

Characteristics and problems of the education systems in the member states of the European Union

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Abstract: *The education systems in the EU27 member states present different characteristics, these being both the result of specific national historical developments and subject to national laws that govern the field of education (but also other tangential ones: the labour market, youth, the business environment, etc.), but also of the implementation through open coordination mechanisms of the strategies and action programs of the European Union in the field.*

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JEL Classification: H52, I21, I22, I26

1. Introduction

Although the organizational structures of education systems show great national specificity (see European Commission/EACEA/Eurydice, 2022b), in general compulsory education (including upper secondary level – ISCED 1-3) is completed in all EU27 member states (including in Romania) around the age of 18-19 years (Annex A1). The maximum number of years of schooling expected, from the compulsory access of children to early childhood education units until the completion of university studies varies at the level of the Member States between 15 years in Luxembourg, 16 years in Bulgaria and Malta and 21 years in Sweden and Finland (Eurostat, SYS_EDU_Excel Tables_ AniScolExpect).

However, all the education systems in the EU27 member states¹ are structured on several very well-defined and relatively common organizational levels as well as the duration of the educational processes: pre-primary education (in the case of Romania, nursery school and kindergarten), primary education (in the case of Romania, school primary), lower-level secondary education (in the case of Romania, grammar school), higher-level secondary education (in the case of Romania, high school on the theoretical/vocational/technological streams² or vocational school/professional school in the dual system), non- tertiary (in the case of Romania post-secondary school) and tertiary education (in the case of Romania only university education according to the Bologna process (see Annex A2)³: bachelor's, master's and doctoral studies, but in other countries there are also short-term university studies) (for Romania, see Annex A3).

The characterization and analysis of education systems can be done from many different

¹ According to specialized studies, at the level of the EU27 member states, three types of educational systems could be identified: that of the Western European states with tradition, that of the states that have British-inspired systems and that of the Central and Eastern European states entered the EU after 2004 (Anghelache et al., 2018).

² Cedefop describes Vocational/Vocational and Technical Education (VET) as ‚education and training‘ which aims to equip people with the knowledge, know-how, skills and/or competences needed in specific occupations or in the wider labor market. It deliberately does not refer to any level or sector of the education and training system (Cedefop, 2020).

³ Starting in 1999, the so-called Bologna Process was started, which radically changed university-level education at the European level and beyond. The dominant type of higher education at European level is the one structured on three study cycles, according to the Bologna process: bachelor's studies or equivalent, master's studies and doctoral studies. In about half of the countries where this type of higher education is implemented, most graduates of the first cycle of studies continue their studies within the second cycle, but there are large differences between countries in terms of the recognition on the labor market of the qualifications obtained as a result of the graduation of the first cycle of university studies (European Commission, 2018). Regarding the implementation of the Bologna system, the three groups of states with different types of higher education previously mentioned reacted differently: a complementary implementation that did not remove the old forms of academic organization in the case of Western European states with a strong university tradition, a minimal implementation in the case of European states with British-inspired education systems, respectively an effort to implement as precisely as possible the proposed model in the case of the member states from Central and Eastern Europe that joined the EU after 2004 and that had education systems before 1990 strongly centralized (Anghelache et al., 2018).

points of view and by using a variety of indicators and indicator systems (for example, for the EU27 states, the indicators published annually in the Education and Training Monitor, as a component of the reports of progress of the EEA – EU, 2022b). In the case of the present paper, we have chosen a limited number of indicators that, in our opinion, highlight the most important aspects regarding education systems as the main trainers and providers of human capital capable of integrating into modern societies and economies, from the categories “entries into the education systems (pupils and students)”, “outputs of the education systems (graduates of secondary, post-secondary and tertiary education)” and “human resources (teachers, educators and trainers) and financial (expenses government) of education systems”. The analysis refers to the EU27 member states, in general and to the situation in Romania.

2. Developments of the pupil and student population in the EU27 member states

Pupil and student populations recorded relatively low annual variations overall during the 2013-2021 period, indicating for the time being the maintenance of a relatively constant flow of possible future employees on the EU27 labour markets, but with differences both between member states and on different education levels (Eurostat, SYS_EDU_Excel_Tables_EleviStud_Inscr). However, the increasingly visible impact of the demographic transition regarding the decrease in fertility rates among children enrolled in early childhood education (ECEC) is noted; the average trend at EU27 level was constantly decreasing, even in countries with a large number of immigrants (Germany, France, Spain, Italy). Romania is also facing a sharp demographic decline and the tendency to decrease the number of live births and children (Table 1), but in the case of this form of education there are other factors⁴ that make the participation rate in ECEC a of children in Romania between the ages of 3 and the age of starting compulsory education to be one of the lowest in the EU (78.2% compared to the EU average of 93% in 2020 – EC, 2022b). Coupled with the fact that Romania is not a country of immigration but, on the contrary, of emigration, the reduction of entry bases in the education system will have short- and medium-term repercussions on the system itself and in the longer term on the entire economy, through the strong erosion of available human capital.

Table 1. Evolution of the resident population in Romania in the period 2011-2020 by age groups relevant to the national education system (thousands of people)

	2011	2012	2013	2014	2015
Total population	20147.7	20060.2	19988.7	19916.5	19822.3
Age group 0-23 years	5367.8	5281.0	5156.5	5073.9	5031.6
Age group 0-14 years	3190.9	3162.2	3120.6	3094.1	3077.3
Age group 15-18 years	882.5	875.4	868.0	864.7	869.2
Age group 19-23 years	1294.4	1243.4	1167.9	1115.1	1085.1

⁴ Lack of adequate infrastructure (nurseries and kindergartens) and its concentration in urban areas, long and favorable duration of parental leave, insufficient offer of childcare and long-term care services - which is also detrimental to women’s participation in the market work, especially in rural areas (CE, 2022b).

	2016	2017	2018	2019	2020
Total population	19706.4	19592.9	19483.8	19375.8	19261.7
Age group 0-23 years	4993.3	4956.0	4920.8	4876.5	4844.5
Age group 0-14 years	3063.6	3059.7	3058.1	3037.4	3012.3
Age group 15-18 years	867.1	851.7	835.4	822.1	819.0
Age group 19-23 years	1062.6	1044.6	1027.3	1017.0	1013.2

Source: Ministerul Educației (2022).

The same impact of the aforementioned demographic transition is increasingly visible in the case of the evolution of the number of students enrolled in primary education, both at the EU27 level as a whole and in almost all member states (only Austria and Luxembourg registered positive annual evolutions in all years of the analyzed period - see Eurostat, SYS_EDU_Tabele Excel_EleviStud_Inscr). Romania registered a tendency to decrease the number of students enrolled in primary education after 2016, more accentuated in the last two years, perhaps as a collateral effect of the Covid-19 pandemic.

