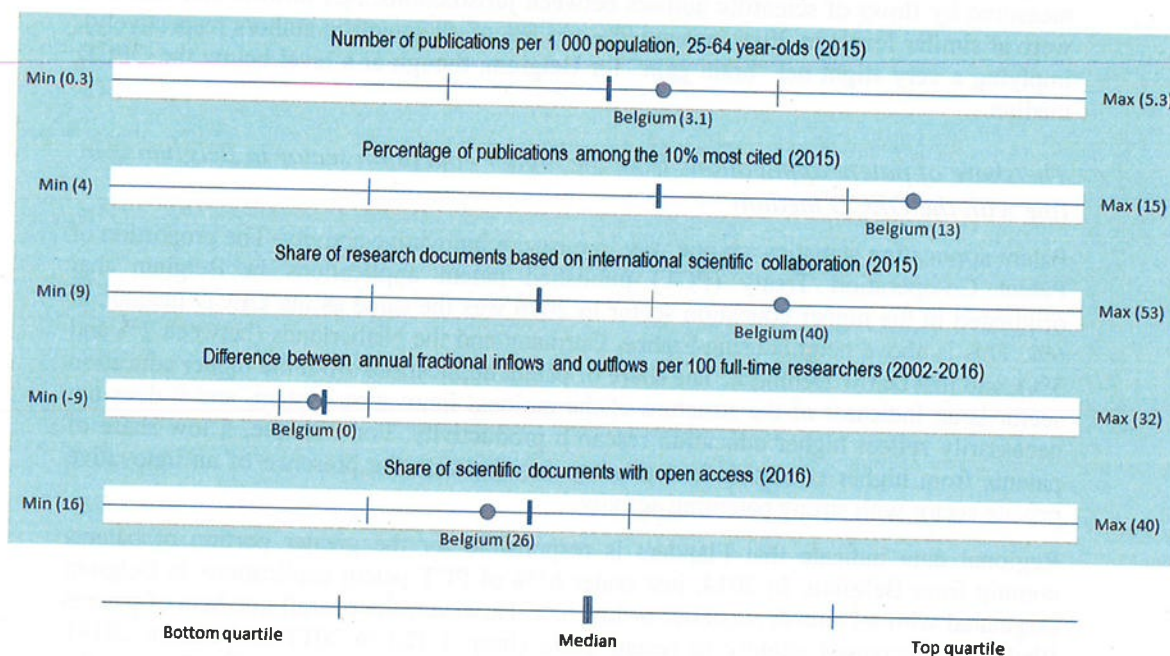
National governments are increasingly recognising the value of open science, including open data as a way of ensuring that the knowledge produced in the higher education sector achieves broader public benefit (see Chapter 7 of (OECD, 2019^[2])). Open access also makes up one of the six priority areas of the European Union’s Responsible Research and Innovation initiative, part of the Horizon 2020 programme.

In 2016, Belgium had a similar proportion of scientific documents available with at least some form of open access as the median level in the OECD, approximately one-quarter of all publications (based on a random sample of 100 000 documents available in the

Flanders produced almost three-quarters of the total volume of scientific production of Belgium.⁵

Flanders has also been successful in substantially growing its volume of scientific output. In 2015, Flanders produced 2.5 scientific publications per 1000 inhabitants,⁶ an increase from a level of 1.6 publications per 1000 inhabitants in 2007 (Department of Economy, Science and Innovation, 2017^[7]).

Figure 10.14. Where does the Flemish Community stand in the OECD distribution?
Internationalisation and knowledge production



Note: The indicators represented in this chart are a subset of the indicators presented in Table 10.1. The coloured circle represents the Flemish Community's position in the OECD distribution. The circle is not coloured when data are available for less than half of the OECD countries (the minimum number of countries with available data is 14). For more information on methodological issues and metadata, see OECD (2019^[2]) and the references cited therein. Follow the *StatLink* to download the data underlying the calculation of the scorecard.

Source: Adapted from OECD (2019^[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

StatLink  <https://doi.org/10.1787/888933942583>

International scientific collaboration is increasing in Flanders

Levels of international collaboration in research and development, along with mobility of talent, can provide an indication of the ability of research systems to participate in global research and innovation networks (OECD, 2019^[2]).

In 2016, 16% of 25-64 year-old doctorate holders in Flanders are foreign citizens. This share was in the top quartile of the OECD distribution.

In addition, around two-thirds of publications produced in Flanders were publications with international collaboration (i.e. publications with at least one foreign co-author) in

In general, about three-quarters of basic research across the OECD was carried out in the higher education sector in 2015. In Belgium, a relatively small proportion of expenditure was allocated to basic research. In 2015, the majority of R&D activity in the higher education system was classified as applied research or experimental development, in contrast to the majority of OECD countries.⁴

There are strong links between the higher education sector and business in Belgium

In general, the reported levels of co-operation between the business and higher education sectors across the OECD were low, with proportions of businesses reporting collaboration over the period 2012-2014 ranging from 7% to 23% (see Chapter 7 of (OECD, 2019_[2])). Belgium performs relatively well compared to other OECD countries in creating an environment for strong engagement between the business sector and the higher education sector. More than one-fifth of enterprises reported recent collaboration with the higher education sector on R&D in 2014, well above the OECD median level of almost 13%. The higher levels of collaboration also extended to small and medium sized enterprises (SMEs), where almost 22% reported collaborating with higher education institutions on innovation, a proportion in the top quartile of OECD countries.

Public policy to promote collaboration between higher education and other sectors of the economy is essential to ensure that the knowledge produced by higher education institutions can diffuse into innovation processes (OECD, 2016_[10]). Flanders has a number of initiatives that specifically target greater collaboration with businesses, including SMEs. For example, the TETRA-fund provides financial support for knowledge transfer activities specifically targeted at SMEs and social enterprises. In addition, the Flemish Agency for Innovation and Entrepreneurship (AIO) offers the “Baekeland” scholarships to doctoral students carrying out research in collaboration with companies (see Chapters 6 and 7 of (OECD, 2019_[2])).

10.4.2. Internationalisation and knowledge production

Compared to most other OECD countries, Belgium produces a higher volume of research output, and research appears to have greater impact

Bibliometric indicators are increasingly used to provide comparative assessments of the output and impact of research and development activities (OECD and SCImago Research Group (CSIC), 2015_[11]). While bibliometric data cannot easily be divided between sectors of research performance, the majority of scientific papers published in journals originate from academic authors (Johnson, Watkinson and Mabe, 2018_[12]).

In 2016, Belgium produced more than 3.1 scientific publications per 1 000 inhabitants, which is above the OECD median (2.8 publications per 1 000 people). Belgium also demonstrated high performance on the impact of research, as measured by citations of scientific publications in other research papers. In 2016, 13% of scientific publications in Belgium were among the top 10% of most cited publications listed on the SCOPUS database (a large database of scientific publications), a proportion which puts Belgium in the top quartile of OECD countries (Figure 10.14).

While data from the SCOPUS database are not available for Flanders, the available information suggests that performance in the quantity and quality of scientific output in Flanders is on a par with or exceeds the national performance of Belgium. In 2014,

As discussed in Section 10.2, Flanders places a strong emphasis on gender equity in research by including gender diversity indicators in the decision process for R&D funding. In addition, almost all higher education institutions in the Flemish Community have adopted the human resources strategy and principles contained in the European Charter and Code for hiring researchers, which also incorporates measures to promote gender equity (see Chapter 4 of (OECD, 2019_[2])).

