CHAPTER 1: EUROPEAN HIGHER EDUCATION AREA KEY DATA

The 2020 Rome Communiqué

The 2020 Rome Communiqué, adopted by Ministers of Higher Education of the European Higher Education Area (EHEA) in the Rome Ministerial Conference in November 2020, outlines a vision for 'building an inclusive, innovative and interconnected EHEA by 2030, able to underpin a sustainable, cohesive and peaceful Europe' and commits to 'overcoming the social inequities that still limit the achievement of a fully inclusive EHEA' ([1]).

Chapter outline

This chapter provides information on the framework conditions for higher education in the different countries of the EHEA. The aim is to give insight on the evolution of these conditions in the context of the Bologna Process implementation across the EHEA through statistical data on key features of European higher education. The topics covered are: evolution of student and staff involvement; access, participation and employability of higher education students; changes in the number of higher education institutions; evolution of public funding in higher education.

Technical note

The comparative overview is based on a five-year period. Data has been produced for reference years between 2016 and 2021 (the most recent year with statistical data available).

Key messages

- The EHEA has seen a rise of total student numbers, reaching more than 32.9 million students in 2021. This is an increase of more than 3 million students compared to 2016/2017. Türkiye, Germany, the United Kingdom and France account for about 53°% of the EHEA student population.
- The median enrolment rate in the EHEA raised from 15.9°% (2016) to 16.9°% (2021) indicating an overall increase of the enrolment rates in EHEA. In 2021 half of the countries registered an enrolment rate of above 16.9°%.
- The EHEA median slightly increased (55 % in 2021 compared to 54 % in 2016). Male entrants are still under-represented in higher education.
- In 2022, in 92°% of the countries, foreign-born students registered lower participation compared to native-born counterparts with large disparities observed in southern European countries.
- The number of academic staff increased in most of the countries (85.6°%). The share of female staff in 2021 has increased in most of the countries (82.9%).

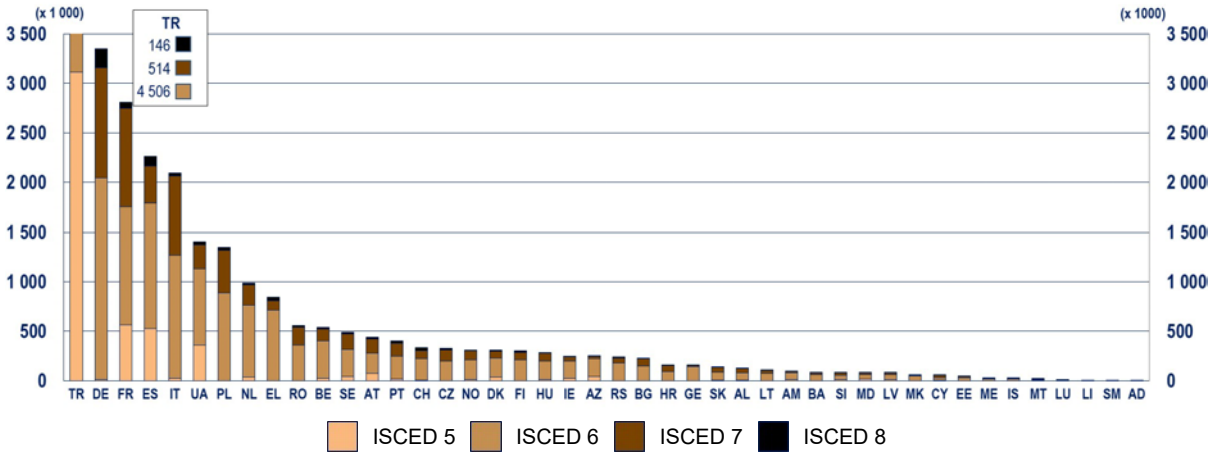
([1]) Rome Ministerial Communiqué, 19 November 2020.

- The number of higher education institutions increased to 4376 in 2022. The number of public higher education institutions increased in a third of the countries with available data.
- in 2020, the median EHEA annual (public and private) expenditure on tertiary education institutions was 11 367 (PPS) per full-time equivalent student. The ratio of public and private expenditure per full-time equivalent student and GDP per capita decreased in 14 countries.

1.1. Student population

Figure 1.1 shows the number of students enrolled in tertiary education in 2020/2021, and the share in each ISCED level between ISCED 5 and ISCED 8. ISCED 5 corresponds to short-cycle programmes, ISCED 6 to first-cycle programmes (bachelor programme or equivalent), ISCED 7 to second cycle (master programme or equivalent) and ISCED 8 to third-cycle programmes (doctoral or equivalent).

Figure 1.1: Number of students enrolled in tertiary education by ISCED level, 2020/2021



(x 1 000)	TR	DE	FR	ES	IT	UA	PL	NL	EL	RO	BE	SE	AT	PT	CH
ISCED 5	3 115	11.0	565.7	524.3	23.1	357.0	0.5	33.8	0.0	0.0	25.1	41.0	74.1	18.1	3.3
ISCED 6	4 506	2 032	1 186	1 263	1 245	770.6	884.8	730.8	715.1	359.3	379.3	275.3	203.2	231.1	221.8
ISCED 7	514.2	1 116	992.7	377.9	795.7	247.6	431.9	206.2	95.0	178.1	116.6	155.1	141.7	131.0	80.6
ISCED 8	145.7	192.3	65.1	95.8	33.3	26.7	30.6	16.9	33.7	23.1	18.8	19.1	19.4	23.5	26.7
	CZ	**NO**	**DK**	**FI**	**HU**	**IE**	**AZ**	**RS**	**BG**	**HR**	**GE**	**SK**	**AL**	**LT**	**AM**
ISCED 5	1.0	10.7	35.7	0.0	11.8	22.7	41.5	0.0	0.0	0.0	0.0	2.4	5.8	0.0	12.3
ISCED 6	198.7	198.0	193.9	210.6	183.2	175.2	180.6	180.0	147.8	91.9	139.2	83.2	74.4	75.2	69.0
ISCED 7	107.2	93.5	69.4	76.0	82.4	42.1	23.8	51.2	72.0	65.1	17.5	48.8	41.5	27.0	10.6
ISCED 8	21.8	9.3	9.2	18.7	10.1	9.5	3.2	11.4	6.6	4.0	3.8	6.6	2.0	2.7	0.9
	BA	**SI**	**MD**	**LV**	**MK**	**CY**	**EE**	**ME**	**IS**	**MT**	**LU**	**LI**	**SM**	**AD**	
ISCED 5	0.0	10.6	14.7	14.1	0.0	3.8	0.0	0.0	0.8	2.4	0.9	0.0	0.0	0.0	
ISCED 6	59.1	45.9	44.8	44.2	50.9	23.2	27.5	19.5	14.8	9.3	3.1	0.4	0.8	0.6	
ISCED 7	22.5	22.8	18.8	18.2	3.9	24.9	15.2	3.1	5.8	6.1	2.8	0.3	0.1	0.1	
ISCED 8	1.2	3.5	2.3	2.0	0.5	1.7	2.3	0.1	0.7	0.6	0.9	0.2	0.0	0.0	

NB: >1000 (x 1000) no decimals; <1000 (x 1000): 1 decimal

Data not available for ISCED 5: BG, EE, EL, LT, RO, FI, BA, GE, ME, MK, RS, SM: ISCED.

LI: Zero or negligible value for ISCED 5.

KZ, VA: No data available.

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the total number of students in tertiary education. The graph is scaled to 3 million for readability.

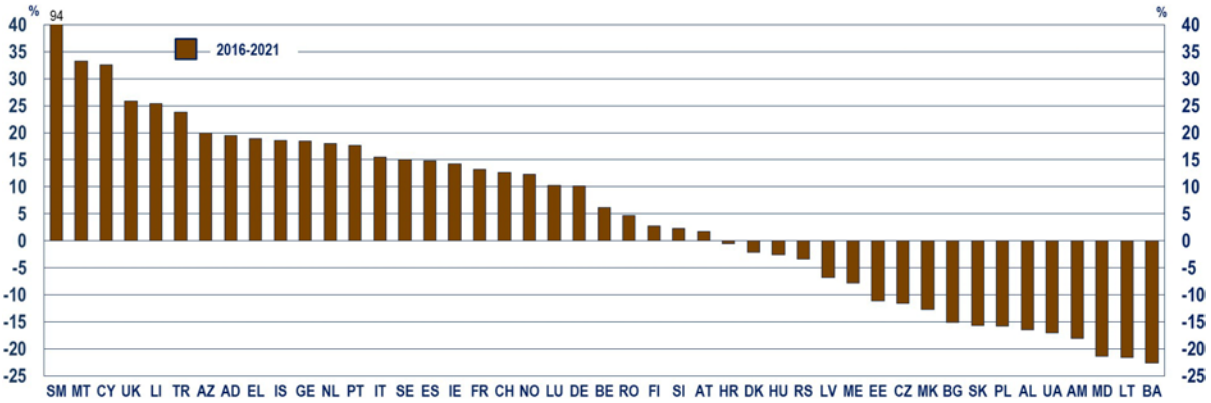
There were about 32.9 million tertiary education students enrolled in the EHEA in the academic year 2020/2021. Türkiye (8.2 million) and Germany (3.4 million), which both have a total population close to 85 million, accounted for the highest number of tertiary education students - equivalent to about 35 % of the EHEA total student population. It is noticeable that Türkiye has an ISCED 5 student population that exceeds the combined total ISCED°5 population of the rest of the EHEA, and at ISCED°6 level had the larger number of (bachelor) students. The United Kingdom (2.9 million), and France (2.8 million), had the next largest student populations followed by Spain and Italy– each accounting for more than 2 million students in tertiary education. These six countries accounted for about 66 % of the total student population in the EHEA. Ukraine and Poland had more than 1 million students, while nearly 9°% of the countries with available data had more than 500 000 students in tertiary education. In the remaining EHEA countries with available data (73°%), the average number of students was above 166 000.

Overall, across the EHEA, most tertiary students (58.8 %) were enrolled in first-cycle programmes (bachelor programmes), while 21.7°% were enrolled in second-cycle programmes (master's degree or equivalent level), and 16% in short-cycle tertiary education. Just 3 % of tertiary students were enrolled in third-cycle programmes (doctoral or equivalent).

Figure 1.2 shows the percentage change in the number of students enrolled in tertiary education over a five-year period between (2016/2017) and the most recent (2020/2021) time points in the Bologna Process.

Looking at the variations in the total student population within the EHEA over the observed period the pattern across countries differs. For all education levels considered, the largest percentage increase in the number of enrolled students took place in San Marino (93.8°%), followed by Malta (33.2°%), and Cyprus (32.6°%), while the largest decrease was registered in Bosnia°and°Herzegovina (22.7°%). The total percentage increase registered in EHEA was 11°% with more than half of the countries reporting an increase above 6.2°%.

Figure 1.2: Percentage change in the number of students enrolled in tertiary education, 2016-2021



%	SM	MT	CY	UK	LI	TR	AZ	AD	EL	IS	GE	NL	PT	IT	SE
2016-2021	93.8	33.2	32.6	25.9	25.5	23.8	20.0	19.5	18.9	18.5	18.5	18.0	17.7	15.5	15.1
	ES	**IE**	**FR**	**CH**	**NO**	**LU**	**DE**	**BE**	**RO**	**FI**	**SI**	**AT**	**HR**	**DK**	**HU**
2016-2021	14.9	14.3	13.3	12.6	12.3	10.2	10.1	6.2	4.7	2.8	2.4	1.7	-0.6	-2.1	-2.7
	RS	**LV**	**ME**	**EE**	**CZ**	**MK**	**BG**	**SK**	**PL**	**AL**	**UA**	**AM**	**MD**	**LT**	**BA**
2016-2021	-3.4	-6.8	-7.9	-11.2	-11.6	-12.7	-15.1	-15.7	-15.8	-16.5	-17.0	-18.1	-21.4	-21.6	-22.7

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the percentage change in the number of students in tertiary education (2016-2021).

More than a third of the countries for which data are available experienced a decrease of the enrolment rates during the same period. The steepest decreases were registered in Bosnia and Herzegovina (22.7%), Lithuania (21.6%), Armenia (18°%), Ukraine (17°%), followed by Bulgaria, Poland, and Slovakia (more than 15%) and Czechia, Estonia, and North Macedonia (more than 11%).