The number of pupils enrolled in lower secondary education has registered a tendency of stagnation as an EU27 average, but in many Member States annual variations have been positive almost throughout the 2013-2021 period (Belgium, Czech Republic, Estonia, Ireland, Spain, France, Latvia, Luxembourg, Malta, Austria, Slovenia, Slovakia, Finland and Sweden - Eurostat, SYS_EDU_Tabele Excel_EleviStud_Inscr). Both demographic developments and some specific ones related to each national education system have favored in these countries the maintenance of a relatively constant flow of entries towards the level of completion of compulsory education and, further, towards higher levels of education that ensure increasing the national human capital. This situation also relates quite well to the level of non-schooling rates of the school-age population corresponding to lower secondary education⁵, which, in most of the EU27 member states, is between 0% (Ireland, Croatia, Lithuania and, in recent years, France and Portugal) and around 5% (Hungary) (Eurostat, SYS_EDU_Tabele Excel_RateNescol). The exceptions are Bulgaria and Romania, which during the analysed period recorded constant annual increases in these rates, (Bulgaria from 5.7% in 2015 to 10.4% in 2021 and Romania from 8.6% to 12.2 % in the same interval), simultaneously with the relative stagnation (Bulgaria) or decrease (Romania) of the number of students enrolled in lower secondary education. This highlights an incompletely developed potential national human capital of quite large magnitude (taking into account the low age at which its development stops, at least temporarily, through the education system), which, theoretically, can be re-inserted into the education system and can continue to develop, but which, in practice, is often underutilized compared to the level it could have reached, inducing both the inefficiency of the use of human and material resources of the education systems of the two

⁵ Young people who have dropped out of either primary or secondary school for various reasons or who have not even been enrolled in any form of education and who are not yet of legal age to work, but can be trained in household work activities of which they are part or even can be informally employed for various activities that do not require any or a very low level of qualification.

countries (Jula et. al., 1999), but also significant potential losses of income both for the persons concerned throughout their biological life (including in the case of retirement periods) and for the national economies during their working life when the persons generate income that contributes to the national budget⁶.

Regarding the trends in the number of students enrolled in upper secondary education, they were fluctuating during the 2013-2021 period in all EU27 member states, but in recent years an increasing trend can be observed, both at the EU27 average level, as well as of some member states (Czech Republic, Denmark, Estonia, Spain, Cyprus, Austria, Romania and Sweden - Eurostat, SYS_EDU_Tabele Excel_EleviStud_Inscr). The non-schooling rates of the school-age population corresponding to upper secondary education, however, recorded higher and highly differentiated levels between the EU27 member states, even if the average at the EU27 level shows a downward trend in the analysed period (Eurostat, SYS_EDU_Tabele Excel_RateNescol). Relatively high levels of over 10% are recorded at least in certain years in several EU27 countries (Bulgaria, Germany, Croatia, Luxembourg, Hungary, Malta, Romania and Slovakia), as more young people leave education systems, but, at least some of them, do it in order to get a job, even if stopping the education process (possibly temporarily for some) will have negative repercussions on their future incomes, but also on the state's income level. In the case of the two member states that register the highest non-schooling rates of the population of upper secondary education age (both Bulgaria and Romania), the difference compared to the non-schooling rate for the population of lower secondary education age registered a downward trend, which can raise an alarm signal regarding the need for policy interventions, not only educational, but also social, to reduce the extent of the phenomenon of not attending school at relatively young ages (practically, 10-15 years), with all the negative consequences mentioned.

The number of students enrolled in post-secondary higher non-tertiary education recorded annual fluctuations and relative downward trends in the EU27 member states, but also large level differences between them (the largest was accounted for by Germany. Romania recorded a stagnation trend relative). At the same time, the number of students enrolled in secondary education with reduced duration of studies registered a fairly significant upward trend as an EU27 average, but also in most of the member states where this type of tertiary education exists⁷ (Eurostat, SYS_EDU_Tabele Excel_EleviStud_Inscr). This situation actually reflects the shift in the interest of students, but also of political decision-makers, towards increasing the level of education in professional/vocational education, which is an increasingly well-documented phenomenon both at the level of the member states (especially those with vocational education systems /vocational education very well developed), but also of the community policy in the field of education and professional/vocational training (Cedefop, 2020).

The number of students enrolled in tertiary education showed an upward trend as an EU27 average over the period 2013-2021 for all forms of education compliant with the Bologna

⁶ Aspects that we will present in more detail in another chapter.

⁷ In Romania, this type of education was not implemented according to the provisions of the National Education Law of 2011, on the basis of which the higher education system operated until 2023, but it is to be introduced in accordance with the provisions of the new Higher Education Law adopted in 2023.

Process: bachelor's, master's and doctoral studies, which overall contributed upon reaching the target provided by the Europe 2020 Strategy for the population with tertiary education⁸. However, there were also trends of decrease in the number of students enrolled in the three types of tertiary education, especially in the Baltic states (in Estonia and Latvia for all three forms of education and in Lithuania for undergraduate studies and those for master's), in the Czech Republic (for all forms of studies, except for the last years), in Poland and Slovenia (for bachelor's and master's studies), in Austria (for master's and doctoral studies), in Finland (for master's studies bachelor and doctoral), in France (for doctoral studies). Romania also recorded annual reductions in the number of students for all forms of studies until 2016-2017, followed by increases until the end of the analysed period, the most significant being recorded in the case of doctoral studies (which, however, had registered a sharp downward trend of the number of students enrolled at the beginning of the period).

3. Evolutions of the population of graduates of the education systems of the EU27 countries able to start their professional activity

The evolutions of the number of graduates of upper secondary education in the period 2013-2021 largely reflect those of the number of students enrolled in this form of education, with differences between member states (Eurostat, SYS_EDU_Excel Tables_ Graduates), determined by the characteristics of national education systems (duration of studies, way of completion through exams, changes in the structure of education systems, etc.). Most of the Member States recorded intra-period annual fluctuations or downward trends, but in the last two years (the years of the Covid-19 pandemic) an upward trend in the number of upper secondary education graduates can still be noted. In the case of the two forms of studies, respectively with a general study program and with a professional/vocational study program, the differences in the rate of evolution of the number of graduates were very heterogeneous in the analysed period and, in general, against the study form with professional/vocational program. The ratio between the number of graduates and the number of students enrolled in upper secondary education⁹, in total and for both types

⁸ It should be mentioned here that one of the most important factors documented at the international level and by the EU member states regarding the choice to continue education at tertiary level is the one related to the education level of the students' parents. The correlation between the tertiary education level of the parents and the number of students enrolled in undergraduate study programs is high in the EU27 states – 0.87 in 2018 (European Commission/EACEA/Eurydice, 2020a) and as the tertiary education level of the population Romania's is the lowest compared to the rest of the member states, Romania's recovery of the gap in the field of higher education will not be a quick process, even if more substantial progress has been registered in recent years.