The proportion of research staff working in higher education research and development is slightly below the median

Flanders has a concentration of researchers in the population that is close to the OECD median – around 8 researchers per 1000 people aged 25-64 in 2016. The proportion of researchers working directly in the higher education sector in 2015 was slightly below the median, at 37% compared to the OECD median of 39%. However, the higher education sector received just over 20% of overall gross expenditure on R&D in 2016, one of the lower levels in the OECD. This could be due to many junior researchers in higher education being paid through tax-exempt scholarships, reducing the cost of research personnel for higher education institutions.

There are many career options open to researchers in Flanders, given the range of institutions in the public research system. Types of institutions include specialist research centres, policy research institutes and Strategic Research Centres (SRC), which each focus on one key area of expertise. In addition, there are ten federal scientific establishments in Belgium, which often carry out joint projects with Flemish and French higher education institutions (see Chapter 6 of (OECD, 2019_[2])).

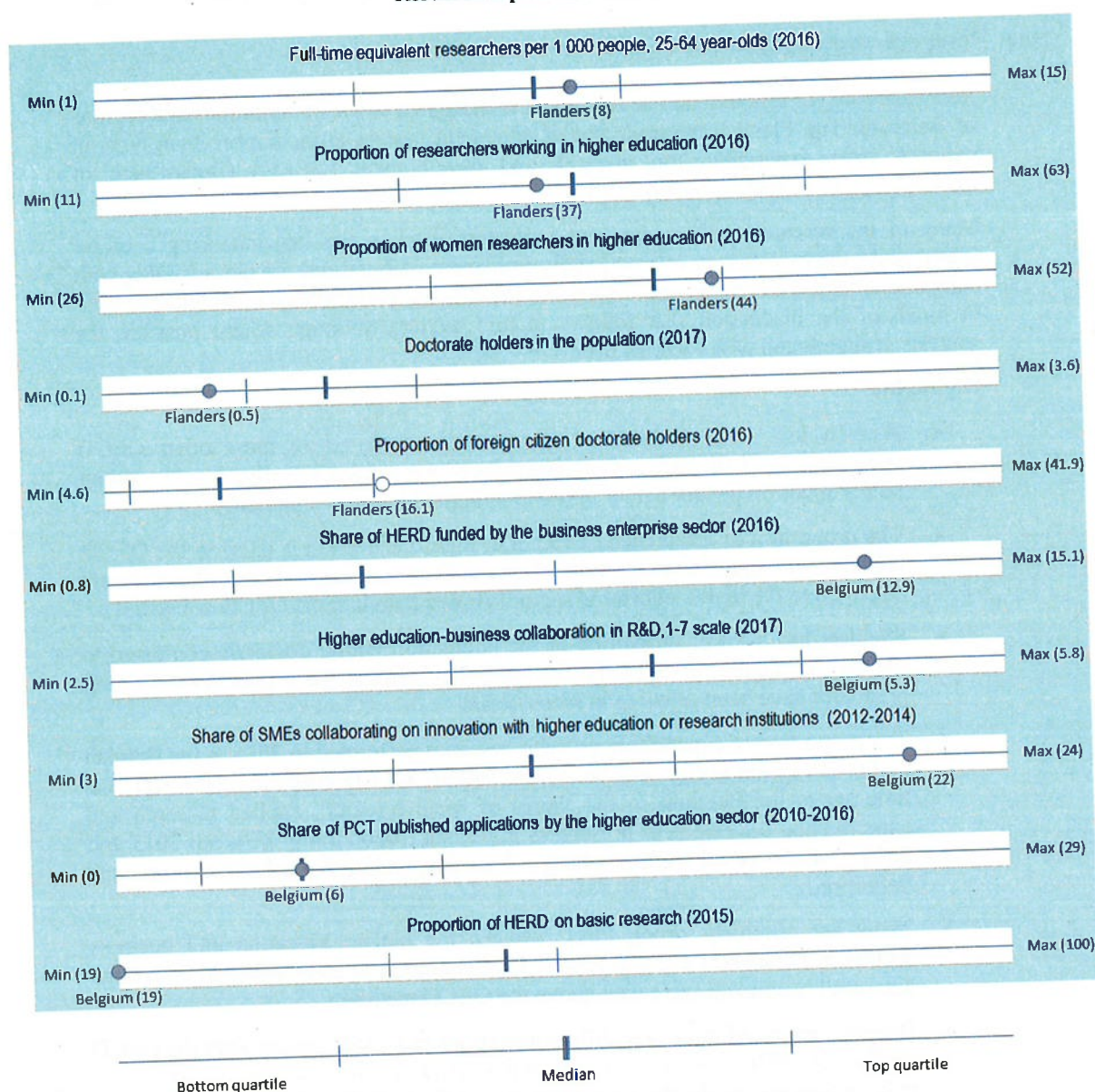
The proportion of the population aged 25-64 in Flanders with a doctoral qualification (a basic requirement for entry to a career in higher education research) is 0.5%, lower than the OECD median of 1%. Planned increases in research and development activity in the Flanders, if achieved, may increase demand for doctoral qualifications. National data indicate that the number of people who had obtained a doctoral degree in Flanders increased by almost 40% between 2011 and 2016 (Department of Economy, Science and Innovation, 2017_[7]). This may reflect funding incentives, as the number of doctoral degrees awarded is included as an indicator in the allocation of funding to institutions (see Chapter 3 of (OECD, 2019_[2])). In addition, the Flemish government has increased the availability of scholarships for doctoral students in recent years (Flemish Ministry for the Economy, Science and Innovation, 2011_[8]).

At the same time, it is unclear how the increased numbers of graduates may translate into supply for research and development in Flanders, as no data are available for the proportions of these graduates who subsequently pursue a career outside of Flanders (Department of Economy, Science and Innovation, 2017_[7]).

Belgium is one of the least active performers of basic research

Basic research is research that is aimed at creating new knowledge without a specific purpose or application in mind, while applied research is focused on creating new knowledge with a specific practical aim (OECD, 2015_[9]). Public funding of basic research is considered a fundamental requirement to ensure continued production of new knowledge. The knowledge created from basic research can underpin the development of novel products or processes, or ensure that topics or research areas that have social and cultural value, but not necessarily economic value, are pursued (see Chapter 6 of (OECD, 2019_[2])).

**Figure 10.13. Where does the Flemish Community stand in the OECD distribution?
Research inputs and activities**



Note: The indicators represented in this chart are a subset of the indicators presented in Table 10.1. The coloured circle represents the Flemish Community's position in the OECD distribution. The circle is not coloured when data are available for less than half of the OECD countries (the minimum number of countries with available data is 14). For more information on methodological issues and metadata, see OECD (2019_[2]) and the references cited therein. Follow the *Statlink* to download the data underlying the calculation of the scorecard.

Source: Adapted from OECD (2019_[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

StatLink  <https://doi.org/10.1787/888933942564>

have a job. In 2013, the employment rate of 25-34 year-old bachelor's graduates from professional HEIs was 93% in Flanders, in line with the Netherlands and above Estonia.

10.4. Research and engagement

Responsibility for research and development is delegated to the communities and regions of Belgium. The Flemish research and development system attracts more than 60% of national gross expenditure on research and development (GERD) (Department of Economy, Science and Innovation, 2017^[7]).

Many of the research and engagement indicators used in the benchmarking exercise (particularly those related to internationalisation and collaboration) are not available with comparable regional breakdowns. Therefore, the national performance of Belgium is used in much of the discussion that follows in this section, although where possible the analysis is augmented with Flemish data.