Compared to the earlier time point in the Bologna process (2000 and 2016/2017 period), during the observed period (2016/2017 – 2020/2021), the student population continued to increase in 50°% of the countries. These countries include those with the largest student populations (Türkiye, Germany and France) which have seen significant increases. Meanwhile in 10°% of the countries the levels of student enrolment remained the same. However, the enrolment rates in Bulgaria, Latvia, Poland, and North Macedonia continued to decrease.

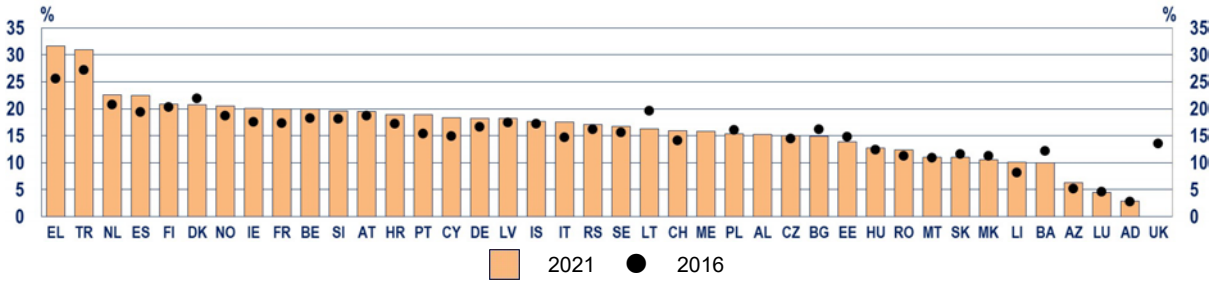
These changes over time should be viewed in combination with other factors, such as policy changes and reforms in the education area, which may have had an impact upon the conditions to participate in higher education and the human and financial resources required for the functioning of education systems.

To understand the structure of the (higher) education systems it is also important to bear in mind, for example, whether short-cycle tertiary programmes exist, and whether part-time study is facilitated. Country-specific characteristics, national policies aimed at increasing tertiary entry and completion rates, financing provided to institutions and students are all important features to consider in relation to this data. The Leuven/Louvain-la-Neuve Communiqué (2009) ([2]) specified the concept of lifelong learning, stating that 'lifelong learning implies that qualifications may be obtained through flexible learning paths, including part-time studies, as well as work-based routes'.

Changes in economic and learning conditions also influence the desire and ability of young people to enrol in higher education. Institutional conditions are also relevant and include: (a) admission rules and procedures, (b) the cost/benefit analysis involved in acquiring higher education – such as fees, financial support, employment rates of graduates, and (c) the length of studies.

Figure 1.3 presents the change in enrolment rates in tertiary education between 2016/2017 and 2020/2021 for students aged 18-34, the typical age for attending higher education. The indicator thus shows the share of the population aged 18-34 that studies in tertiary education.

Figure 1.3: Enrolment rates in tertiary education for the 18-34 olds, 2016/2017-2020/2021



%	EL	TR	NL	ES	FI	DK	NO	IE	FR	BE	SI	AT	HR	PT	CY	DE	LV	IS	IT	RS
2021	31.7	31.0	22.6	22.5	20.9	20.8	20.5	20.1	20.0	19.9	19.6	19.5	18.9	18.9	18.4	18.2	18.2	17.6	17.6	17.1
2016	25.7	27.2	20.8	19.4	20.4	22.0	18.7	17.6	17.4	18.3	18.2	18.7	17.3	15.4	14.9	16.7	17.5	17.3	14.8	16.2
	SE	**LT**	**CH**	**ME**	**PL**	**AL**	**CZ**	**BG**	**EE**	**HU**	**RO**	**MT**	**SK**	**MK**	**LI**	**BA**	**AZ**	**LU**	**AD**	**UK**
2021	16.8	16.3	16.0	15.8	15.4	15.3	15.0	15.0	13.9	12.7	12.4	11.1	11.0	10.6	10.1	10.0	6.3	4.5	2.8	–
2016	15.7	19.6	14.2	–	16.1	–	14.5	16.2	14.8	12.5	11.2	11.0	11.6	11.3	8.2	12.2	5.2	4.6	2.8	13.6

Source: Eurostat, UOE and additional collection for the other EHEA countries.

([2]) Communiqué of the Conference of European Ministers Responsible for Higher Education, Leuven and Louvain-la-Neuve, 28-29 April 2009, p.3

Notes:

Countries are arranged by the share of enrolment rates for students aged 18-34 for 2021 when data for two reference years are available.

EHEA: Refers to the EHEA median calculated based on countries with available data for both reference years.

The median enrolment rate in the EHEA raised from 15.9°% (2016) to 16.9°% (2021), indicating that in 2021 half of the countries analysed registered an enrolment rate higher than EHEA median and an increase compared to 2016. Greece registered the highest increase of 6 percentage points, followed by Türkiye, Portugal and Cyprus. In half of the countries, the enrolment rates in 2021 increased compared to 2016 and were above the EHEA median. In about a third of the countries the enrolment rates increased but stayed below the EHEA median in 2021. In 2021, Denmark, Greece, Finland and the Netherlands maintained an enrolment rate above 20 %, while the increased enrolment rates in Ireland and Norway make them part of this group of countries in 2021. The next highest rates for 2021 were in Austria, Belgium, France and Slovenia, where more than 19 % of persons aged 18-34 studied in tertiary education. The lowest rates (below 5 %) were recorded in Luxembourg and Andorra although for these two countries most students aged 18-34 studied abroad.

Overall, across EHEA countries, enrolment rates have continued to rise. Considering these findings, the COVID-19 pandemic seems to have had the impact of strengthening demand for higher education, as enrolment rates in most EHEA countries have grown. However, there was also a negative impact on the willingness of the students to undertake mobility activities, which is discussed in Chapter 6 of this report.

1.2. Statistical data on access and participation

This sub-section presents statistical data on higher education students related to the following characteristics: the impact of parental education on higher education participation, gender balance, participation of migrant and mature students in higher education, and data on part-time students.

1.2.1. Access and participation

Central to the social dimension of the Bologna Process is the aim that the student body should reflect the diversity of the population, and that the background of students should not have an impact on their access to and participation in higher education. Given the diversity of socio-economic and cultural realities across the EHEA, each country decides which characteristics to take into account when comparing the composition of the student body with the total population. The societal groups which are identified as under-represented in higher education therefore also differ between countries.

Nevertheless, some common themes are inevitable across countries: low socio-economic background (in the form of low income or the low educational background of parents), gender, immigrant status and disability are often taken as main aspects of disadvantage. It is crucial to recognise the importance of development and implementation of inclusion policies[3] as well as lifelong learning strategies for adjustment with individual and labour market needs, 'where higher education institutions play a central role in transferring knowledge and strengthening regional development, including by the continuous development of competences and reinforcement of knowledge alliances' ([4]). Mature students are specifically targeted in many countries, as students from under-represented groups that may be encouraged to enter higher education with a delay.

([3]) EURASHE's statement for the European Higher Education Area ministers' conference in Rome 2020

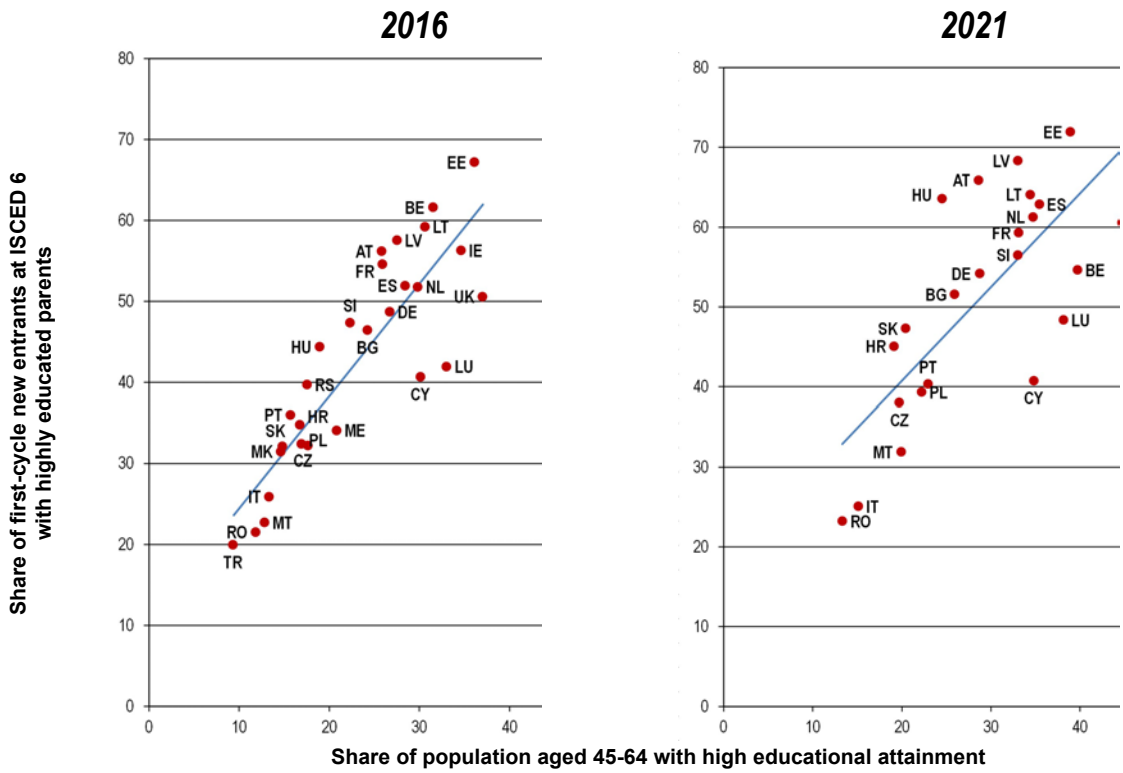
([4]) Bucharest Communiqué 2012, p.2

Parental background

The educational background of parents is one of the most important factors influencing the chances of learners to participate in higher education. Previous editions of the BPIR have observed that students with parents with tertiary educational attainment are most-likely to engage in higher education study programmes (European Commission / EACEA / Eurydice. 2020). However, differences may exist among education systems in this regard.

Figure 1.4 depicts first-cycle new entrants with parents of high educational attainment, and the corresponding proportion of people with high educational attainment (ISCED 5-8) in the hypothetical parents' cohort.

Figure 1.4: Relationship between the educational background of first-cycle new entrants (ISCED 6) and the educational attainment of their parents' cohort (population aged 45-64), 2016 and 2021



Source: Eurostat, EU-LFS.

Notes:

High educational attainment: ISCED 5-8. For definitions of ISCED levels, see the Glossary and Methodological Notes.

New entrants: Students who are entering any programme at a given level of education for the first time.

Students with higher education background: Parents' highest degree is at ISCED level 5-8. Students without higher education background: parents' highest degree is at ISCED level 0-4. For definitions of ISCED levels, see the Glossary and Methodological Notes.

As seen from both scatterplots, there is a very clear linear relationship, around 0.86 and 0.82 in 2016 and 2021 respectively. Hence, the overall situation is similar in both years. Countries are clustering around the trend line denoting that the share of new entrants with highly educated parents among all newly first-cycle entrants depends strongly on the high educational attainment of their parent's cohort. The figure shows a very clear relationship between the overall proportion of the highly educated within the population aged 45-64 and the share of new first-cycle entrants with highly educated parents, with very few differences in 2016 and slightly higher divergencies in 2021 among countries. However, compared to 2016, there are changes in the proportion between first-cycle new entrants and the

percentage of people aged 45-64 with high educational attainment. In most of the countries for which data are available, in 2021 compared to 2016 the share of first-cycle new entrants and the corresponding percentage of people aged 45-64 with high educational attainment increased. A slight decrease in share of first-cycle new entrants in 2021 compared to 2016 is observed in Belgium (1 percentage points) and Italy (0.8 percentage points).