⁹ Existing in the respective education system in a given year. Since no data were available on actual graduation rates through official exams or certifications, we used this very rough estimate of completion for each educational level analyzed. We believe that values relatively close to the number of years of actual schooling for each form of education may indicate a relatively constant flow of possible new employees on the labor market or of possible new learners in further and/or higher forms of education and training, but also smaller gaps regarding the duration of completing the studies.

of study programs, varies significantly at the level of the EU27 member states (between approx. 1 graduate for 6 students enrolled in the respective year in Belgium and Sweden and 1 graduate for 2 students enrolled in Malta - Eurostat, SYS_EDU_Excel Tables_ Graduates), reflecting, among other things, the particularities of this form of education in each member state and intra-period developments produced at the level of national education systems. Another important observation in the case of secondary education is the share of graduates who continue their studies at the tertiary education level. The available data on the share of initial professional/vocational education graduates continuing their studies at tertiary level (Annex A4) indicate an increasing trend in the period 2015-2021, both as an EU27 average and in most member states (except for France and Sweden), but with important differences between the member states, going from below 20% in Lithuania to over 55% in Slovenia (except in 2021, Romania registered in the analysed period weights between 45% and almost 50 % and strong upward trend).

As regards the annual dynamics of the number of non-tertiary post-secondary education graduates (Eurostat, SYS_EDU_Excel Tables_ Graduates), it recorded rather large intra-period annual oscillations at the level of all Member States and divergent trends of evolution, reflecting both the particularities of the organization of this form of education in each member state (public or private providers of education and training services, strict or less strict regulation of the way of operation, fields of study, ways of certifying the completion of studies, etc.), as well as the previously mentioned trend, increasingly common at the level of professional/vocational education in the EU27 countries, of moving towards obtaining higher-level professional qualifications¹⁰, which require tertiary-level studies (with a reduced study program, mainly). The ratio between the number of enrolled students and the number of graduates varies widely between EU27 member states (from less than 1 graduate for 1 enrolled student in Malta, to over 7 in Greece). In the case of Romania, the ratio is approx. 1 graduate for 3 students enrolled in the same year.

In the case of tertiary level education, the total number of graduates registered almost constant annual increases during the period 2013-2021 in Belgium, Ireland, France, Cyprus, Malta, Finland and Sweden (Romania registered annual increases only after 2018), but in different years of the period most member states had increases (Eurostat, SYS_EDU_Excel Tables_ Graduates). The number of bachelor's degree graduates mostly registered annual increases in countries such as Spain, Italy, France, Luxembourg, the Netherlands, Austria, Portugal, Finland and Sweden (Romania registered increases in the number of graduates only in the period 2018-2021), while the number of master's degree graduates recorded mostly upward developments in Belgium, Denmark, Germany, Ireland, Greece, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Finland and Sweden), in the rest of the Member States registering either more significant intra-period oscillations (as in the case of Romania) or mostly downward trends (Jula and Jula, 2019). However, the biggest variations in the number of graduates were registered in the case of doctoral studies, both as an average of the EU27 and at the level of almost all member states, a situation

¹⁰ A notable change is the emergence and increased visibility of so-called „VET at higher levels“ within levels 5-8 of the European Qualifications Framework (EQF). Many Member States have seen a significant increase in VET at EQF level 5 and the extension of VET at levels 6 to 8 (Cedefop, 2020).

which is not unusual, due to the national and institutional peculiarities regarding the organization, financing, undertaking and completing this type of tertiary education. However, the ratio between the number of students and the number of graduates varies according to the type of tertiary education¹¹. Thus, in the case of undergraduate studies, the ratio is higher, varying in the analysed period from 1 graduate for 11-14 enrolled students in the case of Greece to 1 graduate for approx. 3 enrolled students in the case of Malta (Romania, like many other member states, recorded values of 1 graduate for 4-5 enrolled students, close to the EU27 average). The differences are more attenuated between the member states in the case of master's studies (varying between 1 graduate for 5 existing students in the system in the case of Germany and Sweden and less than 2 students for one graduate in the case of Ireland. Romania also recorded a level close to the EU27 average, of 1 graduate for 3 existing students in the system), but are most significant and heterogeneous at the level of the Member States in the case of doctoral studies (ranging from 1 graduate for more than 15 existing students at a given time in the system in Greece and 1 graduate for over 10 students in the Czech Republic, Estonia, Cyprus, Latvia, Poland, and Finland to approx. 1 graduate for approx. 3 students in the Netherlands).

4. Characteristics of human resources in the education systems of the EU27 member states

All over the world, teachers are a vital driving force in student learning. The Council of Europe conclusions on European teachers and trainers for the future underline that teachers have a substantial influence on student achievement. They play an essential role in supporting young people to develop their knowledge, skills and values and in supporting them to reach their full potential, both as students and as future citizens "Teachers and trainers have the responsibility to facilitate learners' acquisition of key skills and professional competences" and to "promote their social responsibility and civic engagement, to transmit human values, as well as to support their growth and personal well-being". (Council of Europe, 2020a). The existence of a quality teaching staff is one of the cornerstones of a successful educational system, where students from different backgrounds can feel inspired and motivated and can adapt to a rapidly changing world. Although the professional quality of teachers is not the only factor that can ensure the success of an educational system, this objective cannot be achieved without considering this aspect. Also, the outbreak of the COVID-19 pandemic and the rapid transition from face-to-face to distance learning have highlighted the important role of teachers in ensuring equal access of all students to quality education (Council of Europe, 2020b). According to the Communication of

¹¹According to international studies, lower rates of completion of university studies do not necessarily indicate the inefficiency of a tertiary education system, since there are a multitude of factors that can cause the abandonment of studies or the postponement of the period of their completion by obtaining a diploma or certification (the desire to change the field of study, attractive employment opportunities before completing the studies, with or without continuing them in the same form of studies or in an equivalent form with reduced frequency or even without frequency, individual interest only in acquiring certain knowledge provided by the study program, the socio-economic and educational background of the students, the gender, the personal context related to immigration or not, either individual or family, etc. (OECD, 2019).

the European Commission regarding the achievement of the European Education Area by 2025 (24), “teachers, trainers and teaching staff are at the center of the educational process [...] and play the most important role in transforming education into a fruitful experience for all learners’ (European Commission/EACEA/Eurydice, 2022).