Highlights

- Women are better represented in research compared to most other OECD countries. In 2016, 44% of all researchers were female, reflecting the strong policy focus on gender equity in research in the Flemish Community.
- The proportion of researchers working in higher education is close to the OECD median, although the proportion of expenditure on research and development allocated to the higher education sector is lower than in most OECD countries.
- Flanders had a lower proportion of the population with a doctorate compared to the OECD median in 2017. Following policy efforts, the numbers of doctoral graduates have been growing in recent years.
- The proportion of expenditure on basic research performed in 2015 in the Belgian higher education sector was the lowest among OECD countries. However, the time series for Belgium in the shares of basic research, applied research and experimental development present an important discontinuity between 2013 and 2014, which could reflect changes in the underlying classifications and definitions.
- There are relatively strong links between the higher education and business sectors in Flanders. Levels of reported collaboration in 2014 between both large and small businesses were well above the OECD median.
- Belgium produced more scientific publications per 1 000 people than the OECD median in 2016, and was in the top OECD quartile of the proportion of publications among the top 10% most cited in the SCOPUS database.

10.4.1. Inputs and activities

Women are better represented in research than in most other OECD countries

The proportion of women working as researchers in the Flemish R&D system is higher than the median level across the OECD, and is moving towards parity with male researchers. In 2016, 44% of all researchers were women, placing Flanders near the top quartile of the OECD distribution (Figure 10.13).

Higher education graduates are less likely than other workers to work in jobs with routine tasks

Although higher education graduates have a relatively low employment and earnings premium, according to data from the OECD Survey of Adult Skills, in 2012 only 2% of Flemish higher education graduates younger than 35 worked in jobs with routine tasks where little learning is involved, compared to 15% of workers with only upper secondary education. This is a lower relative proportion of higher education graduates with routine tasks than in any other country participating in the OECD Survey of Adult Skills (Figure 10.12).

Figure 10.12. Relative share of workers with higher education in jobs with routine tasks (2012 or 2015)



Note: AUT = Austria; DEU = Germany; DNK = Denmark; FIN = Finland; NLD = Netherlands; SWE = Sweden; VLG = Flanders.

A value of 14 for Flanders implies that workers with higher education are 14% as likely as workers with upper secondary education to have jobs with routine tasks. When calculating this indicator, workers are considered to be in jobs with routine tasks if they report to be unable to choose or change “the sequence of tasks” and “how to do the work” (OECD, 2013^[6]).

Source: Adapted from OECD (2018^[5]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

StatLink  <https://doi.org/10.1787/888933942545>

The employment rate for short-cycle higher education graduates is low relative to other levels of education – but this could change when short-cycle programmes are absorbed into professional HEIs

The employment rate of 25-34 year-old graduates in short-cycle programmes was 65% in 2017, the lowest among OECD countries and much lower than the employment rate for other higher education graduates from the Flemish Community.

Table 10.4. Employment rates of 25-34 year-old bachelor graduates, by subsector (2016)

	Estonia	Flanders	The Netherlands
Universities	79.3	m	73.3
Professional HEIs	82.5	93.2	92.9

Note: The year of reference is 2013 for the Flemish Community, and 2016 for the Netherlands. In the Flemish Community, only a small percentage of university bachelor's graduates enter the labour market before earning a master's degree.

Source: Adapted from OECD (2019^[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

This could change in the future, as in 2019, most short-cycle higher education programmes became the responsibility of professional HEIs (centres for adult education previously offered most short-cycle programmes). Professional HEIs in the Flemish Community have been successful in ensuring that a large proportion of their graduates

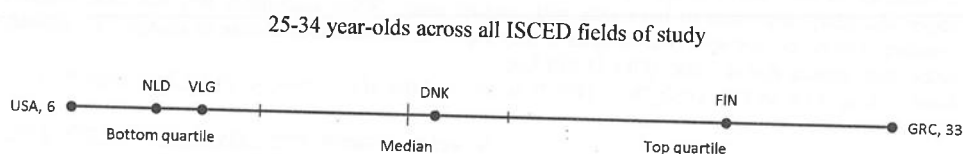
bachelor's (one of the highest among OECD countries) and master's programmes (in the top quartile) in 2017. Similarly, that of upper secondary education graduates was 87%, which is the highest among OECD countries.

Over 90% of higher education graduates younger than 30 were either employed or in education in Flanders in 2017. This share is in the top quartile of OECD countries, slightly above Belgium as a whole and slightly below Germany and the Netherlands.

Due to the high rate of employment across education levels, the graduate employment premium – the difference between the employment rate of higher education graduates and upper secondary education graduates – was relatively low among OECD countries in 2017. In addition, in Flanders, there was almost no difference between the employment rate of master's and bachelor's graduates, contrary to most OECD countries where master's graduates were more likely to be employed.

The differences in the employment rates of 25-34 year-olds across fields of study were also small in Flanders relative to other OECD jurisdictions. In Flanders, the difference between the employment rate of 25-34 year-old higher education graduates in the field of study with the highest employment rate (services) and that with the lowest (arts and humanities) was 10% in 2017 (Figure 10.11). This was one of the smallest differences among OECD higher education systems.

Figure 10.11. Spread in the graduate employment rate across fields of study (2017)



Note: DNK = Denmark; FIN = Finland; GRC = Greece; NLD = Netherlands; USA = United States; VLG = Flanders.

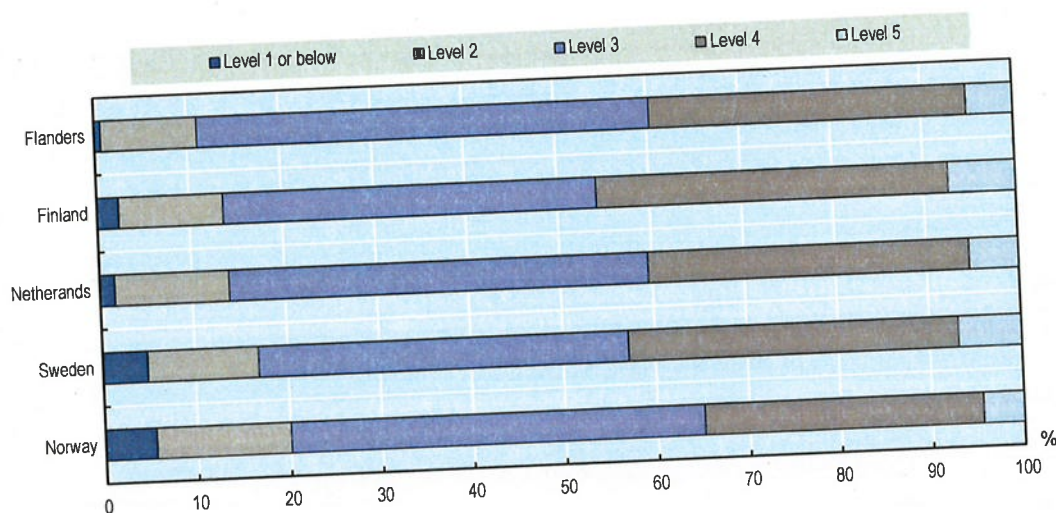
Source: Adapted from OECD (2018^[31]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942526>

Higher education attainment results in a relatively low earnings premium for graduates

For the indicator on earnings premiums, only the national average of Belgium is available. Higher education graduates in Belgium enjoy relatively low earnings premiums on average compared to those in other OECD countries. In 2015, the full-time, full-year earnings of bachelor's graduates (25-34 year-olds) were 10% higher than the average equivalent earnings of the same age cohort with only upper secondary or post-secondary non-tertiary education. The earnings premium for bachelor's graduates is in the bottom quartile of OECD countries. Master's and doctoral graduates earned 140% of the average earnings of the same age cohort with upper secondary or post-secondary non-tertiary education, 4 percentage points below the OECD median.