In Hungary, a share of first-cycle entrants above 60 % corresponds to a quarter of the population with high educational attainment, indicating that in this country a higher number of students from families with lower educational attainment have accessed higher education. Compared to 2016, in Hungary the first cycle entrants' share has increased by 19 percentage points while the share of the population aged 45-64 with high educational attainment increased by 5.6 percentage points, confirming a trend of increasing entry in higher education of students from diverse family backgrounds. In Ireland, the share of first-cycle entrants in 2021 increased by 10 percentage points while the share of the people aged 45-64 increased by 4 percentage points, also indicating access to higher education of students from a broader family background compared to 2016. Conversely, in Estonia the share of first-cycle entrants is slightly more than a third of the population, while the share of people aged 45-64 is around 70%, indicating that compared to other countries, a higher share of students from a family background with high education attainment has accessed higher education studies.

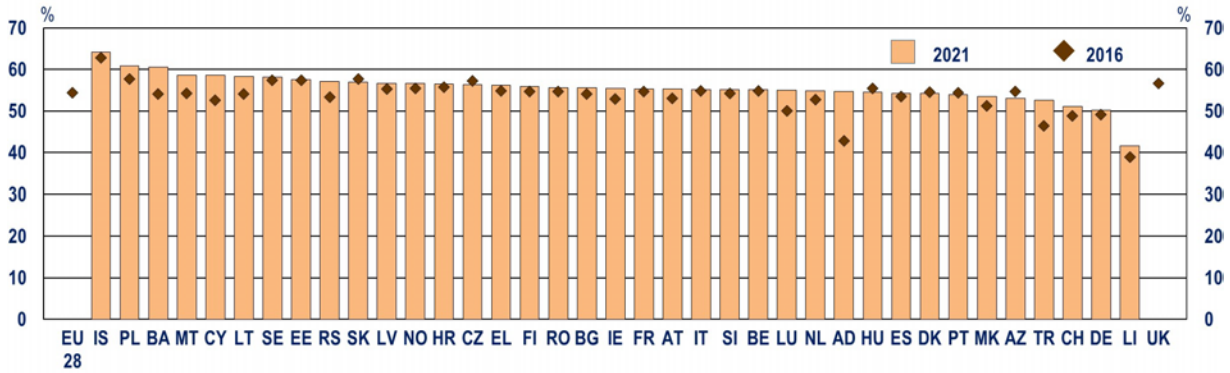
In the countries with a share of new entrants higher than 50 % the corresponding share of parents with a high educational attainment level is around a third of the population or in some cases even higher. This group of countries corresponds to 56.5°% of the countries with available data. Thus, it would seem that the educational background of parents is still a robust predictor of whether young people are likely to participate in higher education.

Gender balance

Equal opportunities for men and women to participate in higher education is a central concern of the social dimension within the Bologna Process. It is important to consider not only trends regarding overall numbers, but also gender distribution in different fields of study. Figure 1.5 illustrates the share of women among new entrants in tertiary education in 2016 and 2021.

Figure 1.5 shows the percentage of women among new entrants in tertiary education in 2016 and 2021. As the figure demonstrates, in 2016, the share of female entrants was high in nearly all countries (87.8 % of the countries for which data are available). In 2021 female students are in a majority in every EHEA country except Liechtenstein. The share of countries where women entrants are a majority increased.

Figure 1.5: Share of women among new entrants in tertiary education (ISCED 5-8), 2016 and 2021



Source: Eurostat, UOE and additional collection for the other EHEA countries.

	EU 28	IS	PL	BA	MT	CY	LT	SE	EE	RS	SK	LV	NO	HR	CZ	EL	FI	RO	BG	IE
2021	-	64.3	60.9	60.5	58.7	58.6	58.4	58.2	57.6	57.1	57.0	56.7	56.7	56.4	56.4	56.3	55.9	55.6	55.5	55.4
2016	54.5	62.8	57.7	54.1	54.3	52.5	54.1	57.5	57.4	53.4	57.7	55.3	55.5	55.8	57.2	54.9	54.6	54.7	54.1	52.9
	FR	**AT**	**IT**	**SI**	**BE**	**LU**	**NL**	**AD**	**HU**	**ES**	**DK**	**PT**	**MK**	**AZ**	**TR**	**CH**	**DE**	**LI**	**UK**	
2021	55.3	55.3	55.2	55.2	55.2	55.0	54.8	54.8	54.5	54.3	54.3	53.9	53.5	53.0	52.6	51.1	50.2	41.6	-0	
2016	54.7	53.1	54.8	54.2	54.9	50.0	52.8	42.9	55.4	53.5	54.6	54.5	51.2	54.6	46.4	48.9	49.2	38.9	56.6	

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

EHEA: Refers to the EHEA median, which was calculated based on countries with available data for both reference years.
New entrants: Students who are entering any programme at a given level of education for the first time.

The share of women among new entrants in 2021 was the highest in Iceland, Poland, and Bosnia°and°Herzegovina - above 60 % in all three countries.

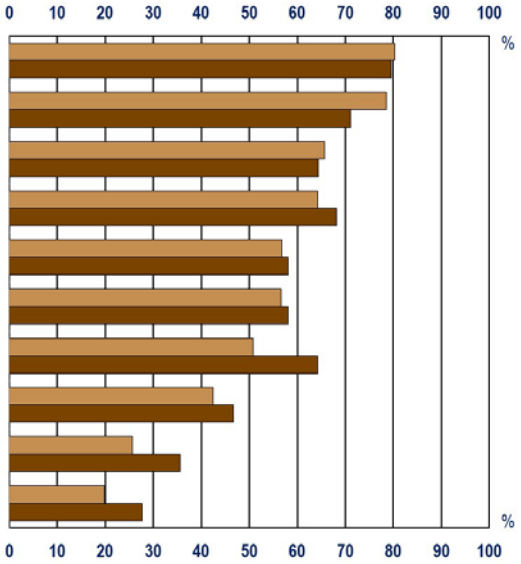
In Switzerland, Germany, Andorra and Türkiye where the male entrants were a majority in 2016, the female participation increased to a level above 50 %. As the figure demonstrates, looking at the change compared to 2016, the EHEA median slightly increased (55 % in 2021 compared to 54 % in 2016). This indicates that the trend for men to be under-represented in higher education has grown during this five-year period.

The highest increases of female new entrants were observed in Andorra (27.7 %), followed by Türkiye (13.4 %), Bosnia and Herzegovina (11.9 %) and Cyprus (11.5 %). The highest decrease was registered in Azerbaijan (2.9 %).

While the overall change in the share of female and male students' participation is an important consideration, a clearer picture emerges through analysis of gender shares in different study fields.

Figure 1.6 depicts the median share of women among enrolled students in the first and second cycle by field of education.

Figure 1.6: Median percentage of women among enrolled students in Bologna structures by field of education and level of Bologna structure (ISCED 6 and 7), 2021



	ISCED 6	ISCED 7
Education	80.3	79.6
Health and welfare	78.6	71.1
Arts and humanities	65.7	64.3
Social sciences, journalism and information	64.3	68.2
Natural sciences, mathematics and statistics	56.8	58.0
Business, administration and law	56.7	58.0
Agriculture, forestry, fisheries and veterinary	50.8	64.3
Services	42.5	46.7
Engineering, manufacturing and construction	25.6	35.6
Information and Communication Technologies	19.8	27.7

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

The country coverage varies across different study fields (see the Glossary and Methodological Notes).

Median percentage of women among enrolled students in Bologna structures by field of education and level of Bologna structure (first and second cycle, ISCED 6 and 7), 2017[5]

Field of education	ISCED 6	ISCED 7
Education	78.6	79.4
Health and welfare	76.0	68.7
Arts and humanities	65.2	65.2
Social sciences, journalism and information	64.4	67.4
Business, administration and law	56.4	56.7
Natural sciences, mathematics and statistics	56.0	58.3
Agriculture, forestry, fisheries and veterinary	45.1	61.3
Services	44.0	43.6
Engineering, manufacturing and construction	25.5	33.1
Information and Communication Technologies	17.8	24.2

Source: Eurostat, UOE and additional collection for the other EHEA countries.

In education and health and welfare fields the gender gap is more evident with both fields accounting for above 70°% at ISCED°6 level and almost the same proportion for ISCED°7 level. In another four education fields, female representation is above 50% at both education levels. The opposite trend can be seen regarding female participation in information and communication technologies, as well as in engineering, manufacturing, and construction – both fields of study where women are strongly under-represented. Here female participation is significantly higher in the second cycle than in the first. Interestingly, in the field of agriculture, forestry, fisheries and veterinary, in 2017 men outnumber women at ISCED 6 education level while the ISCED 7 education level registers a share of female participation at 61.3% with women thus significantly outnumbering men. However, a high increase in female participation was registered in the field of agriculture, forestry, fisheries and veterinary, where the share of women participation increased and became higher than the men's share at bachelor's level.

In 60 % of the fields, the percentage of women was higher in the second cycle. The share was equal, or almost equal in arts and humanities, and services. Only in health and welfare, was the median share substantially lower in the second cycle (71.1 %) than in the first (78.6 %) – despite still being very high. Compared to 2017, the trends are similar.

Migrant status

Having a migrant background is also an important factor influencing the chances of learners accessing higher education, especially if it coincides with low parental education. Immigrants and children of immigrants might lack the sufficient cultural, economic and social capital, which have important effects on educational success (see e.g., Griga and Hadjar, 2014).

It is difficult to gather comparable and representative information on the participation of migrant students in higher education. Eurostat data presented in Figure 1.7 uses the country of birth as the criterion defining migrants, and this has two major limitations. Firstly, the group of foreign-born students includes not only migrants who become students, but also students who moved to the country for the purposes of study, i.e., mobile students. Not only does the concept of 'foreign born' mix

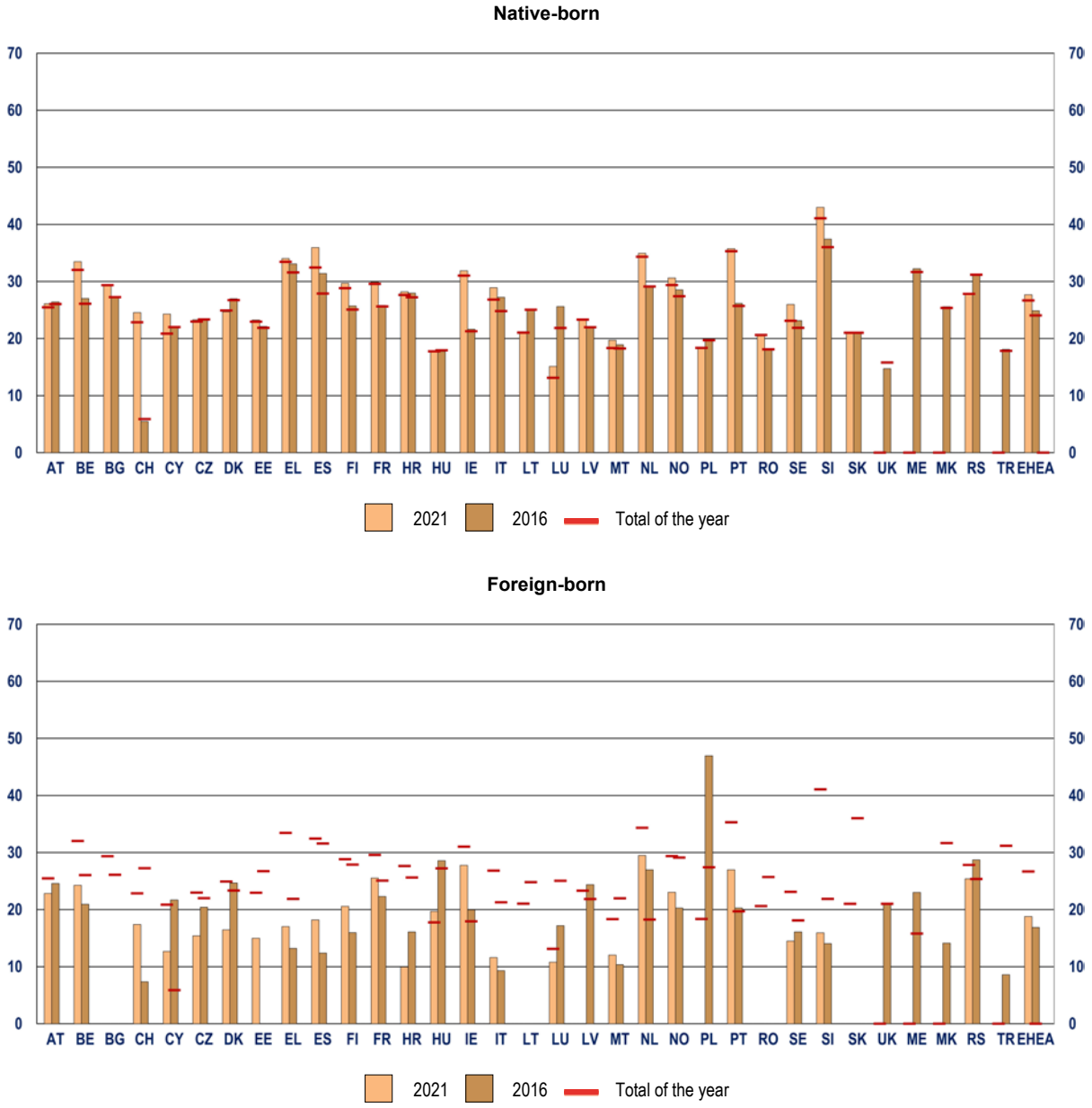
(5) Data for 2016 is not available

groups with very different characteristics, but when numbers of mobile students are substantial, as they are in several countries, the picture is distorted.

