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Education and Training Monitor 2022

Accompanying the document

**Communication from the Commission to the European Parliament, the Council, the
European Economic and Social Committee and the Committee of the Regions**

on progress towards the achievement of the European Education Area

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Education and Training Monitor 2022

CZECHIA



The Education and Training Monitor's country reports present and assess the main recent and ongoing policy development at all education levels in EU Member States. They provide the reader with more in-depth insight of the performance of countries with regard to the EU level targets agreed within the EEA. They are based on the most up-to-date quantitative and qualitative evidence available.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 focuses on how the Member State has addressed or is addressing one of its education challenges. Section 3 covers early childhood education and care. Section 4 deals with school education policies. Section 5 covers vocational education and training and adult learning. Finally, Section 6 discusses measures in higher education.

The Education and Training Monitor's country reports were prepared by the European Commission's Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL).

The document was completed on 30 September 2022

More background data at:

<https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/>



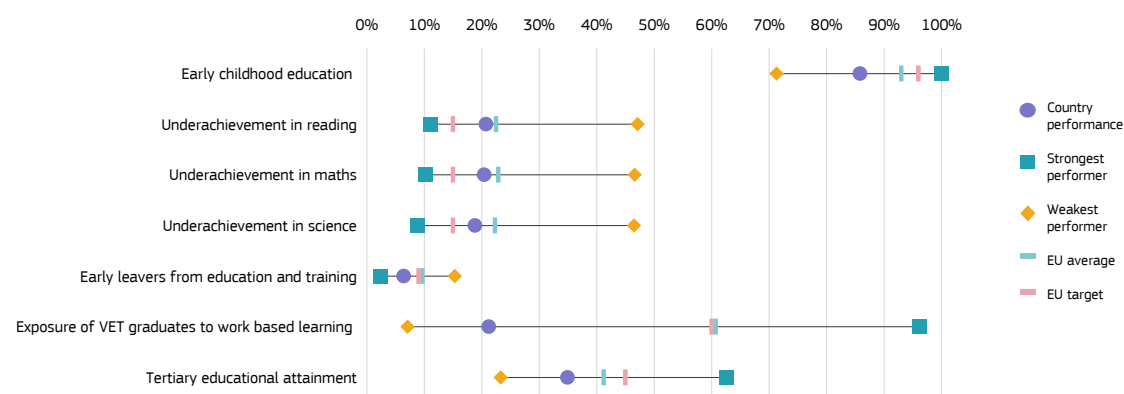
1. Key indicators

Figure 1: Key indicators overview

			Czechia		EU	
			2011	2021	2011	2021
EU-level targets			2030 target			
Participation in early childhood education (from age 3 to starting age of compulsory primary education)	≥ 96 %		76.8% ¹³	85.8% ²⁰	91.8% ¹³	93.0% ²⁰
Low achieving eighth-graders in digital skills	< 15%		15.0% ¹³	:	:	:
Low achieving 15-year-olds in:	Reading	< 15%	23.1% ⁰⁹	20.7% ¹⁸	19.7% ⁰⁹	22.5% ¹⁸
	Maths	< 15%	22.3% ⁰⁹	20.4% ¹⁸	22.7% ⁰⁹	22.9% ¹⁸
	Science	< 15%	17.3% ⁰⁹	18.8% ¹⁸	18.2% ⁰⁹	22.3% ¹⁸
Early leavers from education and training (age 18-24)	< 9 %		4.9% ^b	6.4% ^b	13.2%	9.7% ^b
Exposure of VET graduates to work-based learning	≥ 60 % (2025)		:	21.2%	:	60.7%
Tertiary educational attainment (age 25-34)	≥ 45 %		25.1% ^b	34.9% ^b	33.0%	41.2% ^b
Participation of adults in learning (age 25-64)	≥ 47 % (2025)		:	:	:	:
Other contextual indicators						
Equity indicator (percentage points)			:	18.6 ¹⁸	:	19.30 ¹⁸
Early leavers from education and training (age 18-24)	Native		4.8% ^b	6.2% ^b	11.9%	8.5% ^b
	EU-born		13.2% ^{bu}	17.2% ^{bu}	25.3%	21.4% ^b
	Non EU-born		: ^{bu}	9.0% ^{bu}	31.4%	21.6% ^b
Upper secondary level attainment (age 20-24, ISCED 3-8)			91.7% ^b	89.3% ^b	79.6%	84.6% ^b
Tertiary educational attainment (age 25-34)	Native		24.9%	34.0% ^b	34.3%	42.1% ^b
	EU-born		29.8%	54.1% ^b	28.8%	40.7% ^b
	Non EU-born		27.8%	42.7% ^b	23.4%	34.7% ^b
Education investment	Public expenditure on education as a percentage of GDP		4.6%	5.1% ²⁰	4.9%	5.0% ²⁰
	Public expenditure on education as a share of the total general government expenditure		10.6%	10.8% ²⁰	10.0%	9.4% ²⁰