Figure 10.10. Numeracy proficiency distribution among graduates younger than 35 (2012)



Source: Adapted from OECD (2018^[5]), *OECD Survey of Adult Skills*, www.oecd.org/skills/piaac/data/.

StatLink  <https://doi.org/10.1787/888933942507>

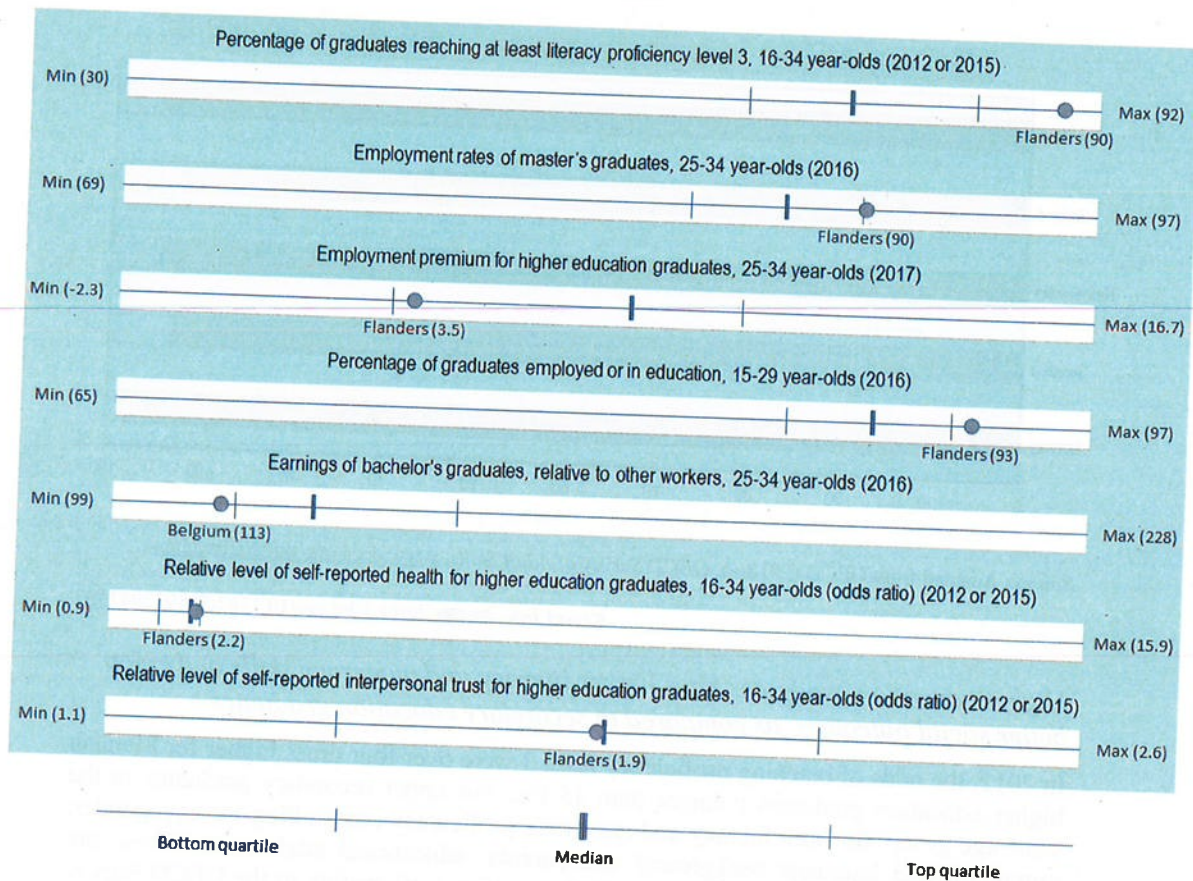
Higher education graduates have higher literacy and numeracy skills and enjoy better social outcomes, as compared to secondary education graduates

In 2012, the odds of reaching proficiency level 3 were over four times higher for Flemish higher education graduates younger than 35 than for upper secondary graduates in the same age group, for both literacy and numeracy proficiency (controlling for age, gender, immigrant and language background and parents' educational attainment). These are among the largest odds ratios among OECD countries participating in the OECD Survey of Adult Skills, and they are significantly different from 1 at the 5% confidence level. This difference could result from the capacity of the higher education system to increase students' literacy and numeracy skills, the selection of individuals with higher levels of skills into higher education, or some combination of the two.

Education not only prepares graduates for working life, but also fosters democratic engagement among citizens, participation in civil society, trust, and well-being. In 2012, Flemish higher education graduates younger than 35 had about twice the odds of disagreeing with the following statements: "people like me don't have any say about what the government does" (a measure of political efficacy) and "only few people can be trusted", as compared to secondary education graduates in the same age group. They also had two times the odds of reporting to be in good or excellent health. The differences between higher education graduates and upper secondary education graduates for these indicators are statistically significant at the 5% confidence level, and they are around the median across OECD countries participating in the OECD Survey of Adult Skills.

The employment rate of 25-34 year-olds is high in general, including for higher education graduates across education levels and fields of study

The employment rate is higher in Flanders than in most OECD countries across a range of education levels. The employment rates of 25-34 year-old graduates were around 90% for

Figure 10.9. Where does the Flemish Community stand in the OECD distribution? Graduate outcomes

Note: The indicators represented in this chart are a subset of the indicators presented in Table 10.1. The coloured circle represents the Flemish Community's position in the OECD distribution. The circle is not coloured when data are available for less than half of the OECD countries (the minimum number of countries with available data is 14). For more information on methodological issues and metadata, see OECD (2019_[2]) and the references cited therein. Follow the *Statlink* to download the data underlying the calculation of the scorecard.

Source: Adapted from OECD (2019_[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/bc5514d7-en>.

StatLink  <https://doi.org/10.1787/888933942488>

as the Netherlands, and slightly below Belgium as a whole. The share of international students was 5% at the bachelor's level, which was around the OECD median.

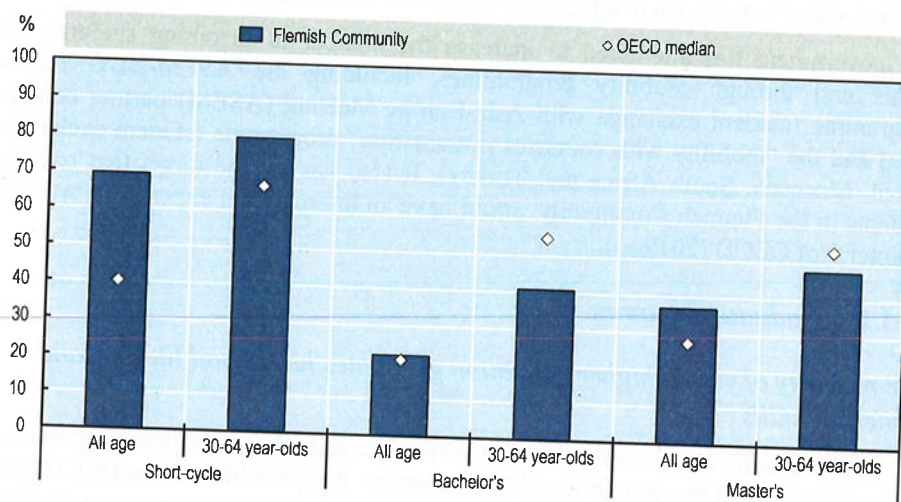
The government has attempted to increase the number of incoming students through grants and through mobility programmes, including the ASEM-DUO Fellowship Programme (student exchange with Asia-Europe Meeting (ASEM) partner countries in Asia) and the “mobility with countries in transition” programme (student exchange with Brazil, Morocco, South Africa and Turkey). It also has set the target that one-third of students in the Flemish Community would have an international experience by 2020 (see Chapter 5 of OECD (2019^[2])).