The second limitation of this data are that children of immigrants born in the country (often referred to as 'second-generation immigrants') are excluded. For these reasons, data have to be interpreted with caution.

Figure 1.7 presents the participation rates in tertiary education of students aged 18 to 29 as a percentage of the respective total population based on their migration status, showing the situation in 2016 and 2021. The graph showing the foreign-born population thus provides the participation of the 18-29 year olds compared to the total foreign-born population in this age group, and similarly the graph below shows the participation of native-born 18-29 year olds as a proportion of the total native-born population in this age group. This enables clear comparison between the two groups.

Figure 1.7: Participation rates in tertiary education among people aged 18 to 29, foreign-born, native-born and total population, 2016 and 2021



In 2021, in 22 out of 25 countries with available data, the level of participation was lower for foreign-born students compared to native-born counterparts. In nine of these countries, the percentage difference was above 50°% and reached 96°% in Slovenia, where the native-born students largely outnumbered the foreign-born students. In 2016, significantly lower number of countries (19 out of 28 countries with available data), had lower participation of foreign-born students. In six of these countries the percentage difference was higher than 50°% with largest disparity registered in Türkiye (110°%). Greece, Italy, and Slovenia were part of this group of countries in 2016 and registered an increase of the disparity in 2021, reporting larger growth of the native-born student population with Slovenia registering an increase of the percentage difference by 48 percentage points. Spain remained with share of native-born students higher than foreign-born, however the disparity between the groups has strongly diminished (29 percentage points). Disparities are much more evident in southern Mediterranean countries with participation rates being more than twice as high for natives (Italy, Greece and Spain). The situation is completely opposite in the Netherlands, Poland and Montenegro for which the share of foreign-born students' rates was almost twice as high as that of native-born students in 2016. However, in 2021 the share of foreign-born students studying in the Netherlands decreased to become lower compared to the number of native-born students. Compared to 2016, in 2021 the foreign-born student population decreased by 12°%, while the native-born population increased by 0.9°%. The negative impact of COVID-19 pandemic, especially on the student mobility flows could be considered as a possible explanation for the decreased number of foreign-born students' participation.

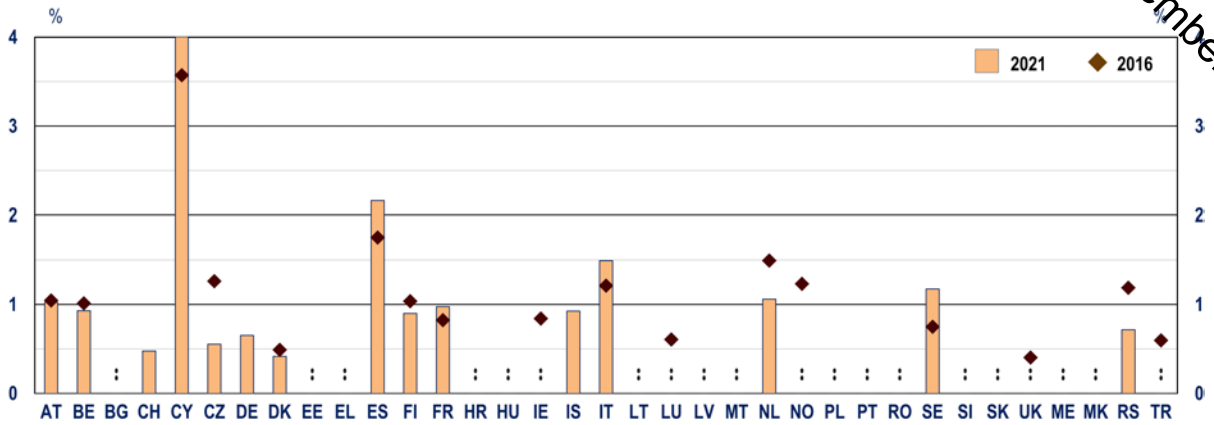
The most important output of higher education is higher education attainment. This means the proportion of the population having obtained a higher education qualification.

The higher education attainment indicates the proportion of the population having obtained a higher education qualification which is the main output of higher education.

Indicators looking at differences in the chances of students attaining higher education by migrant background have similar limitations as Figure 1.7. Data are not available by 'migrant background' as such. Eurostat data are limited to making differences between the foreign-born and the native-born. The indicator looks at the resident population with tertiary attainment, irrespective of the country of graduation. This means that it includes foreign-born young people who arrived in a given country after obtaining a tertiary degree. In addition, it is still not possible to evaluate the chances of second-generation immigrants, since they are classified among the native-born population.

Nevertheless, it is still interesting to examine the odds ratios of the native-born over the foreign-born to obtain a higher education degree. On Figure 1.8, when an odds ratio is higher than 1, it means that the native-born population have higher chances to attain higher education; when it is below 1, then the foreign-born population have greater odds to do so.

Figure 1.8: Tertiary education attainment of 25 to 34-year-olds by country of birth: odds ratio of native-born over foreign-born population to complete tertiary education, 2016 and 2021.



	AT	BE	BG	CH	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IS	IT
2021	1.02	0.93	:	0.48	5.72	0.55	0.65	0.42	:	:	2.16	0.90	0.98	:	:	:	0.92	1.49
2016	1.04	1.01	:	:	3.57	1.26	:	0.49	:	:	1.75	1.04	0.82	:	:	0.84	:	1.21

	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK	ME	MK	RS	TR	
2021	:	:	:	:	1.06	:	:	:	:	1.17	:	:	:	:	:	0.72	:	
2016	:	0.61	:	:	1.49	1.23	:	:	:	0.75	:	:	0.40	:	:	1.19	0.60	

Figure 1.8 reveals that the biggest differences between the native-born and the foreign-born population in their chances to attain higher education exist in Cyprus, where the native-born are more than five times (2021) more likely to obtain a higher education degree. Foreign-born young people also have significantly lower chances to attain higher education in Spain and Italy. At the other end of the scale, the native-born population have much lower odds to complete higher education than the foreign-born in Denmark, Switzerland, Serbia and Belgium.

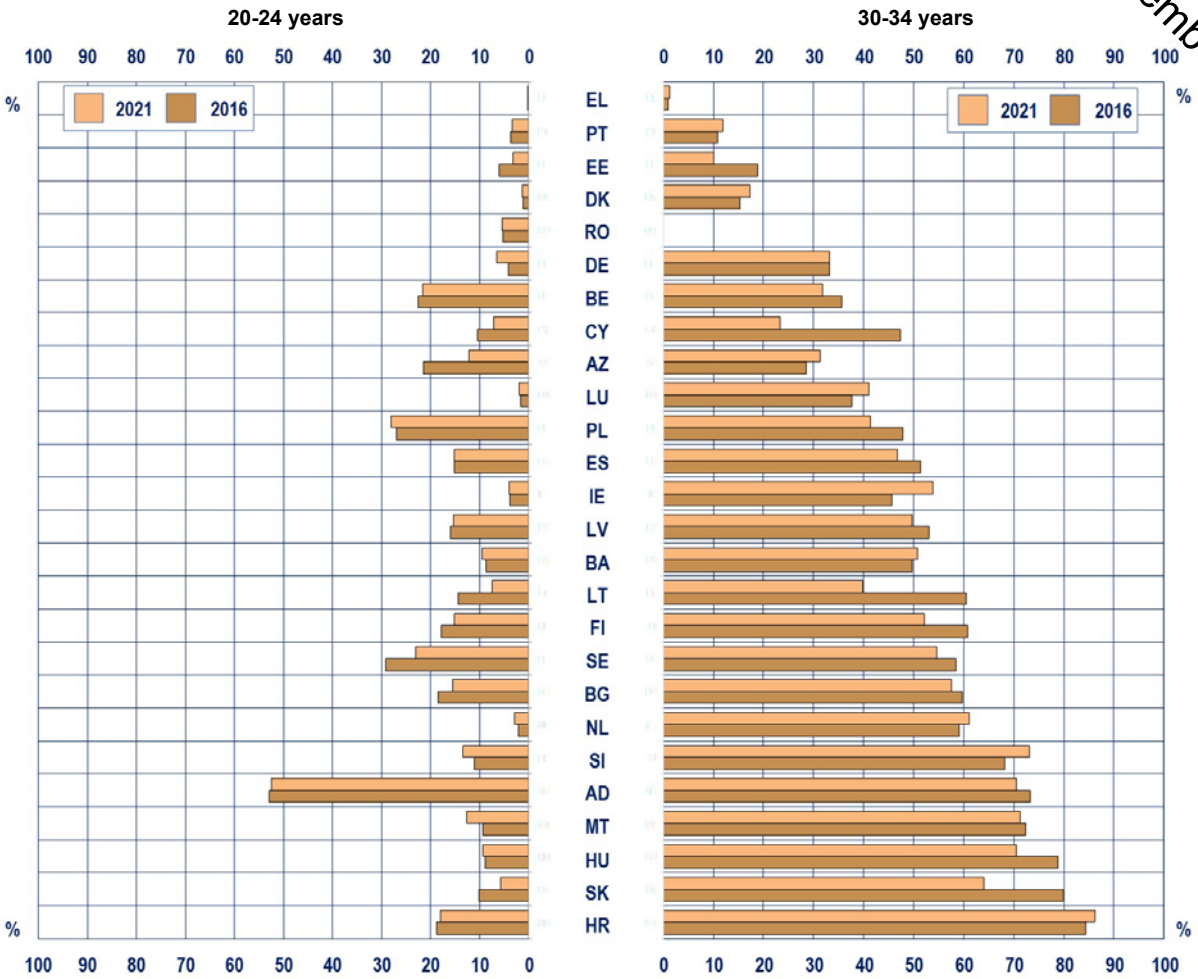
When looking at changes between 2016 and 2021 in the odds ratios, the most substantial decreases (indicating increases in the relative chances of the foreign-born population) took place in Czechia, the Netherlands and Serbia. In Czechia, while in 2016 the native-born population had higher odds to attain higher education, the situation reversed in 2021. The opposite is true for Cyprus: while the foreign-born had higher chances before to obtain a higher education degree, in 2021 the native-born have the higher odds. This trend is observed also in Spain, Italy and Sweden.

Part-time students

The opportunities for part-time studies in a higher education system are also linked to issues of social dimension. Full-time study may not be possible, or at least not very easy, for people from lower socio-economic background, for example: they may have to be in full-time employment during their studies, and part-time study may also be a more feasible option due to lower fees per academic year.

Figure 1.9 shows the percentage of students enrolled as part-timers among students aged 20 to 24 and 30 to 34.

Figure 1.9: Students enrolled as part-timers in tertiary education. by country and age (%), 2016 and 2021



	%	EL	PT	EE	DK	RO	DE	BE	CY	AZ	LU	PL	ES	IE
Y20-24	2021	0.1	3.3	3.1	1.2	5.5	6.5	21.6	7.2	12.1	1.9	28.1	15.1	3.9
	2016	0.1	3.7	6.0	1.1	5.3	4.1	22.6	10.4	21.4	1.6	27.0	15.2	3.8
Y30-34	2021	1.2	12.0	10.1	17.4	:	33.2	31.9	23.4	31.4	41.0	41.4	46.8	53.9
	2016	1.0	10.8	18.8	15.3	:	33.2	35.6	47.3	28.6	37.7	47.8	51.4	45.7
	%	LV	BA	LT	FI	SE	BG	NL	SI	AD	MT	HU	SK	HR
Y20-24	2021	15.3	9.5	7.5	15.2	23.1	15.4	2.8	13.4	52.5	12.7	9.4	5.7	18.0
	2016	15.9	8.6	14.3	17.8	29.2	18.5	2.0	11.1	52.9	9.3	8.9	10.1	18.8
Y30-34	2021	49.7	50.7	39.8	52.2	54.6	57.5	61.1	73.2	70.5	71.2	70.5	64.0	86.3
	2016	53.0	49.7	60.5	60.7	58.4	59.7	59.1	68.2	73.2	72.4	78.8	79.9	84.3

Source: Eurostat, UOE custom extraction and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the participation of mature students (30-34 years old) in part-time studies in 2017.