Sources: Eurostat (UOE, LFS, COFOG); OECD (PISA). Further information can be found in Annex I and at *Monitor Toolbox*. Notes: The 2018 EU average on PISA reading performance does not include ES; the indicator used (ECE) refers to early-childhood education and care programmes which are considered by the International Standard Classification of Education (ISCED) to be 'educational' and therefore constitute the first level of education in education and training systems – ISCED level 0; the equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status; b = break in time series, u = low reliability, : = not available, 09 = 2009, 13 = 2013, 18 = 2018, 20 = 2020.

Figure 2: Position in relation to strongest and weakest performers



Source: DG Education, Youth, Sport and Culture, based on data from Eurostat (LFS 2021, UOE 2020) and OECD (PISA 2018).

2. A focus on inclusive education

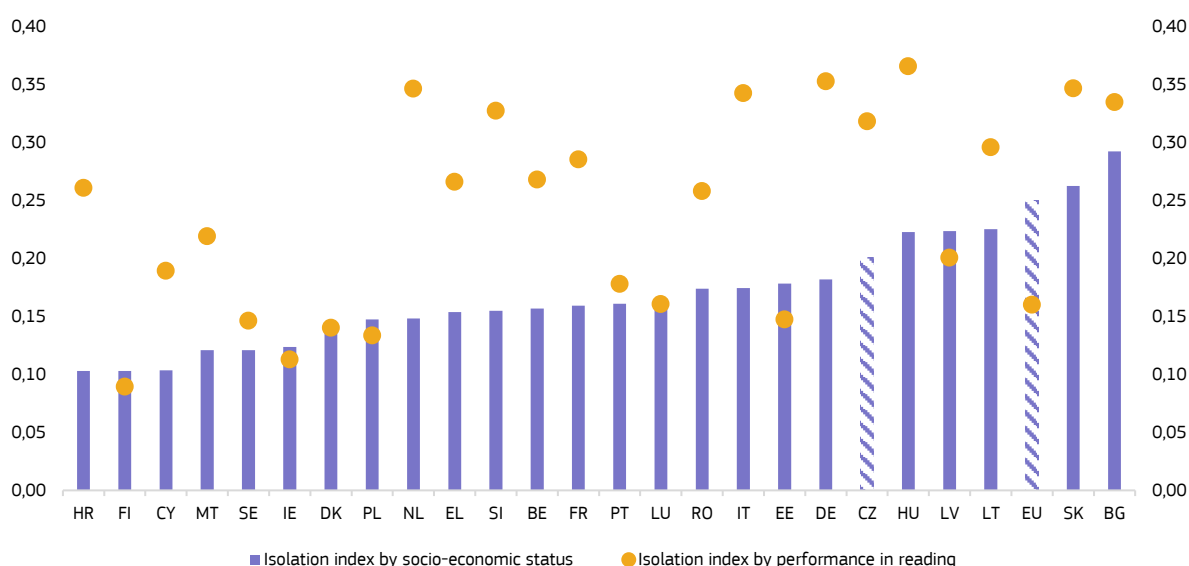
The Czech education system is marked by wide disparities in the performance of schools.

Education outcomes are strongly influenced by socio-economic background and school location. Advantaged students outperform their disadvantaged peers by 148 PISA score points, the equivalent of around 3 years of schooling (EU: 130 points). This large gap is partly linked to the high selectivity of the education system. As a result, disadvantaged and low-performing pupils tend to concentrate in certain schools, as evidenced by Czechia's ranking in the PISA isolation index (see Figure 3). The early tracking of 10–25% of pupils – typically of higher socio-economic status – through multi-year secondary schools¹ contributes to the widening of

inter-school differences. As PISA findings show that a more heterogeneous student population at school level is generally associated with better overall performance, the high selectivity of the Czech education system is likely to be a drag on education outcomes in general. A recent analysis of spatial disparities by the School Inspectorate, 'Czech education in maps' (CSI, 2022), identified further drivers for geographic disparities, such as the shortage of qualified teachers, weaknesses in school management and poor cooperation with stakeholders. Research (PAQ, 2022) has also found that municipalities in which pupils performed better than expected based on their social situation sought to address social and educational challenges simultaneously, for instance by reducing segregation, working with disadvantaged communities, improving access to pre-school education and engaging in social work. Cross-sectoral approaches are all the more important, as the 'islands of educational

¹ Six- and eight-year secondary schools (gymnasia) correspond to ISCED levels 2 and 3, while students enrolled in conservatories can obtain a short-cycle tertiary qualification (ISCED 5).

