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**COMMISSION STAFF WORKING DOCUMENT**

**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**

ITALY



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/>



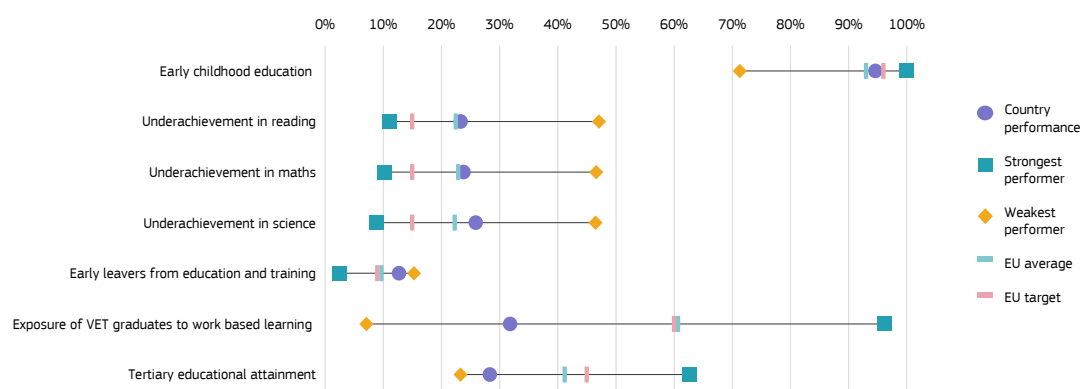
# 1. Key indicators

**Figure 1: Key indicators overview**

			Italy		EU	
			2011	2021	2011	2021
<b>EU-level targets</b>			<b>2030 target</b>			
Participation in early childhood education (from age 3 to starting age of compulsory primary education)	≥ 96 %		97.3% <sup>13</sup>	94.6% <sup>20</sup>	91.8% <sup>13</sup>	93.0% <sup>20</sup>
Low achieving eighth-graders in digital skills	< 15%		:	:	:	:
Low achieving 15-year-olds in:	Reading	< 15%	21.0% <sup>09</sup>	23.3% <sup>18</sup>	19.7% <sup>09</sup>	22.5% <sup>18</sup>
	Maths	< 15%	24.9% <sup>09</sup>	23.8% <sup>18</sup>	22.7% <sup>09</sup>	22.9% <sup>18</sup>
	Science	< 15%	20.6% <sup>09</sup>	25.9% <sup>18</sup>	18.2% <sup>09</sup>	22.3% <sup>18</sup>
Early leavers from education and training (age 18-24)	< 9 %		17.8%	12.7% <sup>b</sup>	13.2%	9.7% <sup>b</sup>
Exposure of VET graduates to work-based learning	≥ 60 % (2025)		:	31.8%	:	60.7%
Tertiary educational attainment (age 25-34)	≥ 45 %		21.1%	28.3% <sup>b</sup>	33.0%	41.2% <sup>b</sup>
Participation of adults in learning (age 25-64)	≥ 47 % (2025)		:	:	:	:
<b>Other contextual indicators</b>						
Equity indicator (percentage points)			:	18.4 <sup>18</sup>	:	19.30 <sup>18</sup>
Early leavers from education and training (age 18-24)	Native		15.3%	10.7% <sup>b</sup>	11.9%	8.5% <sup>b</sup>
	EU-born		30.5%	21.5% <sup>b</sup>	25.3%	21.4% <sup>b</sup>
	Non EU-born		43.4%	34.7% <sup>b</sup>	31.4%	21.6% <sup>b</sup>
Upper secondary level attainment (age 20-24, ISCED 3-8)			77.3%	83.5% <sup>b</sup>	79.6%	84.6% <sup>b</sup>
Tertiary educational attainment (age 25-34)	Native		22.9%	31.5% <sup>b</sup>	34.3%	42.1% <sup>b</sup>
	EU-born		11.5%	13.2% <sup>b</sup>	28.8%	40.7% <sup>b</sup>
	Non EU-born		11.5%	12.6% <sup>b</sup>	23.4%	34.7% <sup>b</sup>
Education investment	Public expenditure on education as a percentage of GDP		4.1%	4.3% <sup>20</sup>	4.9%	5.0% <sup>20</sup>
	Public expenditure on education as a share of the total general government expenditure		8.3%	7.5% <sup>20</sup>	10.0%	9.4% <sup>20</sup>

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, : = 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 early school leaving

**Despite continued improvement, early school leaving remains a significant challenge for Italy's education system.** Early school leaving is on a declining trend, but remains among the highest in the EU, particularly in the south and among the foreign-born population. The proportion of early leavers from education and training (ELET) in the 18-24 age group was 12.7% in 2021, down from 13.1% the previous year, confirming the downward trend seen over the past decade. While below the national target of 16%, the ELET rate remains well above the EU average of 9.7% and far short of the new EU-level target of below 9%.