Across Europe, education systems are facing a professional crisis in the teaching profession. Many European education systems are currently suffering from a shortage of teaching staff. This situation is highlighted, among other indicators, by the one related to the ratio of pupils/students per teacher¹², although there are other factors that influence its level (first of all, the system of organizing educational processes established by national legislation on education, on levels of education, regional/local regulations regarding the organization of educational institutions, if they exist, etc.). in the case of the EU27 member states, its level differs according to the level of education and varies greatly between member states for each individual level. Thus, in the case of pre-primary education, the tendency of its level at the EU27 level was to decrease in the period 2013-2021, as in the vast majority of member states, with few exceptions [Slovenia, Sweden – cf. Eurostat, tables Educ_uoe_perp04]. With two exceptions (France and Slovenia), the level differences between Member States are not very large, ranging in 2021 between less than 10 children per teacher/educator in Finland, Germany, Greece, and Luxembourg and almost 16 in the Netherlands and Portugal. Romania also registered a downward trend in the number of children that come under the care of an educator during the analysed period, from almost 17 in 2013 to approx. 14 in 2021, but it is still above the European average in this regard. In the case of primary and lower secondary education [cf. Eurostat, tables Educ_uoe_perp04], the tendency was also to decrease the student/teacher ratio at the EU27 level in the period 2013-2021, but less, and the level differences between the member states were also smaller, going from over 16 students for one teacher in the case of France and the Netherlands to 8 in the case of Greece. Romania recorded values above the EU27 average, but with a downward trend especially towards the end of the analysed period, up to approx. 14 students per teacher. The downward trends of the student/teacher ratio are also registered in the case of upper secondary level education, both in the case of the general study program and the vocational/professional one [cf. Eurostat, tables Educ_uoe_perp04], but the disparities between Member States are different in magnitude for the two forms of education. Thus, in the case of the general study program, the level differences vary between 16 students per teacher in the Netherlands and approx. 9 in Cyprus and an EU27 average of approx. 12 students per teacher, while in the case of vocational/vocational studies the level differences vary between 18-19 students per teacher in Estonia, Finland and the Netherlands and around 8 students per teacher in Belgium, Greece, Spain and France and an EU27 average of 10 pupils per teacher. In both cases, Romania registered levels of the student/teacher ratio above the EU27 average, of 15 and 13 students per teacher, respectively. Finally, the largest differences between Member States in terms of the ratio of pupils/students per teacher are recorded in the case of tertiary education [Eurostat, tables Educ_uoe_perp04], from over 40 in Greece and over 20 in Italy, Cyprus and Romania, at below 5 in Luxembourg and around 10 in Malta and Sweden.

¹² As we have seen in other chapters, it is used to highlight the quality of education and in studies that estimate the impact of education on economic and human growth/development. Its importance is considered to be particularly important for pre-tertiary levels of education.

The shortage of teaching staff (especially its chronicity) can significantly hinder the provision of quality services in the fields of teaching and learning. The deficit may even be exacerbated by the accentuated imbalances regarding the distribution of teaching staff by discipline and geographical area, by an aging teaching population, marked by professional abandonment and low enrolment rates in initial teacher training programs. There are many reasons why the teaching profession has become less attractive today than it was decades ago. In many European countries, the teaching profession is perceived as having a low value and the teaching status also has a low social value (European Commission, 2019; OECD, 2020a). Thus, according to the most recent data provided by the TALIS Questionnaire¹³ (at the level of 2018), only in Finland the share of teachers in lower secondary education who considered that the teaching profession is valued by society was close to 60% and in Romania it exceeded 40%, while whereas in countries such as France, Slovenia, Slovakia and Croatia the level of appreciation was very low (below 10% - Table 2).

In addition, as the Council of the European Union points out, constant changes in social, demographic, cultural, economic, scientific, environmental, and technological areas affect the world of education and training. In this context, teachers and trainers face increasing requirements, responsibilities and expectations, and these have an effect on the skills required of them, but also on their well-being and on the attractiveness of the teaching profession, in general (Council of Europe, 2020a). However, the share of teachers who stated according to TALIS that their first career choice was teaching is not lower than 50% in any EU27 member state, exceeding 80% in Portugal and Slovenia (see Table 2). And in Romania this share was quite high, almost 75%). However, it is very true that many education systems in the EU27 states and not only face several challenges at the same time, requesting policies that restore or increase the attractiveness of teaching as an option for those who aim to build a career. Governments across Europe are implementing plans to address the high attrition that can occur in the teaching profession, and these often go in the direction of reshaping initial teacher training, improving working conditions, reforming career paths and modernizing continuing professional development (European Commission/EACEA/Eurydice, 2022).

In addition to the shortage of teaching staff, another increasingly acute problem of the education systems in Europe, in general and in the EU27 member states is the phenomenon of the aging of teaching staff. The most recent Eurostat data (Figure 1) indicates that, at EU level, almost 40% of lower secondary teachers are at least 50 years old, and less than 20% are under 35 years old. In some countries (Estonia, Greece, Italy, Latvia, and Lithuania), over half of lower secondary teachers will retire in the next 15 years. In Bulgaria, Germany, Hungary, Austria and Portugal, the share of this age group is between 40% and 50%. The average age of teachers is also relatively high in many EU27 member states, exceeding 45 years in most of them (Table 2), this not always being correlated with a greater number of years of experience (Denmark, Finland, Italy, Spain and Sweden), for reasons related to the specifics of each national education system. In 2018, Romania registered an average age of teachers in lower secondary education of 43.0 years and a number of 17.3 years of professional experience.

¹³ Teaching and Learning International Survey, OECD (202a).