Figure 3: Isolation index of disadvantaged students and low-achieving students, PISA 2018



Source: OECD (PISA 2018). Note: The left axis indicates isolation by socio-economic status, and the right axis indicates isolation by performance in reading. The isolation index measures whether students of a certain type (here disadvantaged students and low-achieving students) are more concentrated in some schools. The index is related to the likelihood of a representative of this type to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 meaning no segregation and 1 full segregation. OECD, PISA 2018, Vol. II.

failure² across regions are often associated with 'destabilising family poverty' (PAQ, 2022).

As part of the Education 2030+ Strategy, a comprehensive set of measures is being implemented to address inequalities.

The pandemic-induced school closures have deepened existing inequalities. At the end of the 2020/21 school year, 50 000 pupils were lagging behind due to insufficient participation in online learning, mostly from disadvantaged backgrounds (CSI, 2021b). Furthermore, a study (PAQ, 2021) conducted among 5th graders (May/June 2021) found that Czech pupils lost the equivalent of 3 months of in-person learning on average. To compensate for the learning losses, a large-scale national tutoring plan was launched in September 2021. While all schools benefit from the programme, schools with more pupils from disadvantaged backgrounds receive more support. In recent years, significant efforts have been made to address inequalities through increased support for disadvantaged schools. The number of teaching assistants has increased steadily, and further measures are planned to address the need for teachers to receive support from school psychologists and special education professionals in mainstream schools (under the European Social Fund Plus). The 'middle points of support' currently being piloted (see European Commission, 2021), which provide methodological guidance to schools, also aim to address inequalities between schools. Furthermore, under the national recovery and resilience plan, additional funding is planned to be provided to 400 disadvantaged schools for support measures (e.g. support specialists, training for teachers to work with heterogeneous groups), complemented by guidance to school leaders. In the light of the further revision of the funding of schools planned the end of 2025, it will be crucial to evaluate if these measures were effective.

Segregation of Roma pupils persists despite legislative changes to promote inclusive

² Educational failure here refers to an index developed by PAQ Research (2022) that measures: 1. Share of compulsory school completion before the 9th year of primary school; 2. Proportion of non-thriving pupils (primary school pupils receiving a 'failed' assessment at the end of the school year); 3. Rate of absenteeism (number of missed school hours per pupil).

education. Around half of all Roma pupils (aged 6 to 15) report that they attend schools where all or most of their schoolmates are also Roma, a significant increase from 29% in 2016 (FRA RS, 2022). In most cases, segregation cannot be explained by the predominance of Roma living in the schools' catchment areas. It stems more from the placement of Roma pupils in special classes as well as school admission practices. In an effort to promote inclusive education, the so-called 'practical schools' for pupils with mild mental disabilities were abolished in 2016. Instead, a new programme was created with adjusted learning outcomes, which could be provided in mainstream settings. The possibility of placing pupils in special schools or special classes (minimum of 6 pupils) was however kept, requiring parents' consent. Due to weaknesses in implementation, little changed for Roma pupils: The number of pupils following programmes with adjusted learning outcomes is largely equivalent to those previously attending practical schools. The majority (85%) of pupils with special educational needs are placed in segregated schools, special classes or study groups. According to national data based on qualified estimates, Roma pupils constituted one quarter of all pupils diagnosed with mild mental disability in 2019-20 (against a share of 3.5% in the school-aged population) (Government of the Czech Republic, 2021). Moreover, the large variations in the share of Roma pupils with special educational needs by region (ranging from 7.3% in the disadvantaged region of Karlovy Vary to more than 20% in Prague, Zlin and Liberec regions) raise doubts about the objectivity of diagnosis and suggests the influence of other school-related factors.

The lack of societal consensus on the benefits of inclusive education restrict opportunities for Roma pupils.

