This article presents statistics on secondary and post-secondary non-tertiary education (ISCED levels 2, 3 and 4) in the European Union (EU) and forms part of an online publication on education and training in the EU. Pupils enter lower secondary education (ISCED level 2) typically between the ages of 10 and 13 (age 12 being the most common), while they normally enter upper secondary education (ISCED level 3) between the ages of 14 and 16.

In general, compulsory education is completed at the end of lower secondary education, although in some countries it continues into upper secondary education. As its name suggests, post-secondary non-tertiary education (ISCED level 4) starts after the completion of upper secondary education.

School helps young people acquire basic life skills and competences that are necessary for their personal development. The quality of a pupil’s school experience affects not only their development, but also their place in society, level of educational attainment, and employment opportunities.

The quality of education may be linked to teaching standards, which in turn are related to the demands placed upon teachers, the training they receive, the roles they are asked to fill and the resources that are made available for them to carry out their tasks. Equally, the quality of education may show local or regional variations, related to a variety of socio-demographic factors.

**Participation by level**

The number of students found in each of the two levels of secondary education — lower (ISCED level 2) and upper (ISCED level 3) — and in post-secondary non-tertiary education (ISCED level 4) varies between EU Member States. This reflects, to some degree, the demographic structure of each population and also country-specific policies relating to various issues such as the length of compulsory education and the availability of further training outside of the education system and/or at the end of secondary education. In particular, it should be noted that post-secondary non-tertiary education, which prepares students for labour market entry as well as for tertiary education, does not exist in some of the Member States (Denmark, Croatia, the Netherlands, Slovenia and the United Kingdom) and is relatively uncommon in several others; it also does not exist in Liechtenstein or Turkey.

In the EU-28 there were 20.8 million pupils in lower secondary education in 2017, of which the vast majority (79.5 %) were in the public sector — see Table 1. The number of pupils in upper secondary education in 2017 in the EU-28 was slightly higher, at 21.4 million, with a smaller, but nevertheless a clear majority (71.9 %) of pupils in the public sector; a small majority (52.2 %) of upper secondary school pupils in the EU-28 followed a general programme of upper secondary education, with the remainder following vocational programmes (see Table 1).

Post-secondary non-tertiary education was by far the smallest of the three education levels covered by this article, with 1.6 million pupils in the EU-28 in 2017 (see Table 1 for coverage), with the vast majority (92.0 %)
The patterns described above for the EU-28 as a whole were broadly followed across the EU Member States in 2017. In most of the EU Member States, upper secondary pupils outnumbered lower secondary pupils, with the exception of Croatia, Ireland, Romania, Slovakia, Lithuania, France, and Germany. Among the candidate countries, there were more lower secondary than upper secondary school pupils in Montenegro, North Macedonia and Serbia.

In 2017, the number of post-secondary non-tertiary pupils was considerably lower than the number of upper secondary pupils in all of the EU Member States. In Ireland, Lithuania and Germany, the number of post-secondary non-tertiary pupils was equivalent to more than one quarter of the number of upper secondary pupils. At the other end of the range, the number of post-secondary non-tertiary pupils was equivalent to less than 1.0 % of the number of upper secondary pupils in Cyprus, Bulgaria, Malta and Italy (2016 data); this was also the case in North Macedonia and Serbia. As noted above, this education level does not exist in Denmark, Croatia, the Netherlands, Slovenia or the United Kingdom, nor in Liechtenstein or Turkey.

| Number of secondary and post-secondary non-tertiary education pupils, 2017 (thousands) |
|----------------------------------|---------------------|---------------------|---------------------|---------------------|