As illustrated, the older the students are, the more likely they are to study part-time. On average, the share of part-time students in the older age group is more than 3.8 times higher than for the younger age group across most countries for which data are available in 2021. In Czechia, Denmark, Greece, Ireland, Luxembourg, the Netherlands and Slovakia, the share of part-timers in the older age group is more than ten times higher than among younger students, with Czechia registering the larger difference (94.7%). Compared to 2016, the share of part-time students increased the most in Croatia, Hungary, Ireland, Malta, the Netherlands, Slovenia and Slovakia, reaching more than 50 percentage points difference between the two age cohorts.

Behind the above general pattern, there are substantial differences between countries. In 2021, the share of part-time students in the age group 30-34 varied between 1.1 % in Greece to 80 % in Croatia. In 11 countries, part-time students in the older age group represented more than half of the students of the same age group. In Croatia more than 75 % of students aged 30-34 were part-timers in 2021, while in Slovenia, Malta, Hungary and Andorra the share was more than 70%. Countries with the highest proportion of young part-timers (aged 20-24) were Andorra (52.4%), and Poland (28%).

Figure 1.9 also indicates that part-timers aged 30-34 accounted for over 75°% in 2016 in three countries (Croatia, Hungary, and Slovakia). In 2021 only Croatia maintained the same level, while in the other two countries the level decreased. Decreases of part-timer students in this age-group also occurred in another 11 countries across the EHEA with Luxembourg registering a decrease of more than 20 percentage points and Andorra of more than 15 percentage points.

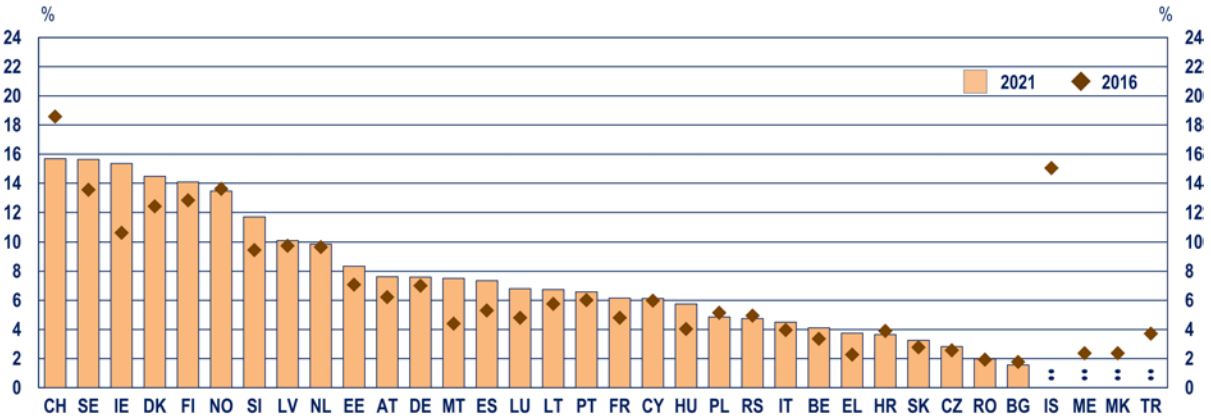
Similarly, the pattern between 2016 and 2021 is the same for younger part-timers (aged 20-24, with a decreasing trend recorded in 15 countries. The most pronounced decreases were observed in Azerbaijan (more than 9 percentage points), Lithuania (more than 6 percentage points), Bulgaria and Cyprus (more than 3 percentage points). On the other end of the scale, Malta had an increase in the share of part-time students in the age group of 20-24 (3.7 percentage points), while Germany and Slovenia had smaller increases.

Mature students

An important aspect of the social dimension is that higher education should be open to non-traditional learners who missed the opportunity to enter higher education when leaving secondary education. The number of over 30-year students can indicate different issues. First, it may be the result of longer study times in general, which has traditionally been the case in the Nordic countries, for example. Second, it can indicate the number of students with a delayed transition to higher education (starting studies at least two years after finishing secondary education). Also possible is a combination of these issues, for example in Germany (longer study times combined with longer school time and compulsory military service). The introduction of polices supporting adults' participation and the completion rates might have an impact on the size of the share of mature students. Policies might have been introduced only recently in some of the countries, or the completion rates of mature students in countries registering small share of mature students might have been low.

Figure 1.10 examines the proportion of 'mature' students in tertiary education who are aged 30 years or older in 2016 and 2021.

Figure 1.10: Adults (30-64) who attained their tertiary education degree during adulthood (aged 30-64) as a percentage of all adults (30-64)2016-2021



Source: Eurostat, EU-LFS

For 2021, the median proportion of adults aged 30-64 attaining their tertiary degree in adulthood was 6.7°%, which registered an increase compared to the median for 2016 (5.2°%). This finding indicates that in at least half of the countries, the adult participants in tertiary education were above 6.7°% of the total adult population. For 2021, the highest shares were registered in Switzerland and Sweden (15.6°%), followed by Ireland (15.3°%) and Denmark (14.5°%). In 73°% of the countries with available data, the share of adult students was below 10°% and in a quarter the share was below 5%. At the lower end of the scale, the percentage share was very low in Bulgaria (1.5°%) and Romania (1.9°%). Nordic countries are among the countries with highest shares of mature students.

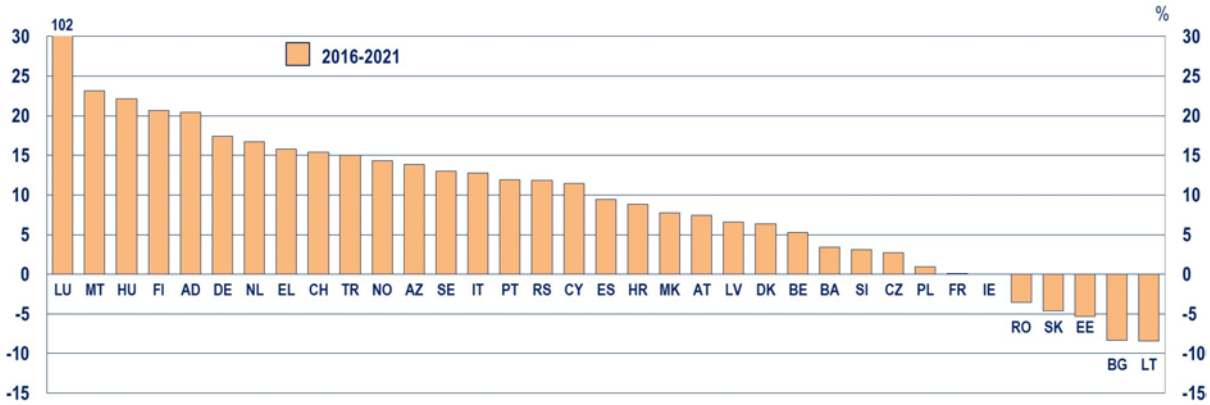
In 2016, 86°% of the countries with available data had a share of mature students below 10%, and most commonly less than 5°%. Bulgaria and Romania had a share of mature students of less than 2%.

Data analysis evidenced that compared to 2016, in 2021 the share of mature students significantly increased with Ireland registered the higher growth by almost 5 percentage points.

1.3. Academic staff

Section 1.1 showed the ways in which student enrolments have developed between 2016 and 2021 in the framework of the Bologna Process. This section focuses on the corresponding trends with regard to academic staff. Figure 1.10 presents the percentage change in the number of academic staff between 2016 and 2021.

Figure 1.10: Percentage change in the total number of academic staff in 2016 and 2021



%	LU	MT	HU	FI	AD	DE	NL	EL	CH	TR	NO	AZ	SE	IT	PT	RS	CY	ES
2016-2021	101.8	23.2	22.1	20.7	20.4	17.4	16.8	15.8	15.4	15.1	14.3	13.9	13.0	12.8	12.0	11.8	11.5	9.4
	HR	MK	AT	LV	DK	BE	BA	SI	CZ	PL	FR	IE	RO	SK	EE	BG	LT	
2016-2021	8.8	7.7	7.5	6.6	6.4	5.3	3.4	3.1	2.7	0.9	0.0	0.0	-3.6	-4.6	-5.3	-8.4	-8.4	

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the percentage change in the number of academic staff (2000). Where data are not available from 2000 they are presented from either 2005 or 2010.

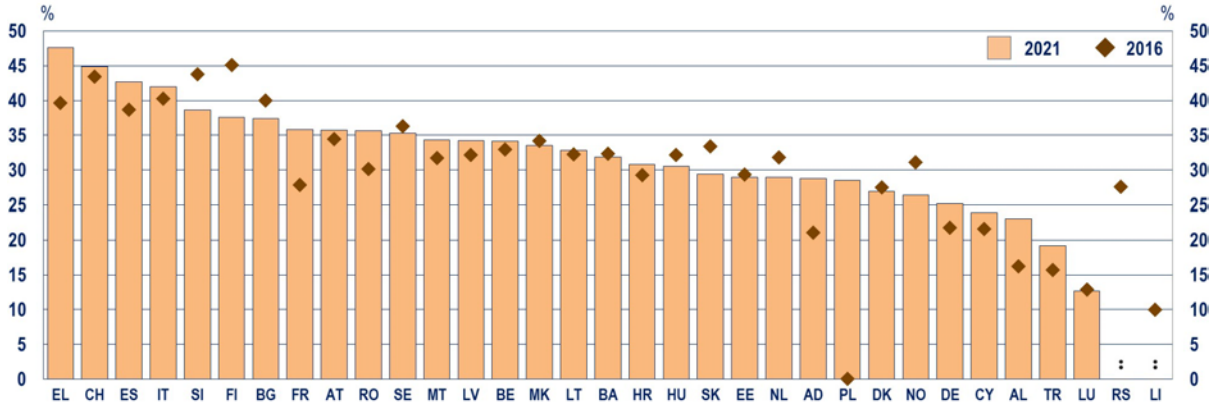
There has been an increase in academic staff in 28 of the 35 countries for which data are available. The largest increases occurred in Luxembourg (101.8%), followed by Andorra, Finland Hungary and Malta. Among the 5 countries which recorded a decrease, the largest decreases – both 8.4% - took place in Bulgaria and Lithuania.

Changes in the number of academic staff during the period do not necessarily match changes in the number of students enrolling in tertiary education (see Figures 1.2 and 1.3). In correspondence with the student enrolment rates, there was a slight decrease of academic staff compared to the enrolment rates in Luxembourg, Bulgaria, and Lithuania while the rates remained stable in Andorra. In Finland, Hungary and Malta there was a slight increase of academic staff rates compared to student enrolment rates. Romania recorded a decrease in academic staff numbers alongside an increase in the number of students. There were also 7 countries where an increase in the number of academic staff was accompanied by an increase in the number of students (Cyprus, Spain, Italy, the Netherlands, Norway, Portugal, and Sweden). However, in all of these countries, the increase in the student enrolment rates was larger than the increase in the number of academic staff.

Age is an important characteristic of academic staff, and particularly relevant in looking to system-level planning. It is an indicator for the preparedness of the education systems to ensure sufficient human capacity to renovate itself in the future.

Figure 1.11 presents the share of academic staff aged 50 and over for 2016 and 2021. This category is the most significant to consider as it represents the staff closest to the age of retirement.