The education prospects of Roma pupils are much lower than those of their peers, with only 22% completing upper secondary education (ISCED 3) (vs 89.3% in the total population) (FRA RS, 2022). Their educational disadvantage already starts at an early age with lower participation in early childhood education and care (see Section 3). The majority of pupils from segregated primary schools tend to choose vocational paths that do not offer a school-leaving exam ('maturita') and have a higher risk of dropout due to inadequate

preparation at primary level. Beyond lower academic expectations, a segregated environment also aggravates social disadvantages resulting from limited contacts with non-Roma peers. A general lack of commitment to inclusive education, coupled with a lack of incentives for desegregation, hinder progress. Wrong diagnosis of special needs is incentivised by schools' funding mechanisms, directly linked to the number of pupils with special educational needs. Segregated schools therefore tend to be well funded and seen as more suited to addressing the needs of vulnerable pupils than mainstream schools. They often attract Roma families from beyond their catchment area, who feel better supported than in mainstream schools. The National Roma Integration Strategy 2021-30 aims to reduce the education gap of Roma, with a strong focus on early interventions. These will be partly supported under the Johannes Amos Comenius Programme (European Social Fund Plus), which contains a Roma-specific objective (EUR 112 million). The strategy however lacks details on how desegregation will be pursued and how the necessary commitment to the strategy will be achieved at local level.



Box 1: The European Social Fund supports “fair schools” in the city of Liberec

The project focuses on the implementation of long-term strategic plans for social inclusion and inclusive education in the city of Liberec. It supports 26 primary schools and 33 kindergartens in the introduction and implementation of individual integration, which will improve the overall quality of education of children and pupils in Liberec. Activities include tutoring pupils at risk of school failure, counselling and support for parents, literacy clubs for active citizenship, social and personal development, and cooperation between participating institutions to support the transition of children between educational levels.

Allocation: EUR 2 655 523 (CZK 73 085 46)

3. Early childhood education and care

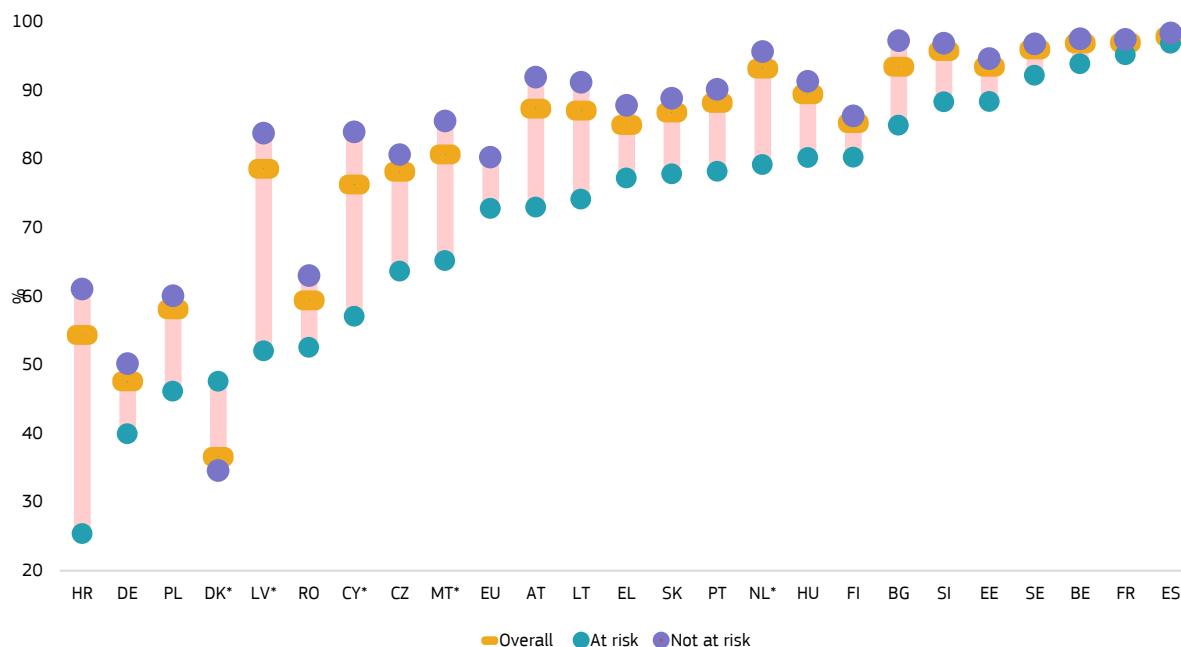
Participation in early childhood education remains low and shows a slight downward trend.