<table>
<thead>
<tr>
<th>Country</th>
<th>Total</th>
<th>Public</th>
<th>Private</th>
<th>Upper secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EU-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public</td>
<td>Private</td>
<td></td>
<td>Public</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower secondary</td>
</tr>
<tr>
<td>Belgium</td>
<td>214.9</td>
<td>175.8</td>
<td>28.7</td>
<td>246.0</td>
</tr>
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<td>216.4</td>
<td>7.0</td>
<td>246.2</td>
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<tr>
<td>Czechia</td>
<td>384.3</td>
<td>370.7</td>
<td>13.6</td>
<td>386.1</td>
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<tr>
<td>Denmark</td>
<td>238.5</td>
<td>197.5</td>
<td>33.1</td>
<td>255.6</td>
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<tr>
<td>Germany</td>
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<td>431.4</td>
<td>26.6</td>
<td>459.5</td>
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<tr>
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<td>205.0</td>
<td>0.6</td>
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<tr>
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<td>300.9</td>
<td>1.4</td>
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<td>192.2</td>
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<td>4.6</td>
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<tr>
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<td>1.1</td>
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<td>340.2</td>
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<tr>
<td>Poland</td>
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<td>1328.9</td>
<td>63.1</td>
<td>1356.1</td>
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<td>123.2</td>
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<td>0.0</td>
<td>128.0</td>
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<tr>
<td>Switzerland</td>
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<td>255.2</td>
<td>0.0</td>
<td>255.2</td>
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<td>10.0</td>
<td>94.7</td>
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<td>Serbia</td>
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<td>281.8</td>
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<td>281.8</td>
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<td>5054.4</td>
<td>5025.6</td>
<td>289.8</td>
<td>5069.6</td>
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</table>

Note: according to the UOE classification, the distinction between public and private is made according to whether a public agency or a private entity has the overall control of the institution and not according to which sector provides the majority of the funding. This means that commonly considered "private" institutions are only a subgroup of the total private institutions and are referred to as the independent private institutions. These latter institutions make up, for example, in the United Kingdom, only about 5 % of all institutions in secondary education.

(1) 2017, including 2016 data for post-secondary non-tertiary education for Italy.
(2) not available
(3) not applicable
Source: Eurostat (online data codes: educ_uoe_ensr01, educ_uoe_ensr04 and educ_uoe_ensr07)
Public - private secondary education

In 2017, at least two thirds of lower secondary school pupils were educated in the public sector across the vast majority of EU Member States; the only exceptions were Malta (where the public sector accounted for just over half the total number of students, 52.9 %), Belgium (41.9 %) and the United Kingdom (33.6 %) — see Table 1.

Within upper secondary education, at least two thirds of pupils in 2017 were educated in the public sector in all but two of the EU Member States, with the lowest shares reported once again in Belgium (41.0 %) and the United Kingdom (20.6 %).

Among the 22 EU Member States for which data for post-secondary non-tertiary education are available for 2017 and for which there were some students enrolled at this level, the situation was somewhat different: Cyprus, Luxembourg, Portugal, Ireland, Lithuania, Latvia and Estonia each reported that at least 95.0 % of all post-secondary non-tertiary students were educated in the public sector; this pattern was repeated in North Macedonia and Serbia. By contrast, a relatively high share of post-secondary non-tertiary students — at least three quarters — were educated in the private sector in Belgium, Poland and Spain, while all of the relatively small number (1.7 thousand) of pupils at this level of education in Italy were educated in the private sector.

Participation by type of programme

One aspect of upper secondary education where the overall situation for the EU-28 masked a great diversity among EU Member States was the distinction between general and vocational programmes. As noted above, the number of pupils following each of these two types of programmes was relatively balanced in the EU-28 in 2017, with those following general programmes in a small majority (52.2 %).

Among the EU Member States, the share of upper secondary pupils studying general programmes was relatively low in Czechia, Finland and Slovenia, within the range of 25.0-30.0 %. In most other Member States it was in the range of 30.0-73.0 %, although it exceeded three quarters in Hungary (77.0 %), Cyprus (83.3 %) and Ireland (89.7 %). In total, 15 EU Member States reported a majority of upper secondary pupils following general programmes and 13 reported a majority following vocational programmes. Among the eight non-member countries shown in Table 1, Norway, Turkey and Iceland reported a majority of upper secondary pupils following general programmes.

Within post-secondary non-tertiary education, the dominance of vocational programmes observed for the EU-28 was repeated in almost all of the EU Member States in 2017. In 17 Member States, all pupils at this level of education were following vocational programmes, and in a further two — Belgium and Germany — the share of pupils following vocational programmes exceeded 90 %. In Sweden and France, the share of pupils following vocational programmes was higher than the share for general programmes, while Czechia and Malta were the only Member States where a majority of pupils in post-secondary non-tertiary education were following general programmes: in fact, in Malta, all of the small number of students at this level followed general programmes. Among the non-member countries shown in Table 1 three reported that all of their post-secondary non-tertiary pupils were following vocational programmes, while the shares in Iceland (98.6 %) and Switzerland (80.1 %) were also relatively high.