Figure 1.11: Percentage of academic staff aged 50 or over, 2016 and 2021



	EL	CH	ES	IT	SI	FI	BG	FR	AT	RO	SE	MT	LV	BE	MK	LT	BA
2021	47.6	44.9	42.7	42.0	38.6	37.6	37.4	35.8	35.8	35.6	35.3	34.3	34.2	34.1	33.6	32.8	31.9
2016	39.7	43.5	38.7	40.2	43.8	45.2	40.0	27.9	34.5	30.1	36.3	31.7	32.2	33.0	34.2	32.2	32.4
	HR	**HU**	**SK**	**EE**	**NL**	**AD**	**PL**	**DK**	**NO**	**DE**	**CY**	**AL**	**TR**	**LU**	**RS**	**LI**	
2021	30.8	30.6	29.4	29.0	28.9	28.8	28.5	26.9	26.4	25.1	24.0	23.1	19.2	12.7	:	:	
2016	29.3	32.2	33.4	29.3	31.9	21.1	:	27.5	31.1	21.8	21.6	16.3	15.7	12.9	27.6	10.0	

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the percentage of academic staff aged 50 or over (2016-2021).

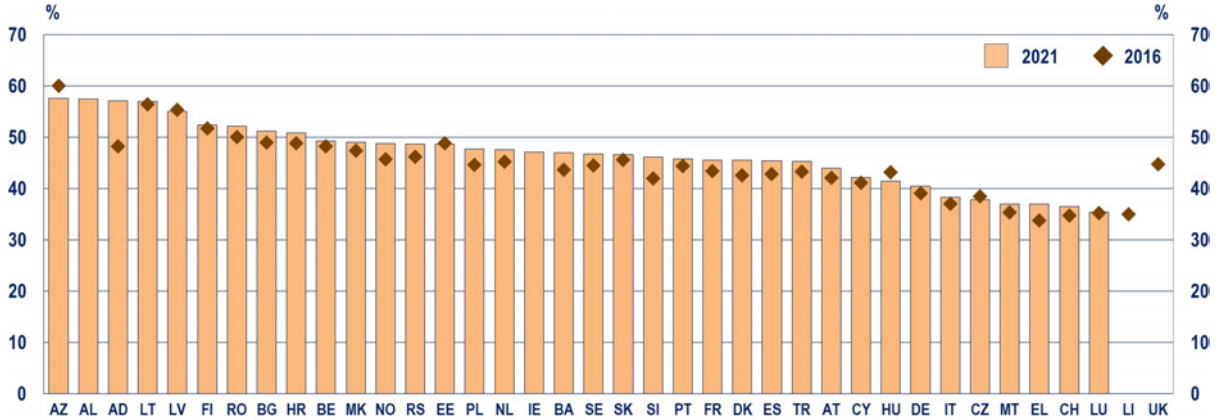
EHEA: Refers to the EHEA median calculated based on countries with available data for both reference years.

In 2021 the share of academic staff over 50 years old in Greece and Italy was above 50%. This share is also relatively high (between 40% and 50%) in 42% of the countries for which data are available. Potentially this might indicate the presence of issues in ensuring that the system has the human capacity to renew itself in the mid-term future. The percentage of academic staff aged 50 and over is less than 30% in Cyprus, Germany, and Türkiye. In these countries the 35-49 age group accounts for the largest proportion (more than 40 % of the staff in Cyprus and Türkiye and more than 30% in Germany), with Cyprus having 56% of the academic staff in this age group.

Compared to 2016, 42% of the countries with available data register a decrease in the share of academic staff aged over 50. Finland and Norway recorded a fall of more than 4 percentage points between these two years. Conversely, in Italy and Greece the number slightly increased.

Achieving an equitable gender distribution is also an important system-level consideration. Figure 1.13 portrays the gender distribution among academic staff showing the evolution of the share of female staff between 2016 and 2021.

Figure 1.12: Percentage of female academic staff, 2016 and 2021



%	AZ	AL	AD	LT	LV	FI	RO	BG	HR	BE	MK	NO	RS	EE	PL	NL	IE	BA	SE
2021	57.6	57.5	57.1	56.9	55.0	52.4	52.2	51.2	50.9	49.3	49.0	48.8	48.7	48.6	47.7	47.6	47.1	47.0	46.8
2016	60.1	:	48.3	56.5	55.3	51.7	50.0	48.9	48.9	48.3	47.4	45.7	46.3	48.8	44.6	45.2	:	43.7	44.5
	SK	**SI**	**PT**	**FR**	**DK**	**ES**	**TR**	**AT**	**CY**	**HU**	**DE**	**IT**	**CZ**	**MT**	**EL**	**CH**	**LU**	**LI**	**UK**
2021	46.6	46.1	45.8	45.6	45.6	45.4	45.3	44.0	42.2	41.5	40.4	38.3	37.9	37.0	37.0	36.5	35.5	:	:
2016	45.7	42.0	44.5	43.4	42.6	42.9	43.3	42.1	41.2	43.2	39.1	37.0	38.4	35.4	33.8	34.7	35.3	35.0	44.8

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the percentage of female academic staff (2021).
EHEA: Refers to the EHEA median calculated based on countries with available data for both reference years.

In 2021, the EHEA median of the female academic staff was 46.9, which corresponds to three-quarters of the countries having more than 45°% of female staff. Across countries, there were wide variations. Nine countries (Azerbaijan, Albania, Andorra, Latvia, Lithuania, Finland, Romania, Bulgaria and Croatia) have an academic staff population where women are a majority. Czechia, Malta, Greece Switzerland and Luxembourg were the systems with the lowest proportion of women among the academic staff population.

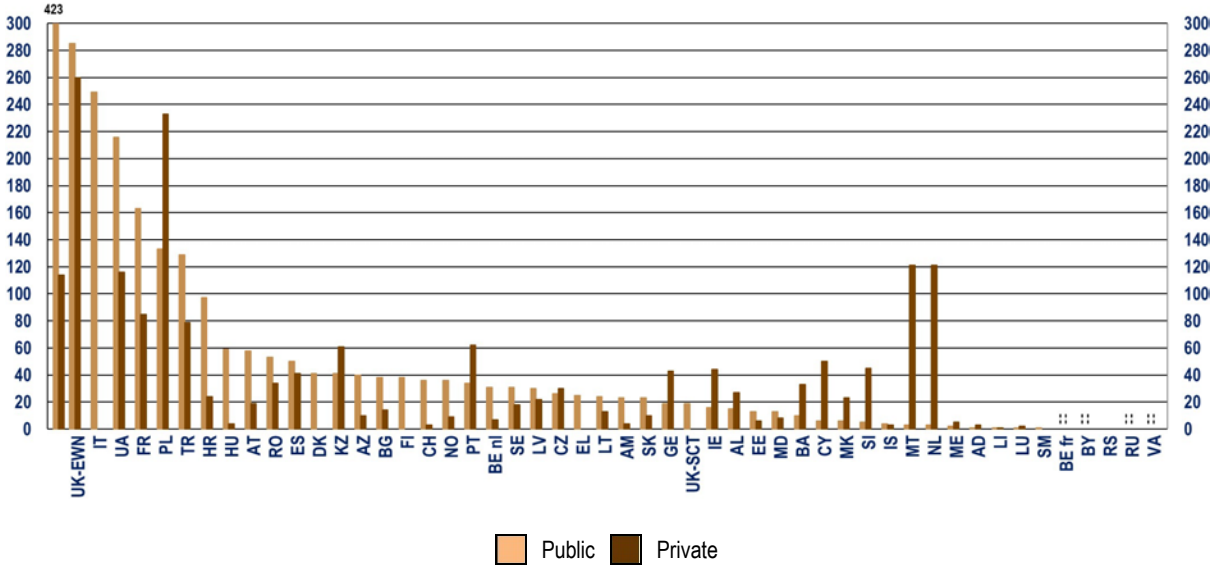
Compared to 2016, the share of female staff has increased in most countries ((27 out of the 38 under consideration.) The increase ranged between 0.2 percentage points in Luxembourg to 8.8 percentage points in Andorra. Czechia, Estonia, and Latvia registered a decrease of below 1 percentage point. The largest decrease was observed in Azerbaijan (2.5°%).

1.4. Higher Education Institution

When looking at the overall context for developments in the higher education sector, it is interesting to consider not only the evolution in student and staff numbers, but also the development of higher education institutions.

Figure 1.13 shows the number of public and private higher education institutions reported for the academic year 2022/2023.

Figure 1.13: Number of higher education institutions in the EHEA, 2022/2023



	DE	UK-EWN	IT	UA	FR	PL	TR	HR	HU	AT	RO	ES	DK	KZ	AZ	BG	FI
Public	423	285	249	216	163	133	129	97	59	58	53	50	41	41	40	38	38
Private	114	260	0	116	85	233	79	24	4	19	34	41	0	61	10	14	0
	CH	**NO**	**PT**	**BE nl**	**SE**	**LV**	**CZ**	**EL**	**LT**	**AM**	**SK**	**GE**	**UK-SCT**	**IE**	**AL**	**EE**	**MD**
Public	36	36	34	31	31	30	26	25	24	23	23	19	19	16	15	13	13
Private	3	9	62	7	18	22	30	0	13	4	10	43	0	44	27	6	8
	BA	**CY**	**MK**	**SI**	**IS**	**MT**	**NL**	**ME**	**AD**	**LI**	**LU**	**SM**	**BE fr**	**BY**	**RS**	**RU**	**VA**
Public	10	6	6	5	4	3	3	2	1	1	1	1	:	:	0	:	:
Private	33	50	23	45	3	121	121	5	3	1	2	0	:	:	0	:	:

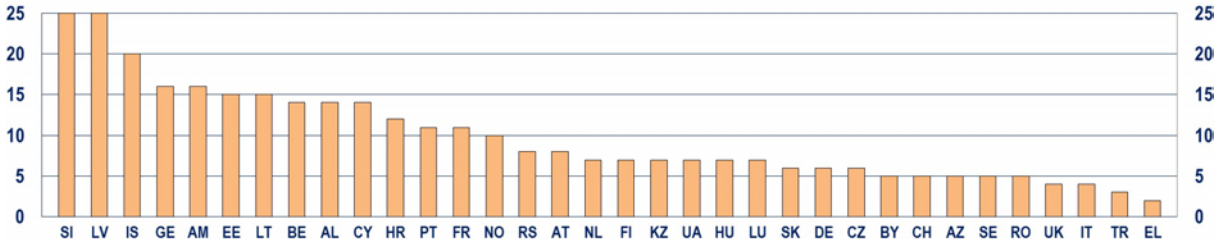
Source: BFUG data collection

In total, the number of higher education institutions in EHEA countries with available data increased to 4376 in 2022/2023. The public higher education institutions grew 2569 while the private higher education institutions increased their number to 1807. However, different trends have taken place during the period. In some countries, there has been a significant growth in (mostly) private higher education institutions, while in others the number of private higher education institutions has reduced. Meanwhile some countries have seen the merging and consolidation of institutions.

Another way of looking at the number of institutions is to see how many of them there are in proportion to the overall population. Figure 1.13b shows the number of institutions per million inhabitants. This is a rather crude measure, as it does not take into account the size of the institutions, but nevertheless it gives a more contextualised picture of the situation regarding higher education institutions in EHEA.

Another way of looking at the number of institutions is to see how many of them there are in proportion to the overall population. Figure 1.13b shows the number of institutions per million inhabitants. This is a rather crude measure, as it does not consider the size of the institutions, but nevertheless it gives a more contextualised picture of the situation regarding higher education institutions in EHEA.

Figure 1.13b: Number of higher education institutions per million people in the EHEA, 2022



SI	LV	IS	GE	AM	EE	LT	BE	AL	CY	HR	PT	FR	NO	RS	AT	NL
25	25	20	16	16	15	15	14	14	14	12	11	11	10	8	8	7
FI	**KZ**	**UA**	**HU**	**LU**	**SK**	**DE**	**CZ**	**BY**	**CH**	**AZ**	**SE**	**RO**	**UK**	**IT**	**TR**	**EL**
7	7	7	7	7	6	6	6	5	5	5	5	5	4	4	3	2

Source: Own calculation based on Eurostat and BFUG data collection

The main trend is for the most populous countries to be positioned below the median, even if they have the highest number of institutions. Meanwhile countries that are smaller in terms of population tend to have a higher number of higher education institutions.

1.5. Expenditure on higher education

European higher education institutions are funded predominantly from public sources. This section compares public expenditure on higher education in the EHEA based on Eurostat indicators: public expenditure as a percentage of GDP, and total public and private expenditure per student in purchasing power standard (PPS). Alone, none of the indicators presented below can provide a sufficient basis for comparing EHEA countries; but taken together they provide a broad overview of similarities and differences between them.