**Early school leaving varies widely across regions.** The rate ranges from 9.6% in the northeast to 15.3% in the south, with a peak of 21.2% in Sicily. Boys are more likely than girls to leave school early (14.8% vs 10.5%), with a wider than-average gender gap (4.3 pps. vs 3.5 pps. for the EU average). At over 30%, the rate of early school leaving among foreign-born 18-24 year-olds is three times as high as that of Italian-born people (10.7%), considerably higher than the EU average of 21.2%.

**One of the main issues in the debate on early school leaving is the true scale of the phenomenon.** The national institute for the evaluation of the education system, INVALSI, introduced the concept of 'hidden' or 'implicit' early school leaving (*dispersione implicita*). It indicates the share of students who at the end of upper secondary education have not achieved the corresponding learning objectives – and therefore face the same limited employment and social prospects as early school leavers<sup>1</sup>. The latest round of INVALSI testing<sup>2</sup> found that in 2022, this

share fell slightly compared to 2021 (from 9.8% to 9.7%) across the country, with the greatest improvements recorded in some southern regions<sup>3</sup>.

**The government is investing in reducing and preventing early school leaving in the framework of its national recovery and resilience plan (RRP).** Italy's RRP allocates EUR 1.5 billion to projects that aim to reduce geographical imbalances in learning outcomes<sup>4</sup>. At national level, the first disbursement of EUR 500 million under this scheme was authorised by the education minister in June 2022. The funds will be used to finance projects involving students in the 12-18 age group in 3 198 schools selected on the basis of indicators for drop-out rate and socio-economic context. An expert working group appointed by the ministry defined general indications and guidelines for the schools involved. The projects include personalising learning paths in low-performing schools, bringing in targeted support for school leaders, mentoring and training for at least 50% of teachers, and extending school teaching time by running targeted projects.

**In parallel, the government is reforming the system of orientation and guidance in the transition from lower to upper secondary school.** If properly implemented, a more effective orientation system could help reduce early school leaving and improve learning outcomes. Evidence suggests that students who choose not to follow the orientation advice offered at the end of lower secondary school are almost twice as likely to fail their first year of upper secondary school compared to those who do (Fondazione Agnelli 2021).

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and English. Over 2.4 million students took part in the 2022 round of testing.

<sup>3</sup> Puglia (-4.3 pp) and Calabria (-3.8 pp).

<sup>4</sup> Source: *ItaliaDomani Piano nazionale di ripresa e resilienza*  
<https://italiadomani.gov.it/Interventi/investimenti/intervento-straordinario-finalizzato-alla-riduzione-dei-divari-territoriali-nei-cicli-I-e-II-della-scuola-secondaria-di-secondo-grado.html>

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<sup>1</sup> In 2021, over a fifth of Italian 15-24 year-olds (21.9%) were not in education, employment or training, well above the EU average of 12.3% (Eurostat).

<sup>2</sup> INVALSI national tests measure the competences of students in grades 2, 5, 8, 10 and 13 in Italian, maths

**Funding under the recovery and resilience plan is also being used to build innovative schools, designed to serve the whole community.** An ad hoc committee composed of architects and education experts provided guidelines for designing school buildings that are environmentally sustainable and innovative in the use and distribution of learning spaces. The new schools should be designed and used as cultural hubs for local communities, to help strengthen social cohesion in deprived areas. 213 new schools are to be built across the country, over 40% of them in the south.