Graduates

An analysis of pupils graduating from upper secondary (Figure 1) and post-secondary non-tertiary education (Figure 2) shows differences between the sexes. Generally, in upper secondary education the gender distribution was relatively balanced. In 2017, 12 of the EU Member States reported slightly more male graduates, reaching a maximum share of 52.2 % in Germany, while 16 Member States reported more female graduates at this level of education, reaching a maximum share of 54.7 % in Finland (see Figure 1). Among the non-member countries 1

1 According to the UOE classification, the distinction between public and private is made according to whether a public agency or a private entity has the overall control of the institution and not according to which sector provides the majority of the funding. This means that conventionally considered ‘private’ institutions, are only a subgroup of the total private institutions and are referred to as the independent private institutions. Students in these latter institutions made up less than one fifth of the total number of students in all institutions in secondary education in each of the EU Member States in 2017, with this share below one tenth in 21 Member States and in five of these there were no such institutions.
shown in Figure 1, Liechtenstein and North Macedonia both reported higher shares of male graduates than Germany.

Among post-secondary non-tertiary education graduates there was a fairly clear pattern of more female than male graduates — see Figure 2. In 2017, 61.3% of all graduates at this level of education in the EU (see Figure 2 for coverage) were female. There were 16 EU Member States (among those for which data are available) where there were more female than male graduates. The female share was close to three quarters in Austria and Poland. Among the seven Member States where there were more male graduates than female graduates, the highest share for men was recorded in Luxembourg (80.7%); an even higher share for male graduates was recorded in Serbia (81.8%). Norway was the only non-member country (for which data are available) where there was a higher share of female (rather than male) post-secondary non-tertiary education graduates.
Teachers and pupil-teacher ratios

There were 1.84 million lower secondary teachers in the EU-28 in 2017 and a slightly lower number (1.76 million) of upper secondary teachers (see Table 2); note that lower secondary teachers in Ireland are counted within the total for upper secondary education. Unlike their pupils, there was a large gender imbalance among teachers at these educational levels, although less so than the considerable differences observed for pre-primary and primary education.

Within lower secondary education in 2017, men accounted for 32.1% of all teachers in the EU-28, with this share ranging from below 18.0% in Slovenia and the Baltic Member States up to highs of 46.2% in Luxembourg and 47.0% in the Netherlands. Among the non-member countries included in Table 2, the share of male teachers in lower secondary education was also relatively high in North Macedonia (40.5%), Turkey (43.4%), Liechtenstein (44.9% 2016 data) and Switzerland (45.0%).

Men accounted for 38.6% of upper secondary teachers in the EU-28 in 2017 (no data for Denmark), in other words 6.5 percentage points more than their share for lower secondary education. Latvia and Lithuania again recorded relatively low shares for men, at close to one fifth of the total number of teachers. As for lower secondary education, the Netherlands recorded a relatively high share (46.9%) of male teachers in upper secondary education, which was also the case for Greece and Sweden (both 46.1%); there were more male than female upper secondary teachers in Switzerland and Turkey.

Information on the gender distribution of teachers for post-secondary non-tertiary education is available for 18 EU Member States for 2017. In Luxembourg (79.8%), Cyprus (78.3%), Malta (70.0%), Czechia (61.9%), France (59.7%), Belgium (56.6%), Sweden (55.9%) and Bulgaria (55.7%) a majority of post-secondary non-tertiary teachers were male. Among those Member States where women accounted for a majority of teachers at this level, the highest shares were recorded in Slovakia (68.2%), Poland (68.6%), Austria (68.7%) and
In 2017, pupil-teacher ratios in lower and upper secondary education were broadly similar to those observed for primary education. The pupil-teacher ratio for lower secondary education ranged among the EU Member States from less than 8.0 in Slovenia, Malta, Lithuania and Greece, to peaks of 14.0 in France, 15.2 in the United Kingdom and 16.1 in the Netherlands. Liechtenstein (7.2; 2016 data) was the only non-member country for which data are shown in Table 3 to record a pupil-teacher ratio that was less than 8.0 in 2017, while Turkey (16.5) reported a ratio that was higher than in all of the Member States.
Table 3: Pupil-teacher ratios in secondary and post-secondary non-tertiary education, 2013 and 2017 (number of pupils per teacher)Source: Eurostat (educ_uoe_perp04)