Table 2. TALIS results for 2018 regarding the situation of teaching staff in European Union countries

	Teachers who...				Teachers for whom the teaching career was the first career choice, %	Female teaching staff	Average age of teachers	Average number of years of teaching career experience	Share of teachers over 50, %
	agree or strongly agree with the statement that the teaching profession is valued by society, %	are satisfied with ...	the salary they receive for the work performed, %	apart from the salary, they are satisfied with the terms of the employment contract, %					
Austria	16.1	96.5	69.9	85.0	65.9	70.5	44.9	18.2	43.8
Belgium	16.3	89.2	64.6	70.5	68.3	69.5	39.6	15.4	21.9
Belgium - Flanders	25.8	92.9	73.1	67.1	73.6	70.2	39.4	15.9	22.0
Belgium - Wallonia	5.3	84.8	54.8	74.4	62.2	68.7	39.8	14.7	21.8
Bulgaria	17.7	92.4	29.5	72.9	71.9	79.5	48.9	21.6	51.0
Croatia	9.2	90.6	25.0	51.0	66.7	78.2	42.1	14.7	24.3
Czechia	16.0	89.6	28.0	74.8	68.0	76.4	45.1	18.1	37.1
Denmark	18.5	89.2	68.0	37.2	61.9	60.1	44.4	15.4	32.7
Estonia	26.4	94.2	39.1	82.1	64.6	83.8	49.1	22.7	53.7
Finland	58.2	88.0	45.3	72.1	59.3	69.8	44.8	16.0	35.3
France	6.6	84.7	28.7	79.6	69.2	65.3	43.0	16.9	27.2
Hungary	11.8	88.1	27.5	39.6	78.9	79.1	47.6	20.7	47.7
Italy	12.1	95.9	20.8	58.9	65.3	78.1	48.6	17.9	48.4
Latvia	23.3	90.6	22.0	81.4	73.9	89.2	48.4	23.7	51.2
Lithuania	14.1	82.7	11.1	77.3	79.9	84.9	49.9	24.7	56.7
Malta	14.5	84.6	17.9	55.5	69.4	69.7	36.8	12.7	12.2
Netherlands	30.7	93.9	58.0	68.4	53.4	53.2	42.9	16.2	32.2

	Teachers who... are satisfied with ...			Teachers for whom the teaching career was the first career choice, %		Average number of years of teaching career experience	Share of teachers over 50, %		
	agree or strongly agree with the statement that the teaching profession is valued by society, %	the salary they receive for the work performed, %	apart from the salary, they are satisfied with the terms of the employment contract, %	Female teaching staff	Average age of teachers				
Portugal	9.1	92.1	9.4	29.0	84.2	73.7	48.7	23.1	46.9
Romania	40.9	93.7	23.3	73.7	74.6	73.0	43.0	17.3	26.2
Slovakia	4.5	88.5	17.9	80.4	63.8	82.1	44.4	17.8	33.0
Slovenia	5.6	89.8	31.8	76.5	81.7	79.0	45.8	20.0	39.0
Spain	14.1	95.7	50.2	61.5	61.8	61.8	45.6	17.1	36.4
Sweden	10.7	90.3	34.8	67.1	59.1	65.8	45.7	15.7	36.0

Source: Processing by the author based on data taken from the OECD.

The combination of the aging of the teaching population and the current shortage indicates that the challenge of recruiting teachers in certain fields and/or geographical areas (STEM (Science, Technology, Engineering and Mathematics) and ICT and in remote or disadvantaged areas – see European Commission, 2022) could become even worse in the coming years, especially if the system fails to attract new students and, above all, to retain in the education systems the graduates of specialized studies in the field of education (Council of Europe, 2020a).

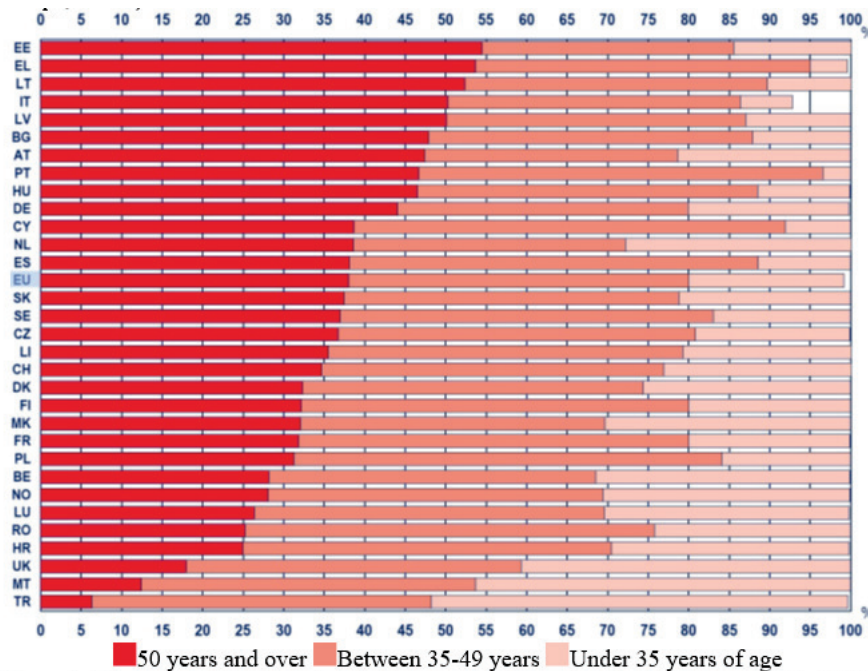
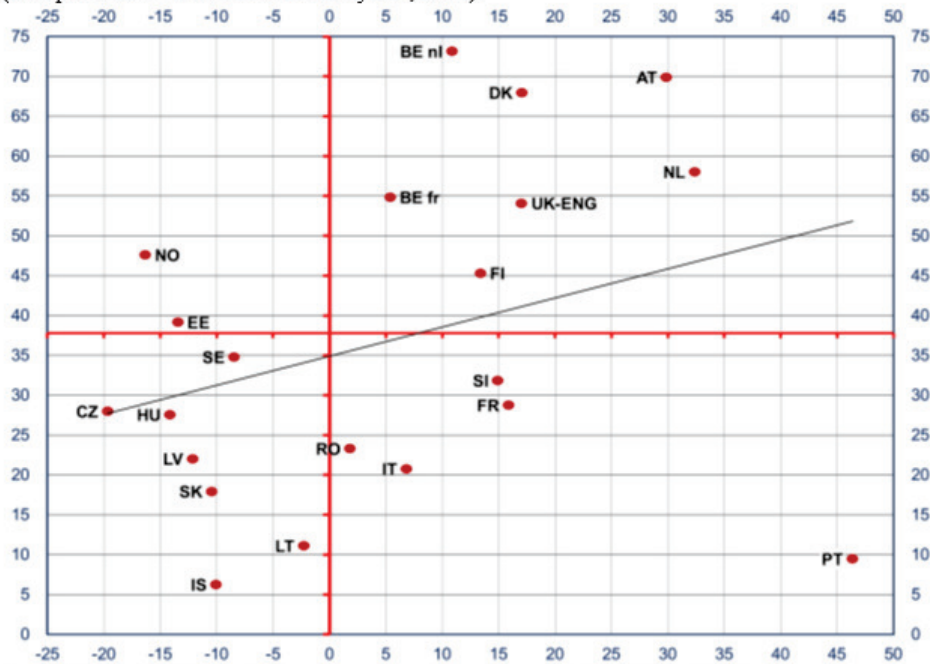


Figure 1 . The proportion of teachers in lower secondary education by age group, in 2018
 Source: European Commission/EACEA/Eurydice (2022).