#### Box 1: Community education pacts

Italy's 'community education pacts' were brought in under the 2020/21 plan for schools. They are agreements between schools, local authorities, public and private institutions and the third sector, designed to involve and empower the community in the project by forging a strong connection with the local area. Initially implemented largely to support the safe reopening of schools after the pandemic (for instance by making available extra spaces such as parks, libraries, theatres and museums for curricular and extra-curricular activities), the pacts are proving instrumental in combating educational poverty and reducing early school leaving. The pacts strengthen the role of the school as a social and community laboratory and learning hub, strongly rooted in the local area. They expand the education offer and learning opportunities. The pacts encourage the active participation of young people and their families, promoting paths of active citizenship and solidarity. The education pacts also support the opening of schools throughout the day to provide a meeting place open to all. Partial data collected by the Ministry of Education's agency INDIRE in 12 regions in 2021 listed 459 community education pacts financed by the Ministry of Education, and 71 education/cooperation pacts between small schools and the community.

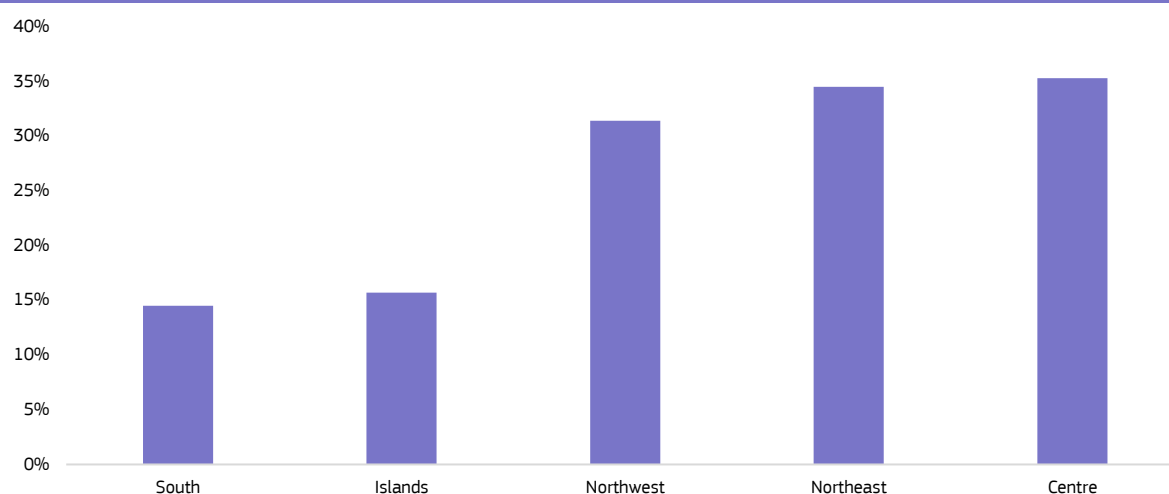
### 3. Early childhood education and care

**Participation in early childhood education (ECEC) is almost universal for 3-6 year-olds, but enrolment of younger children is low.**

94.6% of 3-6 year-olds were enrolled in ECE in 2020, above the EU average of 93% and not far below the EU-level target of 96% by 2030. The rate of enrolment of children below 3 rose slightly from 25.5% in the 2018/2019 school year to 26.9% in 2019/2020 (Istat, 2021). This is due to an increase in supply as well as to a reduction in the number of children below 3, caused by falling birth rates. The most significant increase in places was in the south and islands (up by 4.9% and 9.1% respectively, against a 1.5% increase nationally) (Istat, 2021). The increase in the south is the result of government measures adopted over the years to help bridge the gaps across the country<sup>5</sup>. However, wide gaps persist in the supply of childcare, both between the north and the south and between large cities and smaller municipalities (Figure 3).

**Women's employment status plays a determining role in access to childcare services.** 32.4% of families in which the mother works use childcare services, against 15.1% of families in which only the father works. Families in which only one parent works may have difficulty accessing private childcare services, due to the relatively high fees, and public childcare services, because the access criteria applied by the municipalities tend to prioritise families in which both parents work.

<sup>5</sup> Early childhood education services are among the priorities for action under the PACs (action plans for cohesion) launched in 2012 by the Ministry for Development and Cohesion, in agreement with the European Commission. The subsequent national action plan for 0-6 integrated education system (Legislative Decree 65/2017) has allocated additional resources for early childhood services, especially for southern regions.