10.3.2. Graduate outcomes

The majority of young higher education graduates have good literacy and numeracy skills

No internationally comparable data are currently available on the learning outcomes of higher education at the system level. In its absence, it is possible to use the OECD Survey of Adult Skills (PIAAC) to assess skills proficiency among higher education graduates.

In Flanders, approximately 90% of higher education graduates aged 16-34 reached level 3 of the PIAAC proficiency scale (a scale from below level 1 – the lowest – to level 5 – the highest) in 2012,³ both in terms of literacy and numeracy. This share was one of the highest among OECD countries participating in PIAAC for literacy, and the highest for numeracy.

Figure 10.8. Share of part-time students in higher education, by age and ISCED level (2016)

Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942469>

The majority of students are enrolled in bachelor's programmes

The majority of students in the Flemish Community were enrolled in bachelor's programmes in 2016. Around 20% of students were enrolled in master's programmes, below the median of OECD countries. Less than 10% of students were enrolled in short-cycle tertiary education programmes, around the median of OECD countries offering short-cycle tertiary education programmes.

Around one-quarter of new entrants have not yet completed their programmes three years after the expected graduation year

New entrants refer to students who enter a programme at a given level of education for the first time. In the Flemish Community, around 40% of new entrants to bachelor's programmes in 2008 obtained a bachelor's degree within the expected duration of the programme. This was at around the median of OECD countries and economies with available data, and below Denmark, Finland, France and Norway. Another one-third of new entrants completed the bachelor's programme within three years from the expected graduation year. However, over 20% of new entrants did not complete the programme and were not in education in 2014, three years after the expected graduation year.²

The completion rate at the bachelor's level differed among different student groups. Male students, particularly those in professional HEIs, had a lower completion rate as compared to female students. Part-time students also had a relatively low completion rate, as compared to full-time students.

More than one-third of doctoral students are international students, which is one of the highest shares among OECD countries

In 2016, international students comprised 17% of master's level students and 40% at the doctoral level, which was in the top quartile of OECD countries, at around the same level

Access to higher education varies by social background, but the access gap appears lower than in many other OECD countries

Flemish data on access rate gaps by socio-economic background are not directly comparable with international data, but show that maternal education has an impact on youth participation in higher education. Two-thirds of Flemish students leaving upper secondary education in 2015 (either with a diploma or not) entered a higher education programme in the Flemish Community within the next three years. That compares to 83% of upper secondary students whose mother had a higher education degree and 55% of students whose mother did not.

These data imply a relative gap in the probability to access higher education of 34% between children of mothers without higher education and other students leaving upper secondary education. As a comparison, the median access gap for 18-24 year-olds with and without at least one parent with higher education across OECD countries with data was 50%, and around 40% for Norway (the smallest access gap across countries with comparable data).

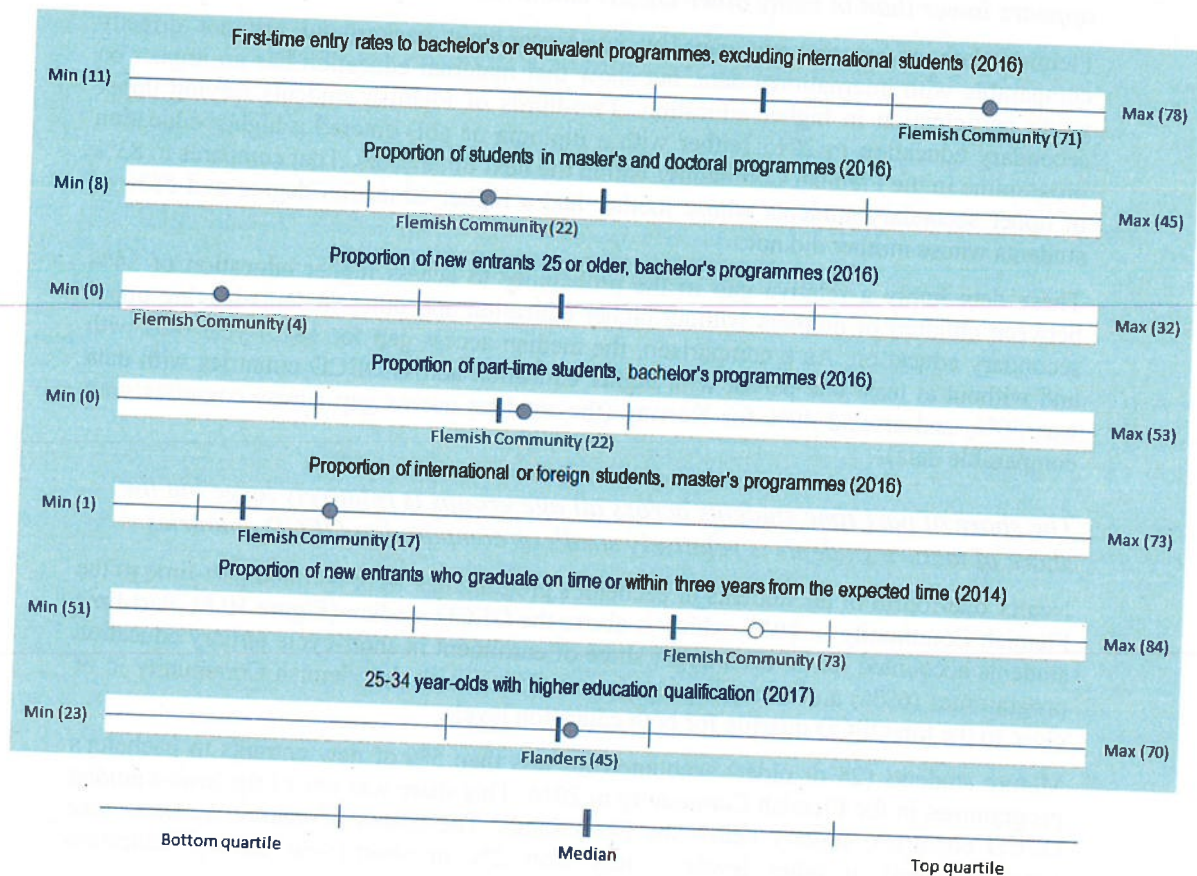
The share of part-time students across all age groups is relatively large but the share of mature students is relatively small, as compared to OECD countries

Nearly one-fourth of all students in bachelor's programmes were enrolled part-time in the Flemish Community in 2016, which is above the OECD median (Figure 10.8). Part-time students accounted for an even larger share of enrolment in short-cycle tertiary education programmes (69%) and master's programmes (39%), with the Flemish Community in or close to the top OECD quartile for both education levels.