In 2020, 85.8% of children aged 3 and older participated in early childhood education and care, well below the EU average of 93% and the 2030 EU level target of 96%. While participation increased steadily in the past decade to peak at 87.7% in 2017, the positive trend has stalled and even slightly reversed in recent years. Similarly, the low participation rate of children under three further dropped to 4.8% in 2020 (from 6.3% in 2019). While this could be partly explained by the impact of the pandemic, it is the lowest figure recorded in the EU and far below the EU average (32.3%). Access is limited due to the inadequate and uneven distribution of capacities. Whereas in the east of the country around 98% of children above the age of three participate in early childhood education and care, this is only 80.5% for the region around the capital. At the same time, only 87% of the total capacity of preschools was used in 2021 due to underuse in remote areas.

Inequalities persist in terms of access and quality of early childhood education and care.

While the benefits of access to quality education from an early age are highest among children from disadvantaged backgrounds, only 63.6% of Czech children at risk of poverty and social exclusion attend formal childcare or kindergartens, compared to 80.6% of those not at risk. Participation of Roma children is even lower at 51% (FRA RS, 2021). Access is not only hindered by capacity shortages, but also by financial barriers and additional requirements set by certain kindergartens (CSI, 2022). The introduction of compulsory preschool from the age of 5 has been a key measure to improve access, but implementation is incomplete. To address capacity constraints, the government aims to increase childcare facilities by 40% by 2025 with the support of the Recovery and Resilience Facility. With the support of the European Regional Development Fund (ERDF), 9500 new capacities are expected to be created and another 10 000 modernised. Improving access for disadvantaged groups is a key priority under the Education

Figure 4: Participation of children in formal childcare or education between 3 and minimum mandatory school age by AROPE, 2020 (%)



Source: Eurostat (EU-SILC), special extraction. Notes: * = Data with low reliability; Data for IE, IT, LU not available. The AROPE rate is the share of the total population at risk of poverty or social exclusion.

Strategy 2030+ underpinned by EU funds. Further efforts are needed to increase the quality of services, in particular in disadvantaged areas, in the light of growing shortages of qualified staff.

Capacity problems are further aggravated by the inflow of displaced children from Ukraine. It is estimated that by May 2022, 15 000 children below the age of three had arrived in the country. For comparison, around 20 000 childcare places were already lacking for this age group (MPSV, 2020). By 29 June 2022, 20 349 children between 3 and 6 had been granted residence permits. In total, 10 685³ children have been accepted to kindergarten for the years 2021/22⁴ and 2022/23. To address the shortages, a special law (Lex Ukrajina I, 2022) was adopted, which greatly simplifies the conditions under which the capacity of kindergartens can be

increased. A system of redistribution of children within and between regions has also been set up. Many employers also launched their own company kindergartens or child groups. To support the integration of Ukrainian children, preparatory groups as well as informal adaptation groups have been set up, where children learn the language and receive psychological support.

4. School education

Early school leaving is low compared to the EU average, but there are significant regional variations. The overall share of 18- to 24-year-olds with at most lower secondary education fell from 7.6% in 2020 to 6.4% in 2021, breaking the worsening trend of the past decade (+2.7 pps between 2010 and 2020). Almost all regions recorded an improvement in the last year and have rates below the EU-level target of 9%. However, Karlovy Vary and Ústí nad Labem regions stand out with 14.1% (down from 17.4% in 2020). The challenges in these regions are addressed by targeted programmes with the support of EU funds.

³ Reference date: 5 October 2022. Of these, 9 371 attended.

⁴ One-fifth of these children no longer attend kindergarten.

Education outcomes are overall good, but challenges facing the teaching profession represent a risk in the medium term.

An ageing teacher workforce (44.3% of teachers are older than 50 years vs EU 38.9%) and emerging teacher shortages, particularly in certain subjects and in disadvantaged areas, may have a negative impact on the quality of education and reinforce inequalities. In an effort to make the teaching profession more attractive, teacher salaries have risen significantly in recent years. Nevertheless, they are still far below the average salary of those with tertiary qualifications (60-77%). The 2022 increase was only 2% (as opposed to 3% previously announced), which was criticised by trade unions in the light of inflation of above 6%. A recent campaign ('Teachers matter') aims to strengthen the prestige of the teaching profession and attract more young people to teaching. Initial teacher training is also being reformed, the primary aim being to increase its practical component, but is still in a preparatory phase. The completion of this reform is essential, as only two-thirds of teachers report having taught in schools during their studies (TALIS 2018), the lowest share in the EU.