In 16 of the 26 EU Member States for which 2017 data are available (no data for Denmark and Ireland), pupil-teacher ratios for lower secondary education were lower than those reported for upper secondary education; these two ratios were identical in Croatia (8.6). France had a particularly low ratio for upper secondary education (11.1 pupils per teacher) compared with its ratio for lower secondary education (14.0). By contrast, Estonia, Slovenia and Finland reported notably higher ratios for upper secondary education than for lower secondary education, 5.8 pupils per teacher higher in Estonia, 8.1 higher in Slovenia and 9.3 higher in Finland.

Pupil-teacher ratios for post-secondary non-tertiary education are available for 18 of the EU Member States in 2017. The ratio for post-secondary non-tertiary education was higher than that for upper secondary education in all but three of these: the exceptions were Hungary, Sweden and Bulgaria. A particularly high pupil-teacher ratio was reported for post-secondary non-tertiary education in Romania (60.2 pupils per teacher) and relatively high ratios were also recorded for Czechia (40.7 pupils per teacher), Latvia and Finland (both over 20.0 pupils per teacher) — see Figure 3.
Finance

The proportion of public financial resources devoted to education may be measured by public expenditure on various levels of education relative to gross domestic product (GDP). For lower secondary education in 2016 (see Figure 4; no data available for Croatia), this ratio varied from 0.6% in Romania, Estonia, Italy and Ireland to 1.2% in the Netherlands, Germany, Austria, Cyprus, France and Denmark (2014 data).
Public expenditure on upper secondary education relative to GDP was within a broadly similar range, with a low of 0.5 % recorded in Lithuania, while the ratio was 1.4 % in both Cyprus and Finland, peaking at 1.8 % in both Belgium and Denmark (2014 data).

Turning to post-secondary non-tertiary education, data are available for 20 EU Member States, with Hungary having the highest value (0.3 %) of public expenditure relative to GDP in 2016. In more than half of the remaining 19 Member States, public expenditure on this level of education was less than 0.1 % of GDP in 2016.

In a small majority of the EU Member States expenditure in 2016 on upper secondary education was the same as or exceeded that on lower secondary education. Nevertheless, there were 9 exceptions among the 27 Member States for which data are available (no information for Croatia): Romania, Czechia, Bulgaria, France, the Netherlands and Portugal where the difference was at most 0.13 percentage points of GDP; Austria (0.22 points), Germany (0.34 points) and Lithuania (0.63 points). Among those Member States where expenditure was higher for upper secondary education, the gap between upper and lower secondary expenditure, relative to GDP, peaked at 0.93 percentage points in Belgium and 0.62 percentage points in Denmark (2014 data).

Source data for tables and graphs
Secondary education statistics: tables and figures
Data sources

Source

The standards for international statistics on education are set by three international organisations:

- the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) institute for statistics (UIS);
- the Organisation for Economic Cooperation and Development (OECD);
- Eurostat, the statistical office of the EU.

The source of data used in this article is a joint UNESCO/OECD/Eurostat (UOE) data collection on education statistics and this is the basis for the core components of Eurostat’s database on education statistics; in combination with the joint data collection Eurostat also collects data on regional enrolments and foreign language learning.


More information about the joint data collection is available in an article on the UOE methodology.

Classification

The international standard classification of education (ISCED) is the basis for international education statistics, describing different levels of education; it was first developed in 1976 by UNESCO and revised in 1997 and again in 2011. ISCED 2011 distinguishes nine levels of education: early childhood education (level 0); primary education (level 1); lower secondary education (level 2); upper secondary education (level 3); post-secondary non-tertiary education (level 4); short-cycle tertiary education (level 5); bachelor’s or equivalent (level 6); master’s or equivalent (level 7); doctoral or equivalent (level 8). The first results based on ISCED 2011 were published in 2015 starting with data for the 2013 reference period for statistics on pupils and teachers and the 2012 reference period for statistics on expenditure. This classification forms the basis of all of the statistical information that is presented in this article.