Mature students (25 or older) accounted for less than 5% of new entrants to bachelor's programmes in the Flemish Community in 2016. This share was one of the lowest among OECD countries, slightly below the Netherlands. The shares of mature students were similarly small at other levels – less than 2% in short-cycle tertiary education programmes and around 15% in master's programmes.

The share of 30-64 year-old students who were enrolled in bachelor's programmes part-time was around 40% in the Flemish Community, well below the median of OECD countries. In most OECD countries, the share of part-time students in 2016 was higher among the 30-64 age group than across all age groups; this was also the case in the Flemish Community. However, the difference between the two age groups was relatively low in the Flemish Community. This indicates that the Flemish Community had a relatively large proportion of younger students (below 30) studying part-time compared to other OECD countries.

Figure 10.7. Where does the Flemish Community stand in the OECD distribution? Access, student profile, completion



Note: The indicators represented in this chart are a subset of the indicators presented in Table 10.1. The coloured circle represents the Flemish Community's position in the OECD distribution. The circle is not coloured when data are available for less than half of the OECD countries (the minimum number of countries with available data is 14). For more information on methodological issues and metadata, see OECD (2019_[2]) and the references cited therein. Follow the *Statlink* to download the data underlying the calculation of the scorecard.

Source: Adapted from OECD (2019_[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

StatLink <https://doi.org/10.1787/888933942450>

Table 10.3. Flexible learning pathways in the Flemish Community (2017)

All higher education institutions are required to offer all of their programmes as part-time and modular education
Students can enrol in single modules and receive a credit certificate from the institution upon completion
Under certain conditions, students can enrol only for the assessment and obtain credits without attending classes
Tuition fees are based on the number of credits in which students enrol (i.e. they change with study load)
No distinction between part-time and full-time students in terms of financial support

Source: Adapted from information provided by the Flemish Ministry of Education and Training.

graduates and upper secondary education graduates in the probability of reaching this good level of skills is among the largest in the OECD area.

- Data from the OECD Survey of Adult Skills also show that higher education graduates in the Flemish Community tend to enjoy better social outcomes than secondary graduates, as is the case in most of OECD countries. The difference between the two groups is at around the median of OECD countries.
- The Flemish Community had a high employment rate among individuals aged 25-34 across all levels of education attainment in 2017. As a result, the graduate employment premium – the difference in the employment rate between the graduates of bachelor's programmes and upper secondary education graduates – was just above the bottom quartile of OECD countries. In addition, there was no difference in the employment rate of bachelor's and master's graduates, perhaps related to the strong employment outcomes of bachelor's graduates in professional HEIs.

10.3.1. Access, student profile, completion

Around 45% of 25-34 year-olds have a higher education qualification, and over two-thirds of young adults are projected to enter higher education in the course of their life

In Flanders, over one-third of adults (25-64 year-olds) had completed higher education in 2016, just below the OECD median. In the younger age group (25-34 year-olds), nearly half of them had obtained a higher education qualification in 2017, which was slightly above the median of OECD countries.

Around 70% of young adults are projected to enter a bachelor's programme at least once in their lifetime. This share is one of the highest in the OECD area. The high entry rate, as well as the large proportion of students studying part-time may be attributable partly to flexible study provision in the Flemish Community (Table 10.3). This lowers the barriers to access by increasing the available options through which students can participate in higher education.

The academic staff-to-student ratio is higher than in the Netherlands and Estonia

Students benefit from interacting with academic staff, for example through individual meetings, lectures or tutorials. Therefore, it is usually assumed that a large academic staff-to-student ratio contributes to student learning, despite the important limitations of this indicator (see Chapter 4 of OECD (2019^[2])).

In the Flemish Community, the academic staff-to-student ratio was about 1:20 in 2016, a ratio placing Flanders in the bottom quartile of OECD countries. However, this indicator only includes senior academic staff for the Flemish Community, meaning that it excludes employed doctoral students, post-doctoral researchers and other junior categories. Therefore, it is not directly comparable to other OECD countries.

Data on the academic staff-to-student ratio by subsector show that, in 2016, it was higher in the Flemish Community than in Estonia and the Netherlands in both universities and professional HEIs. In contrast to the ratio included in the scoreboard, the breakdown by subsector is comparable across the jurisdictions with available data, because it includes both junior and senior academic staff categories for the Flemish Community as well as for Estonia and the Netherlands. This indicator also shows that there were wide differences between the subsectors; in the Flemish Community, the ratio was 1:7 in universities and 1:15 in professional HEIs. The larger staff-to-student ratio in universities can be attributed, at least in part, to the larger share of staff time that is spent on research within these institutions.

10.3. Education

Highlights

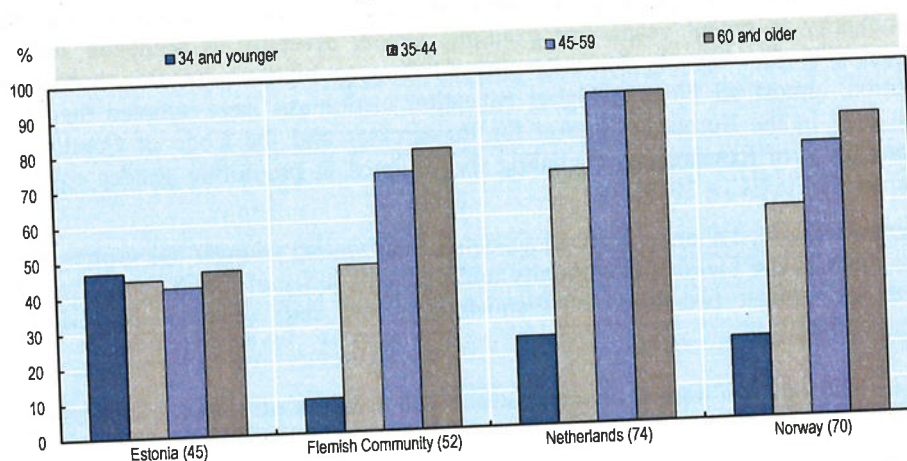
- Around 45% of 25-34 year-olds had obtained a higher education degree in Flanders in 2017, which is around the median of OECD countries. Over two-thirds of young adults are projected to enter a bachelor's programme at least once in their lifetime, one of the highest rates among OECD countries.
- Nearly one-fourth of students in bachelor's programmes are enrolled part-time (planning to obtain less than 45 credits in one year) in the Flemish Community in 2016, above the OECD median. The Flemish Community has distinctively flexible study provision: all higher education institutions were required to offer their study programmes part-time in 2017; students can also register for single modules.
- The proportion of new entrants who graduated on time or within three years from the expected graduation year was around 70% in 2014, which is above the median of OECD countries.
- The share of mature students (25 or older) in bachelor's programmes was less than 5% in 2016, one of the lowest among OECD countries. The shares of international students were 17% at a master's level and 40% at a doctoral level in 2016, in the top quartile of OECD countries.
- According to the OECD Survey of Adult Skills (PIAAC), the Flemish Community has one of the highest shares of 16-34 year-old higher education graduates with good (level 3 or above) literacy and numeracy skills among OECD countries participating in PIAAC. The difference between higher education

The share of young teaching staff with a permanent contract is relatively low when compared to Estonia, the Netherlands and Norway

Overall, about half of academic staff with teaching duties (teaching staff) had a permanent contract in 2016. This share was relatively low among the four jurisdictions participating in the benchmarking exercise (Figure 10.6). Younger academic staff in particular appeared to be in a relatively precarious employment position, as only 10% of staff in this category worked with a permanent contract, a much lower level than in the other benchmarking jurisdictions.