A review of the framework curriculum has been launched to boost the acquisition of key competences.

The reform is based on the Education Strategy 2030+ and the Environmental Education Action Plan 2022-2025. The guidelines for the reform of the primary and lower secondary framework curriculum were published for public consultation in March 2022. They propose a fundamental revision of education content and assessment methods to support a competence-based approach to teaching and learning as well as the reorganisation of entrance examinations. There is a special focus on education for environmental sustainability. The objective is to start implementing the new curricula gradually from September 2024.

Significant reforms are under way to boost innovation in the context of the digitalisation of education.

Czech pupils are among the top performers in digital skills (ICILS). In 2021, 85% of Czechs aged 16 to 19 reported to have at least basic digital skills, well above the EU average (69%). The national recovery and resilience plan is expected to give a further boost

to the digital transformation of education by financing major reforms and investments. The revision of the framework curricula related to digital skills is being gradually rolled out. The number of teaching hours of information and communication technology (ICT) has been increased and computational thinking strengthened. In 2022, Czechia launched its own edition of the IT Fitness Test⁵ - designed in Slovakia and based on EU DigComp - which will help students assess their digital skills. Furthermore, at least 9 000 schools will be equipped with digital technologies, including augmented reality, virtual reality, robotics and 3D printing equipment. To address the digital divide, at least 70 000 disadvantaged pupils devices will be given devices. Moreover, a network of IT counsellors (IT 'gurus') will be set up. They will provide targeted mentoring to at least 1 120 schools on their purchase of IT equipment, IT administration set-up, connectivity and internal school network.



Box 2: Policy experimentation with hybrid learning in schools

Since 2021, the Ministry of Education, Youth and Sport (MŠMT, 2021e) has opened up the opportunity for 63 schools (35 primary schools, 10 grammar schools and 18 vocational schools) to test various ratios of distance learning to face-to-face teaching. The project will last until December 2023. The aim is to examine the possibilities of organising content and methods for blended learning, which could be an extension of the school's educational offer in future. Preliminary data collected by the National Pedagogical Institute together with the Czech School Inspectorate (NPI, 2021) so far suggest that hybrid learning supports children's ability to learn independently, work individually and in groups, and that it develops the communication and presentation skills necessary for independent work and for reflecting on learning outcomes.

⁵ <https://itfitness.eu/>

The majority of children displaced from Ukraine are yet to be integrated in the Czech education system.

As of 12 July 2022, Czechia had granted residence permits to 74 155 Ukrainian children between 3 and 15. Children in this age group are entitled to a place in kindergarten or primary school, but only a proportion of Ukrainian families made use of this possibility. In total, 52 647⁶ pupils have been registered in primary schools for 2021/22⁷ and 2022/23, although special admissions continue. Many chose to follow adaption classes, which focus on teaching the Czech language. A large number of children continued their education via distance learning provided by their schools in Ukraine. Access to secondary education is voluntary, and a place is not guaranteed. In the next school year 2022/23, all children of compulsory school age will be required to attend school (Lex Ukrajina II, 2022). If there are excessive numbers, children might have to change schools according to capacities. Schools will receive further financial support for employing coordinators and bilingual assistants. Secondary schools will join the scheme of free language courses, which have been limited so far to primary schools and kindergartens.

5. Vocational education and training and adult learning

Vocational education and training (VET) attracts a relatively large share of secondary school pupils, who have good labour market prospects overall. The share of upper secondary school pupils participating in VET was 70.5% in 2020, similar to the rate in 2019 but down from 73.8% in 2013⁸. The employment rate of mid-level VET graduates, one to three years after graduation, is 84.1%, well above the EU average of 76.4%⁹. At the same time,

pandemic-related school closures had a particularly strong effect on pupils in vocational schools, who are most at risk of academic failure. Steps to attract higher-performing pupils to vocational schools, such as information campaigns or scholarships, have so far been ineffective.

The employment prospects of apprentices are precarious.

The share of VET students who were exposed to work-based learning is relatively small (21% in 2021) compared to the EU average (60.7%)¹⁰. The employment situation is unfavourable for category E study programmes (lower secondary education, leading to a vocational certificate) such as food production, food processing, masonry, construction work, sales work, and service operations. For category H study programmes (secondary education leading to a vocational certificate, with a possibility to continue studies to 'maturita'), there is little evidence of graduates' ability to find employment in occupations such as food manufacturing or as baker, confectioner or cook/waiter.