**Figure 3: ECEC places per 100 children aged 0-2 (school year 2019/2020)**


Source: Istat

### The government is taking steps to expand the ECEC offer in the framework of the RRP.

So far, 2 190 projects have been financed (1.857 for childcare facilities and integrated ECEC poles for 0-6 year-olds and 333 pre-primary schools for 3- to 6-year-olds), for an investment of EUR 3 billion. Over 55% of the total funding was allocated to southern regions. Building new structures and renovating existing ones is a precondition for expanding the use of childcare services. However, the low attendance rate is also due to factors such as high fees, socio-economic background (university-educated parents are more likely to enrol their children in childcare) and general educational poverty contexts. All these factors will need to be addressed if the country is to make progress on this front and achieve the government's target of 33% by 2026.

**The COVID-19 pandemic has had an impact on childcare services.** According to a survey by Istat and the University of Venice Ca' Foscari, 29% of public facilities and 45% of private facilities report a decline in enrolments (with a resulting decrease in income from fees). They also needed to face extraordinary costs (88% of respondents) and an increase in management costs (85%), in most cases 'considerable' or 'very considerable'. Schools took several measures to enable a safe reopening in the 2020/2021 school year. These

include reorganising available spaces (93% of respondents), training educators (92%), staggered entry and exit times (79%), setting up new communication channels with families (72%), purchasing new educational materials (58%) and hiring new staff (51%). A few structures modified their opening hours (27%), 18% were able to acquire additional spaces, and fewer than 10% reduced the number of sections, staff or services (e.g. canteen). Despite the health concerns by parents and staff, demand remained relatively high. Over 80% of available places were taken up both in September 2020 and in April 2021.

## 4. School education

### School education in Italy produces mixed results in terms of basic skills proficiency, with significant differences between regions and types of schools.

Compared to 2015, the performance of 15-year-olds in Italy in the 2018 OECD Programme for International Student Assessment (PISA) remained broadly stable in mathematics and reading but worsened in science, in line with international trends. The percentage of low performers is close to the EU average in reading and maths, but higher in science. There are significant geographical variations, with students in the north of the country scoring well above the EU average in reading, and students in

the south and islands significantly below. In a system characterised by early tracking, performance also varies according to type of school: students in upper general education (licei) obtain a much higher score (521 points) than those in technical and vocational institutes (458 and 395 points respectively). Differences between regions and schools are also reflected in the distribution of top- and low-performing students (PISA 2018).

**Italy appears to have stemmed the decline in learning outcomes caused by COVID-19 school closures but there are no clear signs of improvement yet.** After the learning loss recorded in 2021, the results of the 2022 round of standardised national testing<sup>6</sup> remained largely stable for Italian and maths, and improved for English. The results confirmed wide geographical disparities, which tend to widen with school level. On average, the differences in performance between schools throughout Italy decreased somewhat, but in Italian, English and particularly in mathematics there are more pronounced differences in results between schools and between classes in the southern regions. This indicates that primary education in the south is not able to ensure equal opportunities for all pupils, with clear negative repercussions on subsequent school grades. More generally, the strong influence of family background on learning achievement throughout the country is an indication that school education does not adapt sufficiently to different learning needs and cannot compensate for socio-economic disadvantage.

**The government has set up a fund to compensate for learning losses caused by the pandemic.** State schools can request funding to put on free cultural and sporting activities, summer camps and learning support to make up for the teaching hours lost over the past two

years. The budget is EUR2 million for 2022 (EUR 667 000) and 2023 (EUR 1 333 000).

**The government has adopted a number of new measures and reforms of the education system.** Coding and digital teaching were included in teachers' training programmes as priorities starting from the 2022/2023 school year. Fresh legislation brings in computer programming (as a subject and integrated into other subjects) and specifies the further development of digital skills in primary and secondary education. The 'School 4.0' plan - innovative schools, new classrooms and laboratories' allocates over EUR 2.1 million from the Recovery and Resilience Facility to transform 100 000 classrooms into innovative learning environments and build laboratories for the digital professions of the future in all upper secondary schools. The plan acts in synergy with the EUR 900 million EU structural funds currently being implemented for wiring school buildings and the digitisation of schools. The Ministry of Education has also selected 3 500 projects to improve education on sustainability and biodiversity, earmarking EUR 155 million from European funding, REACT-EU. 2 885 primary schools will receive a grant of EUR 25 000 each to create vegetable and botanical gardens, while 645 secondary schools will receive EUR 133 000 to create labs on the green transition.