Students typically enter ISCED level 2, or lower secondary education, between the ages of 10 and 13. Programmes at this level are typically designed to build on the learning outcomes from ISCED level 1. They are usually organised around a more subject-oriented curriculum, introducing theoretical concepts across a broad range of subjects. Teachers typically have pedagogical training in specific subjects and a class of students may have several teachers with specialised knowledge of the subjects they teach.

Students typically enter ISCED level 3, or upper secondary education, between the ages of 14 and 16. Programmes at this level are typically designed to complete secondary education in preparation for tertiary education or to provide skills relevant for the labour market, or both. They offer students more varied, specialised and in-depth instruction, while teachers are often highly-qualified in the subjects or fields of specialisation they teach.

Post-secondary non-tertiary education, ISCED level 4, provides learning experiences which build on secondary education, preparing students for labour market entry as well as tertiary education. It aims at the individual acquisition of knowledge, skills and competencies, although at a lower level of complexity than is characteristic of tertiary education. Programmes classified at ISCED level 4 may be referred to in many ways, for example: technical diplomas, technicians, or primary professional education.

Key concepts

Pupil-teacher ratios are calculated by dividing the number of full-time equivalent pupils and students in each level of education by the number of full-time equivalent teachers at the same level; this ratio should not be confused with average class size, which refers to the number of students in a given course or classroom.
Context

Demographic developments in the last three decades are reflected in reduced birth rates that, in turn, have impacted upon the structure of the EU’s population: the proportion of people aged under 30 has decreased in a majority of the EU Member States. These changes can have a significant impact on human and material resources required for the sound functioning of education systems, such as average class sizes or teacher recruitment strategies.

ET 2020 strategic framework

The updated strategic framework for European cooperation in education and training (known as ET 2020), was adopted by the Council in May 2009. It sets out four strategic objectives for education and training in the EU:

- making lifelong learning and mobility a reality;
- improving the quality and efficiency of education and training;
- promoting equality, social cohesion and active citizenship; and
- enhancing creativity and innovation (including entrepreneurship) at all levels of education and training.

The strategy sets a number of benchmarks to be achieved by 2020, including that: the share of early leavers from education and training should be less than 10 % (see the article on early leavers for more information); the share of low-achieving 15-year-olds in reading, mathematics and science should be less than 15 %.

EU Member States have agreed on the following priority areas for schools:

- all pupils should develop a set of key competences for lifelong learning;
- each pupil should benefit from high-quality learning experiences;
- support for learners with special educational needs should be improved;
- teachers, school leaders and teacher educators should receive more support, including continued opportunities for professional development;
- quality assurance should be developed to ensure a more effective, equitable and efficient governance of school education.
- schools need to respond to the pace of technological and digital change that results in profound changes to economies and society.

Each of these issues is touched upon by a European Commission Communication on school development and excellent teaching for a great start in life (SWD(2017) 248 final) that was adopted in May 2017.

Other articles

- Being young in Europe today — education
- Education and training in the EU — facts and figures
- The EU in the world — education and training
Main tables

- Education and training (t_educ)

Database

- Education and training (educ), see:
  - Participation in education and training (educ_part)
  - Education personnel (educ_uoe_per)
  - Education finance (educ_uoe_fin)

Dedicated section

- Education and training
- Youth

Methodology

Metadata

- Education administrative data from 2013 onwards (ISCED 2011) (ESMS metadata file — educ_uoe_enr_enm_esms)

Manuals and other methodological information

- Classification of learning activities — Manual
- Further methodological information on educational attainment
- ISCED 2011 operational manual — Guidelines for classifying national education programmes and related qualifications
- UOE data collection on formal education — Manual on concepts, definitions and classifications, 2014

Legislation

- UOE: Regulation (EC) No 452/2008 of 23 April 2008 concerning the production and development of statistics on education and lifelong learning
- From school year 2012/2013 onwards: Commission Regulation (EU) No 912/2013 of 23 September 2013 as regards statistics on education and training systems

External links

- European Commission — Education and training monitor
- European Commission — Education and training — Key competences
- European Commission — Education and training — Strategic framework for education and training
- Eurydice — Better knowledge for better education policies
- OECD — Early childhood and schools
- UNESCO — Education transforms lives