Some measures are planned to address structural problems in the vocational education system.

The issues include an overly broad, inflexible range of subjects, low permeability of the system due to a lack of a solid general subject base and the low social status of apprentices (MŠMT, 2021d). The Education 2030+ Strategy envisages a revision of the framework education programmes in the the common core of vocational training.

Individual learning accounts (ILAs), supported by the national recovery and resilience plan¹¹, are expected to become a key feature of adult learning.

The Ministry of Labour and Social Affairs is preparing an ILA scheme to help boost lifelong learning, develop a systemic environment for further education and to increase participation in further education in line with the objectives of the European Skills

⁶ Reference date: 5 October 2022. Of those registered, 43 921 attended school.

⁷ Of those registered for 2021/22, more than one-fifth no longer attended primary school in June 2022.

⁸ Eurostat, educ_uae_enrs05.

⁹ Eurostat, edat_lfse_24.

¹⁰ Eurostat, edat_lfs_9919.

¹¹ [Czechia's recovery and resilience plan | European Commission \(europa.eu\)](#)

Agenda¹² (NPI, 2022). Until now, the opportunity to participate in state-funded training has been reserved for people registered with the Labour Office who have decided to undertake a retraining course to help them find a suitable job. However, the concept of ILAs will require more preparation and systematic changes in the approach to lifelong learning, including effective use of funding. The education of 130 000 adults in a wide range of digital and Industry 4.0 skills are planned to be supported under the national recovery and resilience plan up to 2025.

Under 2030 national targets, Czechia is committed to increase adult learning participation from 23% (2016) to 45%¹³. This will double participation, though it will still remain below the EU target of 60%. Measures are expected to lead to an increase in the motivation of adults to participate in education and support the participation of employed people who are not looking for a new job but want to improve their qualifications. A publicly accessible database of retraining and further education, from which people can choose training courses, will also help expand the range of education on offer (NPI, 2022).

6. Higher education

Reducing the dropout rate is crucial to increase the persistently low level of tertiary education attainment. The share of 25- to 34-year-olds holding a tertiary degree increased slightly to 34.9% (+1.9 pps from 2020) and is close to the modest national target of 35%¹⁴ (MŠMT, 2020b), but far from the EU average (41.2%) and the EU-level target of 45% by 2030¹⁵. Many more women (43.3%) complete tertiary education than men (27.1%), resulting in a

gender gap well above the EU average (16.2 pps vs EU 10.9 pps) that is growing. The dropout rate is high: almost half of the total studies started in 2017 had been abandoned by students without completion by 2021. The underlying factors seem to be wide-ranging, and are likely to be partly driven by external factors linked to labour market trends. The high dropout rate in the first year (33.4% in 2019/20) points to the weaknesses of the professional orientation system and financial benefits linked to enrolment in higher education. Nine out of ten students have a paid job during their studies (Hauschildt, K. et al., 2021). While this helps overcome financial barriers, it could prolong the study period and increase the risk of dropout due to insufficient time for studies. The low labour market relevance of courses, which also manifests itself in few opportunities for practical experience, can be another demotivating factor (MŠMT, 2020b). Only 1 in 5 students report having done an internship (Hauschildt, K. et al., 2021). At the same time, due to favourable labour market trends and emerging labour shortages, those leaving their studies prematurely can find jobs relatively easily. The employment rate of tertiary graduates – at 86.7% – is only slightly above that of upper secondary graduates at 81.2% (CZ: 5.5 pps, EU 14.7 pps), the smallest difference in the EU¹⁶. The wage premium is also small (16% vs EU-22 +25%).

Reforms aim to adapt higher education better to changing labour market needs.

Higher education struggles to equip young people with the skills demanded by the labour market. 76% of Czech businesses report difficulties in finding ICT specialists, the highest share in the EU (55%) (DESI, 2022). The government aims to address these challenges by improving the flexibility and labour market relevance of higher education (MŠMT, 2020b), strategic management (MŠMT, 2020d) and internationalisation (MŠMT, 2020c). The national recovery plan aims to support higher education institutions by adapting study content, increasing work-based elements of programmes and promoting blended formats. At least 35 new study programmes are expected to receive accreditation, including 15 in fast-growing, high value-added sectors that suffer from a lack

¹² European Skills Agenda - Employment, Social Affairs & Inclusion - European Commission (europa.eu)

¹³ Cf. press release IP/22/372. This covers participation in the last 12 months. The 2016 baseline was a special extraction by Eurostat based on the 2016 Adult Education Survey.