Figure 10.6. Share of teaching staff with permanent contracts, by age (2016)

Academic staff with teaching duties, excluding doctoral students. The share with permanent contracts across all ages is reported in brackets.



Source: Adapted from OECD (2019^[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

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A high share of current expenditure is spent on staff, particularly on teaching staff

Higher education current expenditure covers goods and services consumed within the current year to sustain the activities of institutions. It includes compensation of personnel (both academic and administrative) as well as other costs, for example, for general supplies and for contracted services such as building, cleaning and maintenance.

The Flemish Community spent three-quarters of its higher education current expenditure on staff in 2015, placing it in the top quartile of OECD countries. Teaching staff accounted for over 60% of all staff expenditure, which was also a relatively high share among higher education systems with available data. The remaining 40% of staff expenditure was spent on non-teaching staff (which includes academic staff without teaching duties, administrative and other support staff). In the Flemish higher education system, there were 42 non-academic staff per 100 academic staff in 2015, one of the lowest rates among OECD countries reporting data.

The share of younger academic staff (below 35) was 16% in the Flemish Community in 2016, slightly below the median of OECD countries. The share of older academic staff (above 60) was 7%, one of the lowest among OECD countries, resulting in a relatively young age profile of academic staff, and mitigating issues associated with the ageing of staff experienced by some other countries (see Chapter 4 of (OECD, 2019^[2])).

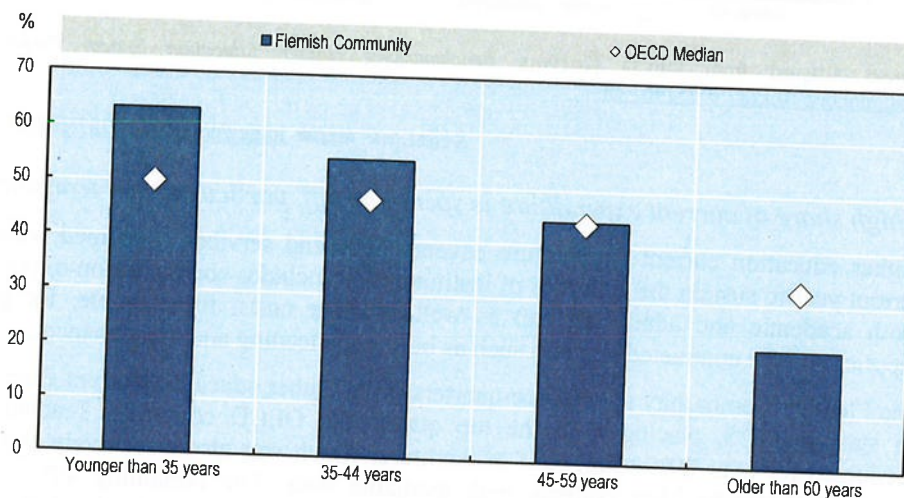
The share of women among academic staff increased by 10% over the past decade – one of the highest increases among OECD countries

Nearly half of all academic staff in the Flemish Community were female in 2016. This share was in the top quartile of OECD countries, slightly below Belgium as a whole and above the Netherlands. The share increased by over 10% between 2008 and 2016, which was the second highest increase among OECD countries after Korea.

Gender equality has been a key goal of higher education policy in the Flemish Community in recent years. For example, gender diversity in academic staff is one indicator in the formula for allocating funding to higher education institutions. In addition, almost all Flemish higher education institutions have adopted the principles contained in the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, including those aimed at promoting gender equality (see Chapter 4 of (OECD, 2019^[2])).

Women comprised a larger share of academic staff among younger age groups than older ones, both in the Flemish Community and in the majority of OECD countries. Women comprised almost two-thirds of Flemish academic staff younger than 35 in 2016 (Figure 10.5).

Figure 10.5. Share of women among academic staff in higher education, by age group (2016)



Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

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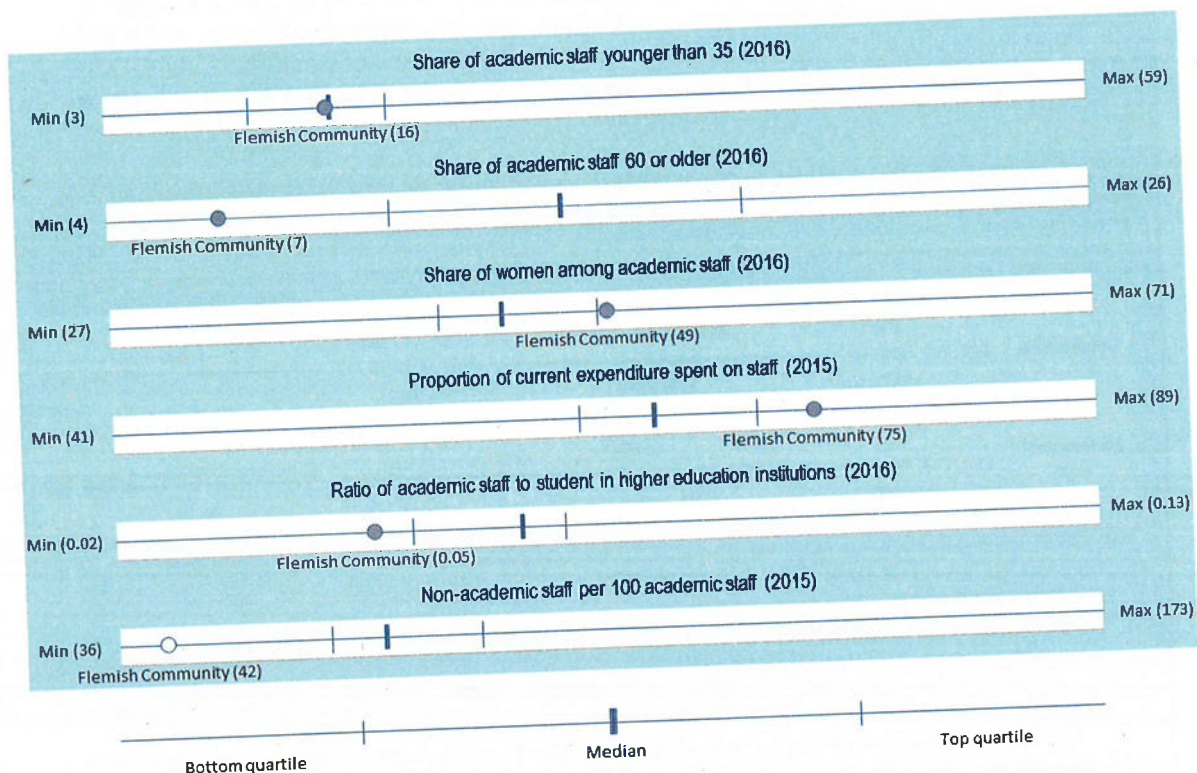
38% of the total expenditure. This share places Flanders in the top quartile of OECD countries, at around the same level as the Netherlands.

10.2.2. Human resources

The Flemish Community has a young age profile of academic staff, relative to other OECD countries

The international definition of “academic staff” covers a wide range of job titles in Flemish universities and professional HEIs. These include full-time professors, associate professors, assistant professors, teaching assistants, tutors, practice tutors, junior researchers, senior research fellows and doctoral students when employed by a higher education institution.