Annual public expenditure on tertiary education as a percentage of GDP provides a measure of a government's commitment to supporting higher education and is useful when comparing countries of different economic sizes. Public expenditure on tertiary education covers expenditure from all levels of government combined and refers to direct funding on higher education as well as transfers to private households and firms.

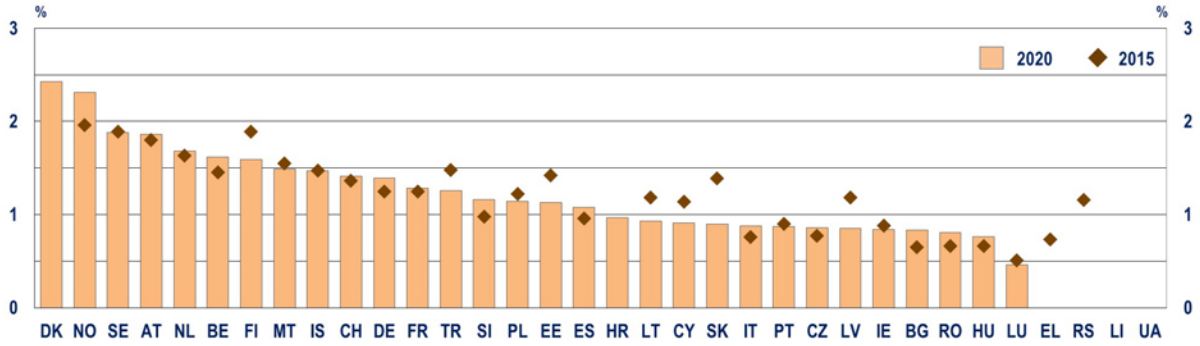
The former includes expenditure that is directly related to instruction and research such as faculty and staff salaries, research grants, university and institutions' buildings, teaching materials, laboratory equipment, etc. The latter includes funding for entities that administer higher education (e.g. ministries or departments of education), that provide ancillary services (i.e. services provided by educational institutions that are peripheral to the main educational mission), and entities that perform educational research, curriculum development and educational policy analysis.

Transfers and payments to private entities include public subsidies to households and students as well as payments to other non-educational private entities (including scholarships and grants, public loans to students, specific public subsidies in cash or in kind for transport, medical expenses, books

and other materials, etc.). However, annual public expenditure does not include tuition fees that are not covered by scholarships, grants or loans, and that are directly paid by households.

Figure 1.14 shows the annual public expenditure on tertiary education as a % of GDP (including Research and Development) in 2015 and 2020.

Figure 1.14: Annual public expenditure on tertiary education as a % of GDP (including R&D), 2015 and 2020



	DK	NO	SE	AT	NL	BE	FI	MT	IS	CH	DE	FR	TR	SI	PL	EE	ES
2020	2.4	2.3	1.9	1.9	1.7	1.6	1.6	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.1	1.1	1.1
2015	:	2.0	1.9	1.8	1.6	1.5	1.9	1.6	1.5	1.4	1.3	1.3	1.5	1.0	1.2	1.4	1.0
	HR	**LT**	**CY**	**SK**	**IT**	**PT**	**CZ**	**LV**	**IE**	**BG**	**RO**	**HU**	**LU**	**EL**	**RS**	**LI**	**UA**
2020	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.5	:	:	:	:
2015	:	1.2	1.1	1.4	0.8	0.9	0.8	1.2	0.9	0.7	0.7	0.7	0.5	0.7	1.2	:	:

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the annual public expenditure as a % of GDP (2016). EHEA: Refers to the EHEA median calculated based on countries with available data for both reference years.

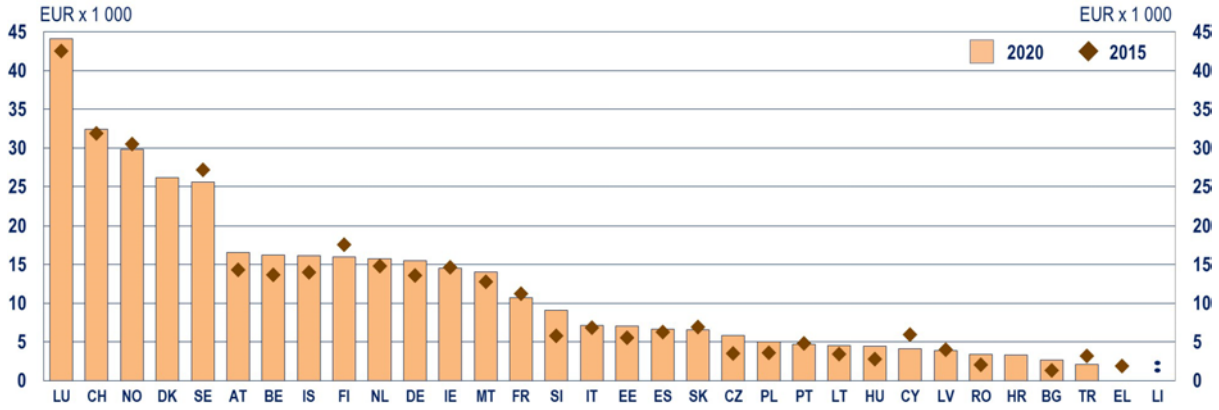
In 2020, the median public spending on tertiary education relative to GDP accounted for 1.1 % across the EHEA, which registers a slight decreased compared to 2015. In 2020 the level of expenditure in higher education ranged between 2.4°% in Denmark and 0.3°% in Luxembourg. Norway remained among the countries with high expenditure increasing it to 2.3°%. In those countries, in which relatively high shares of public spending in funding tertiary education were recorded, enrolment rates of persons aged 18-34 in tertiary education were also higher than 18% (with the exception of Sweden in which the respective rate was 15%). Bulgaria, Greece, Hungary, Ireland, Italy, Luxembourg, Portugal, Romania and Czechia had the smallest shares (lower than 1%) of tertiary educational expenditure as a percentage of GDP, registering a similar trend for the 5-year period. However, in these countries, the enrolment rates varied significantly registering a decrease in Luxembourg, Bulgaria, and Hungary, and an increase in the rest of the countries in this group.

When analysing the evolution of the share of public expenditure directed to tertiary education as a percentage of GDP between 2020 and 2015, decreases were recorded in 38 of the countries with data available. Cyprus, Estonia, Finland, Lithuania, Slovakia, Latvia, Malta, and Poland registered a decrease below 1 percentage point. Increases were observed in 42°% of the countries with data available, while in 20°% of the countries there was no change. The highest increase was registered in Norway (0.3 percentage points).

Cross-country comparisons of the levels of expenditure on tertiary education cannot be made directly due to the different size of countries' student population. In order to account for a country's size of student population, the average expenditure per student is used.

Figure 1.15 shows the public and private expenditure on tertiary education per full-time equivalent student in 2015 and 2020. In addition to public expenditure, it also takes private expenditure into account to show an overall financial investment in higher education at national level.

Figure 1.15: Annual public expenditure on public and private tertiary institutions per full-time equivalent student in euro, 2015-2020



EUR	LU	CH	NO	DK	SE	AT	BE	IS	FI	NL	DE	IE	MT	FR	SI	IT
2020	44 155	32 386	29 796	26 153	25 555	16 575	16 232	16 112	15 976	15 742	15 521	14 517	14 052	10 708	9 040	7 091
2015	42 505	31 899	30 534	–	27 146	14 334	13 652	14 015	17 548	14 811	13 551	14 606	12 755	11 197	5 753	6 873
	EE	**ES**	**SK**	**CZ**	**PL**	**PT**	**LT**	**HU**	**CY**	**LV**	**RO**	**HR**	**BG**	**TR**	**EL**	**LI**
2020	7 029	6 607	6 540	5 832	4 979	4 650	4 552	4 450	4 101	3 863	3 389	3 275	2 681	2 043	0	:
2015	5 516	6 289	6 908	3 469	3 562	4 799	3 382	2 801	5 914	3 979	2 051	–	1 278	3 176	1 838	:

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the annual public expenditure per FTE student in euro (2016).

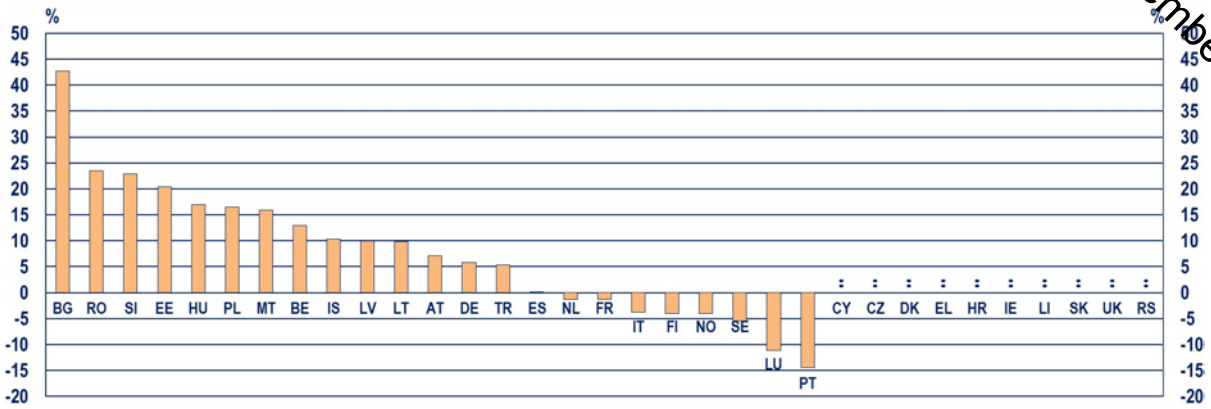
EHEA: Refers to the EHEA median calculated based on countries with available data for both reference years.

The median spending per student across EHEA in 2015 was EUR 6 873 per student. The highest spending country was Luxembourg (EUR 42505 per student), followed by Switzerland (EUR 31 899), Norway (EUR 30 534), Sweden (EUR 27 146) and the UK (EUR 17 968). Spending between EUR 10 000 and EUR 15 000 was registered in Austria, Germany, Finland, France, Ireland, Iceland, Malta, and the Netherlands. The lowest spending was observed in Bulgaria, Greece and Serbia (below EUR 2 000).

The median level of expenditure per student was lower in 2015 compared to 2020 (when considering only countries for which data are available for both years). The financial increase per student was higher than EUR 1 000 in 47% of the countries with available data. It was more than EUR 3 000 in Croatia and Slovenia.

Figure 1.16 provides a more precise comparison across countries as the measure of spending is adjusted in terms of the differences in price levels across the EHEA while taking into account the size of the student population in a country through the provision of the financial spending of a country per full-time student.

Figure 1.16: Percentage change in the annual public and private expenditure on public and private tertiary education institutions in PPS per full-time equivalent student between 2015 and 2020



BG	RO	SI	EE	HU	PL	MT	BE	IS	LV	LT	AT	DE	TR	ES	NL	FR
42.7	23.5	23.0	20.4	17.0	16.4	16.0	12.9	10.4	9.9	9.8	7.1	5.9	5.3	0.2	-1.3	-1.3
IT	**FI**	**NO**	**SE**	**LU**	**PT**	**CY**	**CZ**	**DK**	**EL**	**HR**	**IE**	**LI**	**SK**	**UK**	**RS**	
-3.8	-4.1	-4.1	-5.4	-11.1	-14.4	:	:	:	:	:	:	:	:	:	:	

Source: Eurostat, UOE and additional collection for the other EHEA countries.

Notes:

Countries are arranged by the percentage change in the annual public and private expenditure in PPS per FTE (2016).

Between 2015 and 2020, Bulgaria showed the highest increase (42.7°%) in its spending on higher education institutions per full-time equivalent student, followed by increases in Romania (23.5°%), Slovenia (23°%), Estonia (20°%), Hungary (17°%), Poland (16.4°%), and Malta (16°%). The smallest increases took place in Spain (0.2°%), Germany (5.9°%) and Türkiye (5.3°%). In Luxembourg, the expenditure invested per full-time equivalent student decreased with 11.1°% in 2020 compared to 2015. However, the public spending in Luxembourg remained at the highest level among EHEA countries for both reference years. Decrease of 5.4°% was observed in Sweden and 4.1°% in Finland. Also in these two countries, it should be considered that the public spending for both reference years was above EUR 15 000 per student, hence in the medium-high range of public spending among EHEA countries.