Conclusion

The Council of Europe conclusions on European teachers and trainers for the future (Council of Europe, 2020a), underline that investing in quality education also means investing in teachers and trainers, and this includes adequate salaries. Similarly, the Education and Training Monitor (European Commission, 2019) points out that “competitive teachers’ salaries are considered essential for increasing the quality of the teaching workforce”. However, teachers often earn less than other categories of workers in tertiary education (European Commission/EACEA/Eurydice, 2019). Teacher salaries vary enormously across Europe, as does teacher satisfaction with the income they earn. At EU level, less than 40% of teachers are satisfied or very satisfied with the salary they receive. The TALIS 2018 questionnaire (OECD, 2020a) gave teachers the opportunity to express their satisfaction with the salaries they receive. The analysis of teachers’ responses shows that, overall, at the EU level, only 37.8% of teachers consider their salary satisfactory or very satisfactory, with many countries presenting percentages below 30% (Figure 2). Less than 1 in 10 teachers say they are satisfied with the salary they receive in Iceland and Portugal. By comparison, around 70% of teachers in Austria and Belgium (Flemish Community) say they are satisfied or very satisfied with their salaries.

Romania presented a rather low level of teacher satisfaction in terms of salary level, at 23.3% (European Commission/EACEA/Eurydice, 2022).



Legend: X-axis = % difference between the average gross real annual salary (EUR) and GDP.

Y-axis = % of teachers who are satisfied with their salary. AT = Austria; BE fl – Belgium – Flanders; BE fr – Belgium – Wallonia; CZ = Czech Republic; DK = Denmark; EE = Estonia; FI = Finland; FR = France; HU = Hungary; IS = Iceland; IT = Italy; LV = Latvia; LT = Lithuania; NL = The Netherlands; NO = Norway; PT = Portugal; RO = Romania; SE = Sweden; SI = Slovenia; SK = Slovakia; UK-ENG = United Kingdom – England.

Figure 2. Share of teachers satisfied with their salaries and the difference between average real gross annual teacher salaries (EUR) and GDP per capita, lower secondary education, 2018/19

Source: European Commission/EACEA/Eurydice (2022).

In many countries, where the average real gross salary of teachers is below the national GDP per capita, teachers express low satisfaction with their income. The opposite is also true. Teachers in countries where average salaries exceed GDP per capita express higher satisfaction with their salaries. However, the percentage variation between the average gross annual salary of teachers and GDP per capita fluctuates substantially between countries. While in the Netherlands the average salary is almost 25% higher than GDP per capita, in the Czech Republic it is almost 25% lower. It should be noted that in all Eastern European countries indicated in the figure, wages are lower than GDP per capita, except for Slovenia and Romania. However, according to the TALIS results, it is not the level of salaries that is the main determinant of the choice of a teaching career, but salary policies must take into account the negative correlations between the level of salary and that of the value for society and the propensity of young graduates, but also of other professionals, to choose a teaching career. The data show that other specific circumstances may also play a role in teachers' dissatisfaction with their pay, such as slow and/or modest salary progression over the course of their careers or long periods of stagnation due to government investment lower in public interest expenses. Considering the rate of evolution of salaries, as well

as the general level of salaries, the rethinking of salary policies could contribute to improving the degree of satisfaction of teaching staff regarding the salaries they receive. Also, increasing the attractiveness of teachers' salaries could play an important role in influencing young people to choose this professional option (European Commission/EACEA/Eurydice, 2022).

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Annexes
Annex A1. Characteristics of education systems in European countries, 2019
(a) Organizational structure of education systems

SDG indicator	Compulsory education		Free education		The official age for starting primary- secondary education		Duration of education (years)				School age population (thousands)			Enrolment in the education system (thousands)		
	4.2.5	4.1.7	4.2.5	4.1.7	1 year of 9 years of 12 years of	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary	pre- primary- primary- secondary
Region	% of all countries		Median values		Cumulative values											
Total World	23	74	50	53	6	3	3	352000	728000	791000	586000	217000	739000	601000	228000	
Europe*	28	93	68	70	6	3	4	26000	40000	55000	40000	24000	41000	58000	29000	
Albania	-	11	3	12	6	3	5	4	3	104	162	257	233	79	167	256
Andorra	-	11	-	10	6	3	6	4	2	...	...	...	...	2	4	5
Armenia	-	12	3	12	6	3	4	5	3	129	170	295	179	51	154	249
Austria	1	12	1	12	6	3	4	4	4	258	336	690	496	237	339	687
Azerbaijan	1	9	5	11	6	3	4	5	3	503	659	1021	695	207	645	967
Belarus	-	9	-	11	6	3	4	5	2	364	456	657	445	349	428	649
Belgium	-	12	3	12	6	3	6	2	4	393	806	775	653	450	821	1179
Bosnia- Herzegovina	-	9	-	9	6	3	5	4	4	90	...	...	221	23	157	240
Bulgaria	2	9	4	12	7	4	4	4	4	258	291	537	330	221	263	490
Cyprus	1	9	1	12	6	3	6	3	3	28	58	55	58	25	57	55
Croatia	-	8	-	8	7	4	4	4	4	157	169	323	244	115	162	332
Czechia	-	9	-	13	6	3	5	4	4	325	572	826	516	366	584	787
Denmark	-	10	-	10	6	3	7	3	3	173	452	405	383	178	468	531
Estonia	-	9	4	12	7	4	6	3	3	58	92	77	65	55	88	84
Finland	1	9	1	12	7	4	6	3	3	237	373	356	326	208	369	546
France	-	10	3	12	6	3	5	4	3	2356	4166	5840	3872	2543	4302	6110
Georgia	-	9	-	12	6	3	6	3	3	173	327	271	237	...	317	283
Germany	-	13	-	13	6	3	4	6	3	2306	2982	7082	4447	2359	2987	6949
Greece	1	9	2	12	6	2	6	3	3	177	619	641	537	152	643	668
Hungary	3	10	3	12	7	4	4	4	4	353	374	778	563	311	374	809
Iceland	-	10	...	...	6	3	7	3	4	13	33	30	24	13	32	35
Israel	3	12	3	12	6	3	6	3	3	508	938	823	609	548	936	837