Figure 10.4. Where does the Flemish Community stand in the OECD distribution? Human resources



Note: The indicators represented in this chart are a subset of the indicators presented in Table 10.1. The coloured circle represents the Flemish Community's position in the OECD distribution. The circle is not coloured when data are available for less than half of the OECD countries (the minimum number of countries with available data is 14). For more information on methodological issues and metadata, see OECD (2019_[2]) and the references cited therein. Follow the *Statlink* to download the data underlying the calculation of the scorecard.

Source: Adapted from OECD (2019_[2]), *Benchmarking Higher Education System Performance*, <https://doi.org/10.1787/be5514d7-en>.

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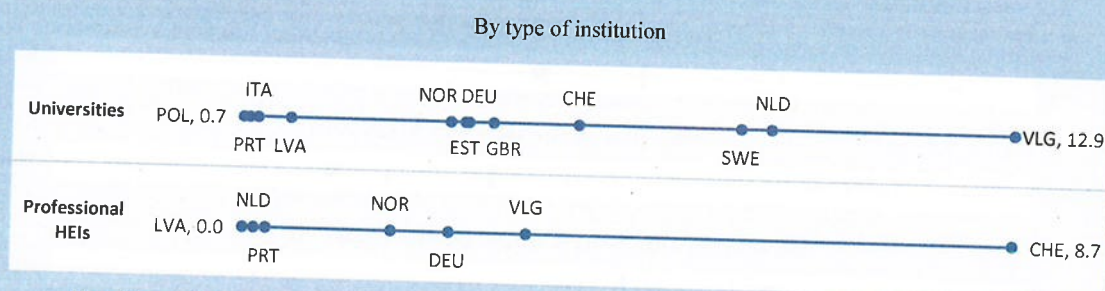
Annual household expenditure per student stood at USD 1 100 in 2015, which accounted for 6% of the total expenditure per student in the Flemish Community. In the Flemish Community, higher education institutions charge tuition fees, the level of which is determined by legislation. Public and government-dependent private institutions charge full-time bachelor's and master's students a maximum fee of around EUR 1 000 per year.

The share of funding from private sources other than households was 6% in 2015 (Figure 10.3), a proportion below the median of OECD countries, and well below that of the Netherlands. However, there are signals that Flemish higher education institutions are able to connect to the private sector to obtain funding for specific projects (Box 10.1).

Box 10.1. Private third party funding in Flemish institutions

Relative to other European countries, Flemish higher education institutions receive a large amount of private third party funding, i.e. revenue from private sources earmarked for specific activities and institutional units, typically through contracts, and often for research. Private third party funding accounted for 13% of current revenues in Flemish universities in 2015, the highest share among European member countries of the OECD. In Flemish professional HEIs, this share was much lower (3%), but it was the second highest across countries with available data.

Figure 10.a Private third party funding in higher education, as a proportion of current revenues (2015)



Note: CHE = Switzerland; DEU = Germany; EST = Estonia; GBR = United Kingdom; ITA = Italy; LVA = Latvia; NLD = Netherlands; NOR = Norway; POL = Poland; PRT = Portugal; SWE = Sweden; VLG = Flemish Community.

Source: European Tertiary Education Register (ETER) (2019^[4]), *ETER Database*, www.eter-project.com/.

StatLink <https://doi.org/10.1787/888933942431>

The high proportion of third party funding in the Flemish Community is consistent with the high reported level of collaboration between business and higher education institutions in Belgium (Section 10.4.1). However, because of the differences in methodology and coverage, it is not comparable to the share of non-household education expenditure presented in Figure 10.3.

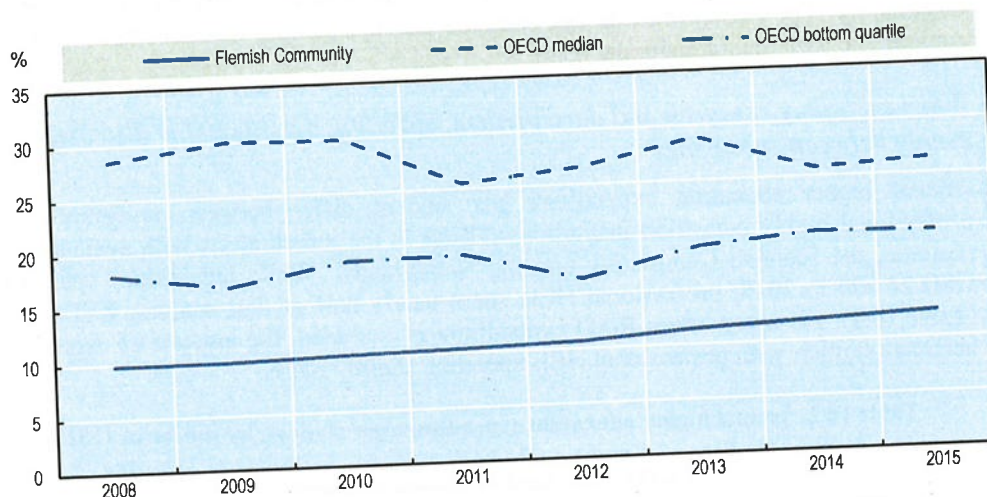
High emphasis on R&D activities in higher education institutions

Flanders spent 0.5% of its GDP on R&D activities in the higher education sector in 2016, which was in the top quartile of OECD countries. In addition, annual higher education expenditure on R&D activities on a per student basis was USD 7 000 in 2015, which was

institutions increased steadily between 2008 and 2015, from 10 to 12%, but remained among the lowest among OECD countries throughout this period (Figure 10.2).

Figure 10.2. Higher education expenditure from private sources (2008-2015)

As a share of total expenditure on higher education institutions

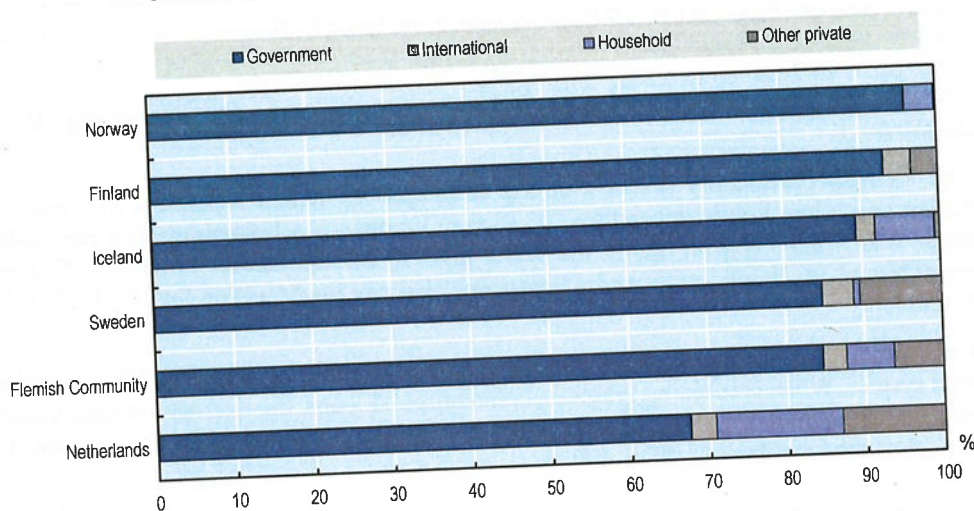


Note: Private sources include both households and other non-educational private sources.

Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942336>

Figure 10.3. Share of higher education expenditure, by source (2015)



Source: Adapted from OECD (2018^[3]), *OECD Education Statistics*, <http://dx.doi.org/10.1787/edu-data-en>; data provided by the Flemish Ministry of Education and Training.

StatLink  <https://doi.org/10.1787/888933942355>