**Italy is reforming the initial training and recruitment of teachers in order to improve the quality of education.** New legislation introduces a specific initial training for aspiring secondary school teachers<sup>7</sup>. In addition to a Master's degree, aspiring teachers will need to acquire 60 ECTS in teaching (in practice one year, including internships) and pass a qualification exam with a written test and oral test including a simulated lesson. Qualified teachers will still need to pass a national competition, to be held annually, and, if successful, be hired for a probation year. At the end, after a final test and

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<sup>6</sup> Standardised testing is run yearly by the INVALSI evaluation institute. Students in grades 2, 5, 8, 10 and 13 are tested in Italian, maths and English (except grades 2 and 10 who are only tested in Italian and maths).

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<sup>7</sup> A specific degree in *Scienze della formazione primaria* already exists for ECE and primary teachers.



conclusive evaluation, the employment contract becomes permanent. Once fully implemented, the new system could improve teaching quality. In the short term, though, the choice to apply more lenient requirements to participate in the public competition to temporary teachers could delay the effectiveness of the reform.

**The reform introduces some performance-related salary increases for teachers.** In 2022 the government decided to introduce one-off bonus (equal to between 10% and 20% basic salary) to be granted to a limited number of teachers who successfully complete a three-year training course, starting from the 2023/2024 school year. The size of the bonus and the number of potential beneficiaries will be set annually, based on available funds. Further legislation<sup>8</sup> introduces a permanent pay rise for a set number of teachers (max. 8 000 a year for the 2032/2033, 2033/2034, 2034/2035 and 2035/2036 school years) who successfully complete three consecutive three-year training courses. This will entail a permanent salary increase of EUR 5 650 a year. The details of the new system will be defined through collective bargaining.

**Following Russia's invasion of Ukraine, over 27 000 Ukrainian children were enrolled in schools in Italy, with the vast majority enrolled in primary and pre-primary.** By the end of the end of the 2021/2022 school year, 27 506 Ukrainian pupils were enrolled in schools in Italy. The majority<sup>9</sup> were aged between 3 and 13, as older children generally preferred following the online lessons provided by the Ukrainian education ministry. In March, the Italian education ministry issued guidelines and recommendations to schools on how best to integrate Ukrainian students and made available teaching materials on a website. It also made available EUR 1 million to enable schools to provide bilingual learning materials,

linguistic and cultural mediation and psychological support. Italy's national operational programme '*Per la scuola*' allocates an additional EUR 50 million national and ESF funding to this type of initiative. Italy guarantees to all foreign minors the completion of compulsory schooling and the right to education at the same conditions as Italian citizens, regardless of immigration status. Currently, non-Italian pupils make up around 10% of the student population.



#### Box 2: ESF project '*Apprendimento e socialità*'

The aim of the ESF project '*Apprendimento e socialità*' (Learning and sociality) is to expand and support the summer training offer for the 2020-2021 and 2021-2022 school years. In 2021, almost 5 500 projects were organised in schools over the summer period, complementing the government's own national school plan. The projects combined activities designed to improve basic skills and narrow the digital divide with initiatives promoting students' social interaction and group life. The initiative was repeated in 2022.

Budget: EUR 300 million.

## 5. Vocational education and training and adult learning

**Italy is implementing a number of reforms of the vocational education system with support from EU funds.** The National programme for new skills adopted in December 2021 envisages common standards for vocational training, including customised training, accessibility, skills recognition, and schemes to meet labour market needs. It also addresses the aspect of skill needs forecasting and increases the use and dissemination of results, also via an active role for companies. Italy's overall strategy of cohesion policy action envisages action to

<sup>8</sup> Law n. 142 of 21.09.2022.

<sup>9</sup> Breakdown by education level: pre-primary: 6 148, primary: 12 713, lower secondary: 6 086, upper secondary: 2 500.

better match the education and training system to labour market needs, by reforming the system and by training teachers and trainers, providing dual training, apprenticeship and traineeships.