¹⁴ The target refers to the 30-34 age group, while the new EU-level target refers to 25- to 34-year-olds.

¹⁵ Eurostat, edat_ifse_03.

¹⁶ Eurostat, edat_ifse_24.

of highly skilled specialists, such as cybersecurity or artificial intelligence. Moreover, at least 20 additional study programmes (Bachelor's or Master's) with a professional profile and 20 new lifelong learning courses (including microcredentials) are planned to be developed by universities. These measures have the potential to strengthen the role of higher education in driving innovation and economic growth. However, further efforts are needed to increase education attainment and boost advanced skills to improve labour productivity, which has stalled in recent years.

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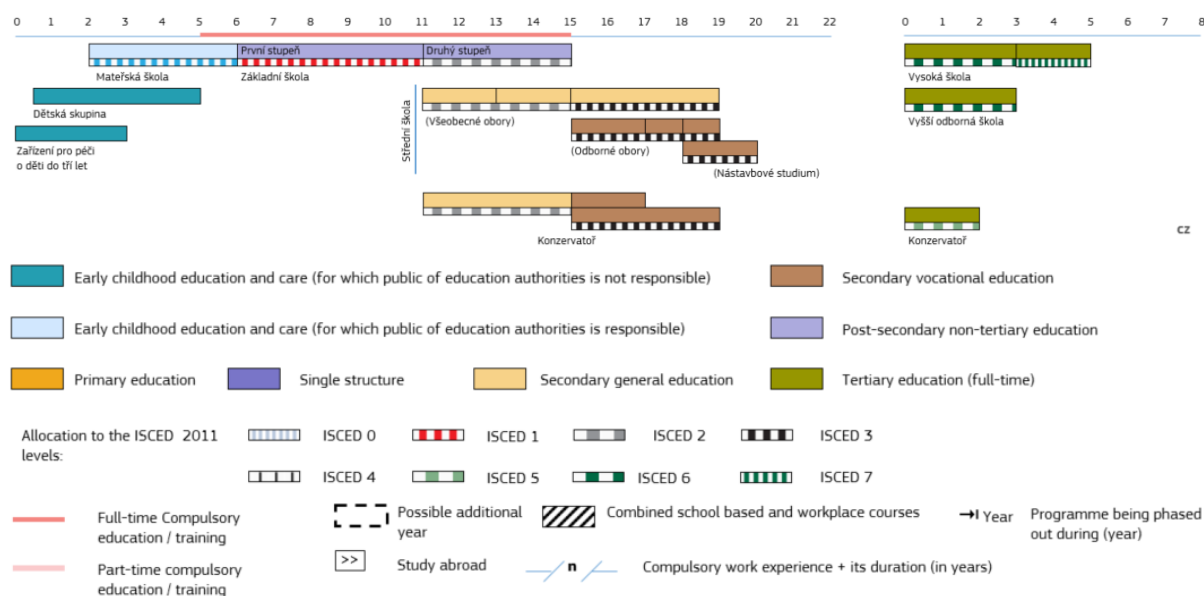
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Annex I: Key indicators sources

Indicator	Source
Participation in early childhood education	Eurostat (UOE), educ_uae_enra21
Low achieving eighth-graders in digital skills	IEA, ICILS
Low achieving 15-year-olds in reading, maths and science	OECD (PISA)
Early leavers from education and training	Main data: Eurostat (LFS), edat_lfse_14 Data by country of birth: Eurostat (LFS), edat_lfse_02
Exposure of VET graduates to work based learning	Eurostat (LFS), edat_lfs_9919
Tertiary educational attainment	Main data: Eurostat (LFS), edat_lfse_03 Data by country of birth: Eurostat (LFS), edat_lfse_9912
Participation of adults in learning	Data for this EU-level target is not available. Data collection starts in 2022. Source: EU LFS.
Equity indicator	European Commission (Joint Research Centre) calculations based on OECD's PISA 2018 data
Upper secondary level attainment	Eurostat (LFS), edat_lfse_03
Public expenditure on education as a percentage of GDP	Eurostat (COFOG), gov_10a_exp
Public expenditure on education as a share of the total general government expenditure	Eurostat (COFOG), gov_10a_exp

Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2022. The Structure of the European Education Systems 2022/2023: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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