	Compulsory education		Free education		The official age for starting primary- secondary educ.	Duration of education (years)			School age population (thousands)			Enrolment in the education system (thousands)					
	1 year of 9 years of pre- primary- secondary educ.	1 year of 1 year of pre- primary- secondary educ.	12 years of pre- primary- secondary education	12 years of pre- primary- secondary education		pre- primary	primary	secondary cycle lower high	pre- primary	primary	secondary	tertiary	pre- primary	primary	secondary	tertiary	
Ireland	-	10	...	...	5	2	8	3	2	128	563	323	299	123	564	492	231
Italy	-	12	-	8	6	3	5	3	5	1527	2768	4594	2949	1491	2871	4630	1896
Latvia	2	9	6	12	7	4	6	3	3	85	121	109	88	77	122	117	82
Liechtenstein	1	8	...	...	7	2	5	4	3	1	2	3	2	1	2	3	1
Lithuania	-	10	-	12	7	4	4	6	2	118	114	209	160	103	117	233	118
Luxembourg	2	10	3	13	6	3	6	3	4	20	38	47	38	18	38	49	7
Malta	-	11	2	13	5	2	6	3	4	9	25	28	25	10	27	31	16
Monaco	-	11	3	12	6	3	5	4	3	...	...	...	...	1	2	3	1
Montenegro	9	-	9	-	6	3	5	4	4	22	38	63	42	16	39	57	23
Netherlands	1	12	2	12	6	3	6	3	3	528	1093	1195	1021	475	1175	1632	890
North Macedonia	-	13	-	13	6	3	5	4	4	70	114	189	139	29	110	156	60
Norway	-	10	-	10	6	3	7	3	3	184	446	383	348	180	447	449	289
Poland	1	9	4	12	7	4	6	3	3	1493	2383	2117	2176	1361	2277	2392	1493
Portugal	-	12	2	12	6	3	6	3	3	253	559	620	543	240	622	767	356
Rep. Moldova	-	11	4	12	7	4	4	5	2	152	156	260	208	133	140	224	81
Romania	-	10	3	13	6	3	5	4	4	554	1030	1650	1056	521	948	1458	539
Russian Fed.	-	11	4	11	7	4	4	5	2	7632	7059	10490	6827	6387	6928	10242	5775
San Marino	-	10	-	13	6	3	5	3	5	1	2	2	2	1	2	2	1
Serbia	-	8	-	12	7	4	4	4	4	263	265	560	368	168	264	529	250
Slovakia	-	10	1	13	6	3	4	5	4	169	228	488	318	166	229	442	144
Slovenia	-	9	-	13	6	3	6	3	4	65	130	132	99	61	129	147	77
Spain	-	10	3	10	6	3	6	3	3	1259	2909	2782	2252	1296	3043	3371	2052
Sweden	1	9	1	12	7	4	6	3	3	473	610	651	595	463	893	935	431
Switzerland	2	9	2	9	7	2	6	3	4	174	497	591	500	174	515	609	307
Turkey	-	12	3	12	6	3	4	4	4	4100	5469	10854	6678	1501	5105	11280	7560
Ukraine	-	11	-	11	6	3	4	5	2	...	...	...	...	1094	1725	2445	1602
United Kingdom	-	11	2	13	5	2	6	3	4	1633	4921	5249	4019	1765	4893	6174	2467

*Without Armenia, Azerbaijan, Cyprus, Georgia, Israel, Turkey.

Source: GEM 2021/2022, UNESCO (2022).

	Target 4.3 Technical, vocational, tertiary, and adult education				Target 4.4 – Skills for the labour market								
	Participation in adult education and training (%)	% young people enrolled in TVET (%)	Share (%) of TVET in		% of adults over 15 with ICT skills, regarding:								
			secondary education enrolments	post-secondary non-tertiary education	Gross graduation rate in tertiary education (%)	Tertiary Enrolment Rate (GER) (%)	Copy and modify documents	Using spreadsheets	Writing programs for computers	Primary cycle	Secondary - upper cycle	Tertiary cycle	
Liechtenstein	...	23	34	...	14	38	...	...	...	...	...	...	...
Lithuania	28	9	100	62	74	45	42	5	99	96	87	55	...
Luxembourg	48	22	33	100	8	19	82	69	11	...	...	69	...
Malta	36	10	16	...	45	65	50	41	8	99	82	45	30
Monk	...	...	11	100	...	...	...	...	...	...	...	...	...
Montenegro	...	23	34	...	36	54	...	28	4	...	...	...	...
Netherlands	64	23	37	...	52	87	72	54	9	99	90	71	33
North Macedonia	13	...	28	100	27	43	32	21	3	...	...	...	...
Norway	60	17	28	100	55	83	78	60	11	100	99	78	40
Poland	26	20	28	100	45	69	34	28	4	99	85	85	28
Portugal	46	16	24	100	51	66	47	37	8	92	54	37	19
Rep. Moldova	...	10	13	100	34	39	...	...	...	99	97	75	...
Romania	7	...	28	100	38	51	22	15	1	99	91	67	18
Russian Fed.	...	18	14	100	58	85	27	24	1	...	...	...	...
San Marino	...	3	7	...	33	51	...	...	...	97	83	54	16
Sandage	20	25	35	100	...	68	34	24	4	98	90	72	23
Slovakia	46	23	30	100	35	45	...	35	4	100	99	87	23
Slovenia	46	35	45	...	48	77	...	42	5	100	98	83	28
Spain	43	15	19	100	43	91	52	38	7	92	78	50	31
Sweden	64	13	21	76	40	72	64	46	11	100	91	76	39
Switzerland	69	23	37	77	54	61	...	57	10	...	97	86	...
Turkey	21	25	23	...	34	113	...	19	3	90	61	39	19
Ukraine	...	...	7	100	...	...	...	...	...	...	...	...	...
United Kingdom	52	18	32	...	...	61	65	46	9	100	100	77	44

*Without Armenia, Azerbaijan, Cyprus, Georgia, Israel, Turkey.

TVET – technical and vocational education and training

Source: GEM 2021/2022, UNESCO (2022).