**The government has taken steps to boost adult learning.** The National programme for the ‘guarantee of employability of workers’ (GOL), adopted in November 2021, provides a series of tools and measures to help people (re)integrate into the workplace. GOL, which is funded by the RRF, will fund training for at least 800 000 people (300 000 of them in digital skills) over a 5-year period (2021-25). Italy adopted the National strategic plan for the upskilling and reskilling of the adult population in 2021 with the aim to create an enhanced coordination infrastructure between the various national policies and measures in this sector. It put in place new areas for action for the first three-year implementation period (2021/23). The plan has three strategic activity areas that aim to increase chances of bridging the skills gap for the majority of the adult population: intercepting, reaching out to and guiding individuals; qualifying and upskilling human capital; intermediating and synchronising skills supply and demand. Italy set a 2030 target of 60% of adults in learning every year, which would be a massive significant increase from the 33.9% rate in 2016.

## 6. Higher education

**The proportion of young adults with a tertiary educational qualification remains below the EU average for both Italian- and foreign-born young people.** In 2021, 28.3% of 25-34 year-olds had a tertiary educational qualification, well below both the EU average of 41.2% and the EU-level target of 45% by 2030. Women are more likely to hold a tertiary qualification than men (34.4% vs 22.3%), in line with the rest of the EU but with a slightly wider gender gap (12.1 pps As compared to 11.1 pps). The tertiary educational attainment rate is particularly low among the foreign population, whether EU-born (13.2%) or born outside the EU (12.6%), reflecting a substantial difficulty in attracting highly qualified people.

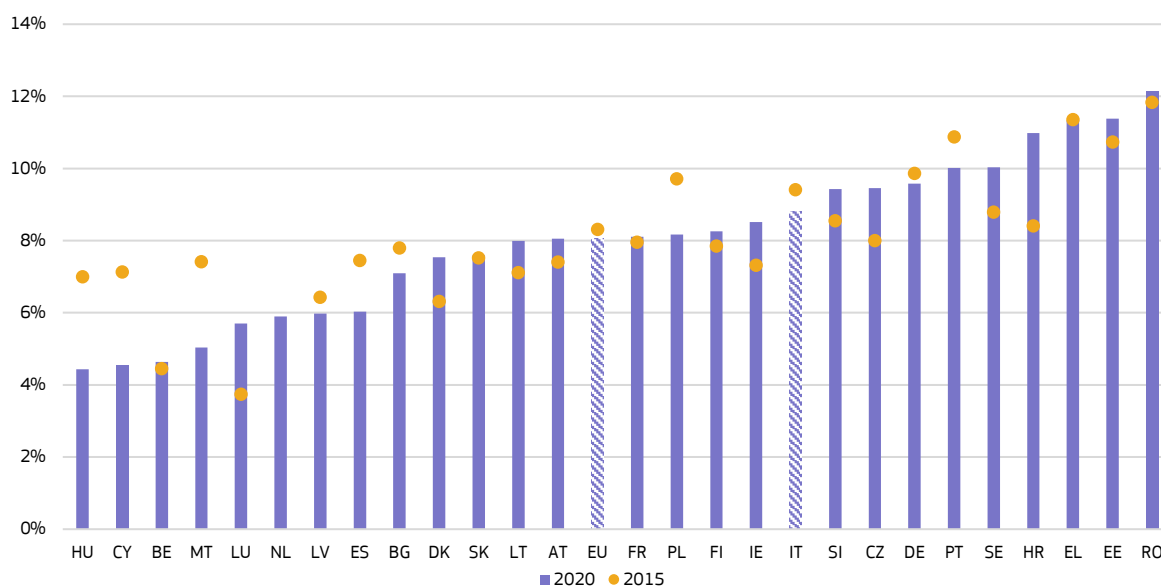
**The share of STEM graduates remains comparatively low.** Italy ranks 25th out of 27 EU countries for human capital in the 2022 Digital Economy and Society Index (DESI). In 2020, 22.7% of all graduates had a STEM qualification, fewer than in 2019 (24.5%) and below the EU average (24.9%). The share of graduates in information and communication technologies is particularly low, at just 1.4% compared to the EU average of 3.9%. Less than a fifth are women. Women make up more than half of tertiary graduates (58.4%), but only 8.8% has a STEM degree. This is fewer than in 2015 but slightly above the EU average of 8.1% (Figure 4). On a more positive note, the proportion of women among STEM graduates is significantly higher than the EU average (38.9% vs EU 32.4%)<sup>10</sup>.

**While a tertiary degree constitutes an advantage on the labour market, transition into employment remains difficult.** The employment rate of recent tertiary graduates has risen steadily over the past years, reaching 67.5% in 2021. But while it is considerably higher than the employment rates for VET and general upper school graduates<sup>11</sup>, it remains well below the EU average of 84.5%. Low demand from a productive sector characterised by small and medium-sized firms contributes to graduates’ poor employment prospects.