Overall, across countries for which data were available in 2020, the median EHEA annual (public and private) expenditure on tertiary education institutions was 11 367 per full-time equivalent student in PPS. Differences between countries appear to be significant. Luxembourg had the highest level of expenditure PPS 31 684. Denmark, Malta and Sweden spent more than PPS 15 000 per full-time student, while this spending fell below PPS 10 000 in Bulgaria, Spain, Hungary, Italy, Lithuania, Latvia, Portugal, Romania and Türkiye. The level of expenditure spent by the highest spending country in 2020 was about five times higher than the country spending the least per full-time equivalent student while in 2015 the proportion was much higher. This observation would indicate a trend of diminishing the gap between the level of spending among EHEA countries.

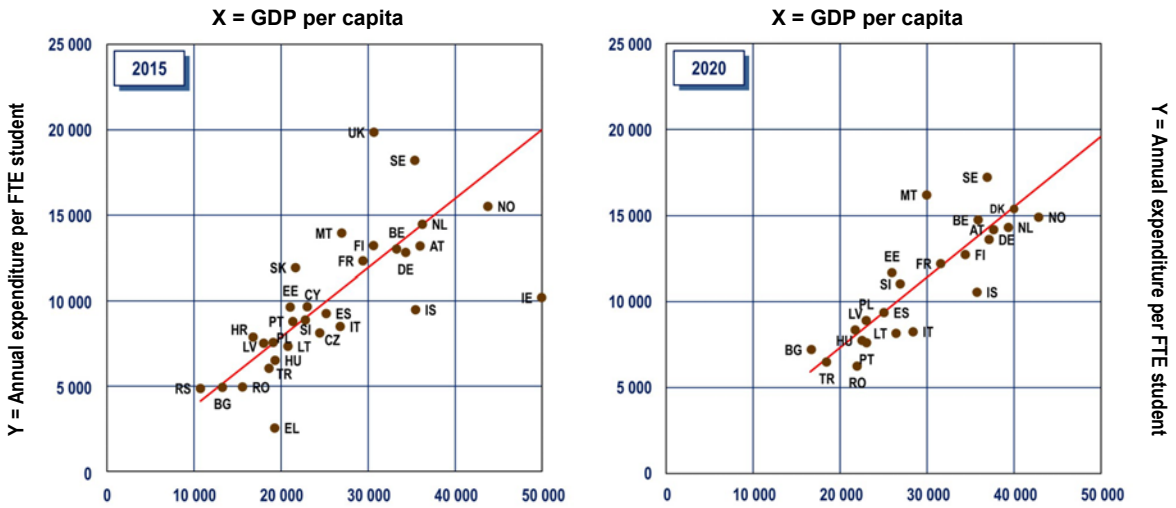
Combining the information on changes in expenditure devoted in tertiary education institutions per full-time student and the student population in tertiary education reveals some interesting outcomes. Two countries – Romania, and Slovakia – that showed significant increases in their investments between 2015-2020 recorded moderate increases (around 11°%) in the number of students enrolled in tertiary education. This suggests that the increases in spending per student may not necessarily result in proportionate increase in the enrolment rates. It could also be considered that the increase in investment could need a longer period of implementation to provide for increase of enrolment rates. For example, Norway registered considerable investment in 2015 with corresponding high enrolment

rates in 2020. Switzerland and Sweden registered a similar level of investment with enrolment rates, however, lower compared to Norway, while Finland had an expenditure in medium range among EHEA countries but registered an enrolment rate (20°%) which was higher than Sweden, Norway and Switzerland (below 20°%). In Luxembourg, the enrolment rate, despite the very high level of investment, remained among the lowest in EHEA in 2020. In Bulgaria the increase in expenditure was accompanied with an increase in the rate of student enrolment reaching 18°%.

In order to further review the intensity of investment in tertiary education, the next section undertakes a comparative analysis between the expenditure per full-time student and the size of the economy taking into account population size. This perspective avoids problems of different student populations as percentages of the total population, as is the case when considering the ratio of the government expenditure on education to GDP. For higher education, cross-country comparison is more complex as enrolment rates vary in greater proportions (see Figure 1.3): countries where the enrolment rate is low could show higher expenditure per full-time equivalent students than countries with higher enrolment rates. Dividing the GDP per capita by the expenditure per full-time equivalent student provides a more harmonised and comparable measure of the intensity of the expenditure on education.

Figure 1.17 shows the annual public and private expenditure on public and private education institutions on tertiary education, per full-time equivalent student in PPS relative to the GDP per capita in PPS for the years 2015 and 2020.

Figure 1.17: Annual public and private expenditure on public and private education institutions on tertiary education, per full-time equivalent student in PPS relative to the GDP per capita in PPS, 2015 and 2020



Source: Eurostat, UOE and additional collection for the other EHEA countries.

%	2015	2020	%	2015	2020	%	2015	2020	%	2015	2020
AT	36.9	37.9	ES	37.2	37.6	LT	35.9	31.0	SE	51.7	46.9
BE	39.4	41.3	FI	43.5	37.2	LU	46.0	40.5	SI	39.5	41.2
BG	38.2	43.5	FR	42.2	38.9	LV	42.4	38.7	SK	55.5	:
CY	42.5	:	HR	47.5	:	MT	52.0	54.5	UK	64.9	:
CZ	33.7	:	HU	34.3	34.6	NL	40.2	36.6	RS	46.4	:
DE	37.6	36.8	IE	20.6	:	NO	35.7	35.0	TR	33.1	35.4
DK	:	38.8	IS	27.1	29.7	PL	40.2	39.0			
EE	46.3	45.3	IT	32.1	29.2	PT	41.7	33.2			
EL	13.9	:	LI	:	:	RO	32.5	28.6			

A positive relationship between the size of the economy taking into account its population (expressed through GDP per capita) and expenditure on education per full-time student (as expressed through the annual public and private expenditure on educational institutions per full-time equivalent) is revealed across the countries analysed. The fact that the correlation between the expenditure per full-time equivalent student and GDP per capita is positive indicates that, as may be expected, richer countries invest more per student, regardless of the size of the economy and the size of education sector.

However, this correlation does not imply a direct causal relationship between the two variables in the short term. Indeed, public expenditure (i.e., a major part of total expenditure on tertiary education) involves long-terms commitments (e.g. capital expenditure or staff salaries) and cannot be adjusted rapidly to unexpected changes in economic conditions; the number of students is the result of multi-cohorts behaviours and their attitudes towards tertiary education.

Throughout 2015 and 2020, countries providing relatively high expenditure (more than PPS 15 000) on tertiary institutions and having a high GDP per capita (more than PPS 30 000) were Sweden, Denmark, and Finland, while there was lower expenditure (less than PPS 10 000) on tertiary education institutions and lower GDP per capita (less than PPS 20 000) in Bulgaria and Türkiye.

The tables in Figure 1.17 show the ratio of the expenditure (annual and private) on higher education institutions per student to GDP per capita, showing how much of the GDP per capita is spent on each student. This can be seen as a measure of public and private investment in higher education. It reveals that countries with different sizes of economy and annual expenditure per student may make a similar relative financial effort towards investment in tertiary education. For example, in 2020, Malta spent more than 50°% of their GDP per capita on each tertiary student, which was close to the respective share spent by Sweden, in which the GDP per capita and annual expenditure per student are higher.

The fluctuations in the intensity of the investment over time can be observed through combining two measures. Firstly, the total (public and private) expenditure on tertiary education per student and secondly the GDP per capita. A constant ratio across time signifies that both investment per student and GDP per capita increased or decreased at the rate, indicating that expenditure in education is given the same priority over time. It is important to note that this measure of expenditure includes both public and private spending, so it is impossible to tell from this particular indicator how public expenditure reacts to changes in the GDP per capita. As the discussion of the United Kingdom above demonstrates, it is possible to achieve an increase in the ratio even when public spending decreases if private spending on tertiary education increases at the same time (see Figure 1.16 for discussion of changes in public expenditure only).

Of the 23 countries for which data are available for the reference years analysed, the ratio of public and private expenditure per full-time equivalent student and GDP per capita decreased in 14 countries (Germany, Estonia, Finland, France, Italy, Lithuania, Luxembourg, Latavia, the Netherlands, Norway, Poland, Portugal, Romania, and Sweden). In Spain and Hungary there was no change observed. This finding indicates that in these countries public and private investment in higher education declined relative to the country's size of economy. Between 2015 and 2020, Finland and Luxembourg registered a decrease in expenditure while the GDP per capita grew. In France, Italy, the Netherlands the expenditure remained stable while the GDP per capita registered an increase. Conversely in Iceland the expenditure increased while the level of GDP per capita remained stable. Lithuania, Latvia, Poland, and Romania registered a more intensive pace of GDP growth compared to the increase in the expenditure per full-time student.

1.6. Conclusions

The EHEA has seen a continuous rise of total student numbers between 2016 and 2021 despite the large diversity in education systems' developments between countries. There were about 32.9 million tertiary education students enrolled in the EHEA in the academic year 2020/2021. Türkiye (8.2 million) and Germany (3.3 million), which both have a total population close to 85 million, accounted for the highest number of tertiary education students - equivalent to about 35 % of the EHEA total student population. Compared to 2016/2017, the student population continued to increase in 50°% of the countries, while in 10°% of the countries the levels of student enrolment remained the same. The total percentage increase registered in EHEA was 11°% with more than half of the countries reporting an increase above 6.2°%. Most tertiary education students (58.8°%) were enrolled in first cycle study programmes.

The median enrolment rate in the EHEA raised from 15.9°% (2016) to 16.9°% (2021), indicating an increase compared to 2016 in half of the countries. The COVID-19 pandemic has therefore tended to encourage rather than discourage enrolment in higher education.

The socio-economic and cultural realities across EHEA present large diversities. This report attempted to streamline its analysis over four common themes concerning access and participation in education: socio-economic background of parents; gender; origin and age. The educational background of parents as well as the family's economic context are again confirmed as factors that strongly influence the likelihood of young learners to engage in and successfully complete higher education studies. In most of the countries for which data are available, in 2021 compared to 2016 the share of first-cycle new entrants and the corresponding percentage of people aged 45-64 with high educational attainment increased. In 56.5°% of the countries with a share of new entrants higher than 50°% the corresponding share of parents with a high educational attainment level is around a third of the population or in some cases even higher. This evidence confirms that the educational background of parents is still a robust predictor of whether young people are likely to participate in higher education.

Equal opportunities for men and women to participate in higher education is a central concern of the social dimension within the Bologna Process. In 2021 the share of countries where women entrants were a majority increased to 97°%. In education and health and welfare education fields the women participation reached above 70°% at both bachelor's and master's education levels. In the fields of engineering, manufacturing and construction, and communication technologies, male participation is still predominant, accounting for around 70°% at bachelor's level and 60°% at masters' education level.

In 2021 the foreign-born student population in higher education decreased by 12°%, while the native-born population slightly increased. In 88°% of the countries with available data the native-born population outnumbered the foreign-born. Disparities are more evident in southern Mediterranean countries (Italy, Greece and Spain).

There has been an increase in academic staff in more than half of the 40 countries for which data are available. In half of the countries, about 45 % of the academic staff is female. In 42°% of the countries the academic staff is 50 years or over.

Between 2016 and 2021, a decreasing participation pattern could be observed for part-time students aged both between 20-24 and 30-34. In 2021, the share of part-time students in the age group 30-34

varied between 1.1 % in Greece to 86 % in Croatia. In 11 countries, part-time students in the older age group represented more than half of the students of the same age group. Conversely, an increase of the share of adult students aged 30-34 could be found in a large proportion of countries.

In 2020, the median public spending on tertiary education relative to GDP accounted for 1.1°%, and registered a slight decrease compared to 2015. In general, the percentage of public spending as a share of GDP in 2020 varied strongly, with the highest rates in Denmark (2.4°%) and Norway (2.3°%) and on the other side of the spectrum the lowest (- 0.5°%) rate of investment was in Luxembourg.

Richer countries tend to invest more per student, regardless of the size of the economy and the size of the education sector. In 2020 the median EHEA annual (public and private) spending per full-time tertiary education student was 11 367 (in PPS equivalent).