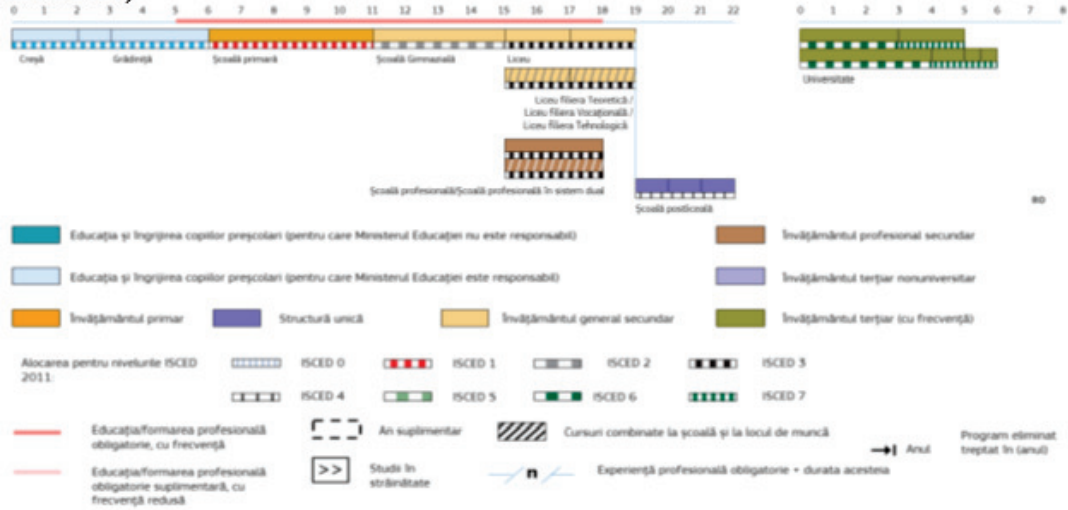
Annex A2. The Bologna Process: From the Sorbonne, 1998 to Paris, 2018

1998 Sorbonne Declaration	1999 Bologna Declaration	2001 The Prague Communiqué	2003 The Berlin Communiqué	2005 Bergen Communiqué	2007 London Communiqué	2009 Communiqué from Leuven/Louvain-la-Neuve	2012 Communiqué from Bucharest	2015 Yerevan Communiqué	2018 Paris Communiqué
Mobility of students and teachers	Mobility for researchers and administrative staff	The social dimension of mobility	Portability of loans and grants	Attention to visas and work permits	Attention given to pension systems and recognition of qualifications	Objective: 20% graduate mobility by 2020	Exploring ways of automatic recognition of academic qualifications	Digital student data exchanges	
A common system with two study cycles	Easily interpretable and comparable degrees	Correct recognition Development of common diplomas	The inclusion of the doctoral level as the third cycle of studies	Adoption of the Qualifications Framework (EHEA) Launch of National Qualifications Frameworks (NQFs)	National Frameworks of Qualifications until 2010	National Frameworks of Qualifications until 2012	Roadmaps for countries without National Qualifications Frameworks	Implementation of the main commitments	The short cycle as a stand-alone skill level The revised diploma supplement
Use of credits	A credit system (ECTS)	Lifelong learning (LLL)	Alignment of national policies in the field of LLL Recognition of Prior Learning (RPL)	Strengthening the social dimension	National action plans	Quantifiable national targets for the social dimension by 2020	Widening access and completion rates	Social inclusion	Inclusion of under-represented and vulnerable groups
	ECTS and Diploma Supplement (DS)		Flexible learning paths	Partnerships to improve employability	Consistent use of recognition tools and practices	LLL as public responsibility Focus on employability	Increasing employability, LLL and entrepreneurial skills through cooperation with employers	Employability combining academic and workplace learning	
	European cooperation in quality	Cooperation between QA and	Adoption of European standards and	Creation of European Quality	Implementation of Bologna tools	Quality as an overarching focus for the EHEA	Ensuring that Bologna tools are based on learning outcomes	Adoption of the Guidelines for the use of ECTS	Ensuring compliance

1998 <i>Sorbonne Declaration</i>	1999 Bologna Declaration	2001 The Prague Communiqué	2003 The Berlin Communiqué	2005 Bergen Communiqué	2007 London Communiqué	2009 Communiqué from Leuven/Louvain-la-Neuve	2012 Communiqué from Bucharest	2015 Yerevan Communiqué	2018 Paris Communiqué
	assurance (QA)	qualification recognition professionals	European level	guidelines for quality assurance (ESG)	Assurance Register (EQAR)		agencies to carry out their activities throughout the EHEA	European Approach to QA relating to joint programmes	with ESG 2015 Promoting the European Approach to QA related to common programmes
Europe of knowledge	European dimensions in the field of higher education	The attractiveness of the EHEA	Connections between higher education and research fields	International cooperation based on values and sustainable development	Adoption of the Strategy for Improving the Global Dimensions of the Bologna Process	Enhancing global political dialogue through the Bologna Political Forums	Evaluation of the implementation of the strategy regarding the global dimension from the year 2007	Developing synergies between EHEA and ERA	Innovation and inclusion in learning and teaching
								Relevance and quality	Digitization and digital skills
									Support for the United Nations SDGs

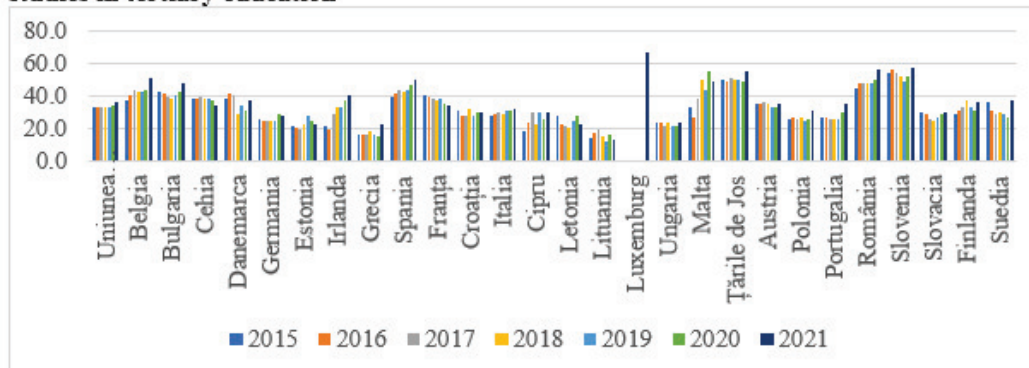
Source: Adapted from EC/EACEA/Eurydice, 2020a.

Annex A3. The structure of the education system in Romania by education level (school year 2022/2023)



Source: European Commission/EACEA/Eurydice, 2022b.

Annex A4. Share of initial vocational/vocational education graduates who continue their studies in tertiary education



Source: Processing by the author, based on data taken from Cedefop.