<sup>10</sup> At bachelor’s level, women constitute the vast majority of students in the fields of education and training (93.1%), linguistic (85.1%), psychological (81.5%), medical-health (75.6%) and art and design studies (71.8%). Conversely, they are underrepresented in fields such as ICT (13.7%) and industrial and information engineering (26.6%). A similar distribution is found at Master’s level: there is a strong prevalence of women in the areas of education and training (92.7%), linguistic (85.8%) and psychological studies (81.9%) and art and design (74.4%); though it remains limited in ICT (18.5%).

<sup>11</sup> VET: 53.9%, general: 33.8%.

**Figure 4: Female STEM graduates as a proportion of total tertiary graduates in 2015 and 2020 (%)**



Source: Eurostat (UOE), [educ\_uae\_grad02].

**Italy is making progress in developing the non-academic tertiary sector.** In July 2022, the government adopted a reform of the ITS (*Istituti tecnici superiori*) system, making them an integral part of the tertiary vocational education system. Alongside the traditional 2-year diplomas (EQF level 5), the new ITS Academies will offer 3-year courses leading to an EQF Level 6 qualification, equivalent to a Bachelor's degree. The objective is to double the number of ITS students (currently fewer than 20 000) and graduates (currently about 5 000 by 2026 (European Commission, 2021). This could help increase tertiary attainment rates and raise graduate employment rates, given the better employment prospects offered by ITS diplomas<sup>12</sup>.

**Recent reforms are expected to increase flexibility and make tertiary education**

<sup>12</sup> According to Indire's recent national monitoring (2022), 80% of ITS graduates are employed within one year of graduating, 91% of whom in occupations consistent with their training.

**curricula more innovative.** In 2021, the government adopted a reform of university degree groups, encouraging the creation of cross-disciplinary paths and the development of innovative professional profiles. It also adopted a reform of PhD programmes, promoting the involvement of enterprises in University research programmes and applied research through industrial PhDs.

**The National Agency for the evaluation of Universities (ANVUR) has completed the third round of assessment for research and public engagement (VQR).** The resulting ranking will serve as the basis for allocating one third of the budget to state universities and research centres. Based on the VQR assessment, the ministry of universities and research has launched the second round of the *dipartimenti di eccellenza* initiative for 2023-27. The selected departments will be awarded an average of EUR 1.5 million over the next five years. The funds can be used to hire new staff, acquire better equipment and run new programmes.

Bringing in performance-based funding has had a positive impact on Italian research activity, especially in terms of international recognition (Bratti et al, 2021). However, the policy has been criticised as contributing to widening the disparities in funding across regions, given the limited number of southern universities with departments of excellence. Rankings, both for quality (AVA) and research (VQR), have an impact on student choices especially at Master's level (Biancardi et al, 2019, Bratti and Verzillo, 2019). This results in increasing flows of students from the south to the north of the country. Mobile students tend to be higher-achieving and tend to come from more advantaged backgrounds, which translates into a drop in income from tuition fees for some southern universities attended by a higher proportion of students from lower-income families<sup>13</sup>. Demographic decline is likely to exacerbate the situation due to a reduction in the overall number of students.

**The government is making large-scale investments in research projects under the Recovery and resilience plan.** Plans include setting up five new national research centres on frontline topics (simulations and calculations using high-speed computers; agritech; genetic medicine and RNA drugs; sustainable mobility; biodiversity); research projects on 'Ecological systems for local innovation', designed to fund up to 12 systems with EUR 100 million each. The centres need to meet multiple requirements in terms of quotas (40% women, 40% assigned to southern universities, each project including at least 250 new postdocs). Of the 15 proposals submitted, six are from southern universities. Also envisaged are 7 500 additional PhD scholarships, two thirds of which are reserved for partnerships with private companies in order to encourage the hiring of newly trained skilled young workers. A further 1 000 are expected to develop projects in partnership with public administrations to introduce innovative projects. This could help

reverse the brain drain Italy has experienced over the past years (European Commission, 2020). However, such a large increase in PhD students (the current intake is around 10 000 year) poses the risk that the average quality of applicants will fall, unless Italy starts recruiting a larger share of foreign candidates.

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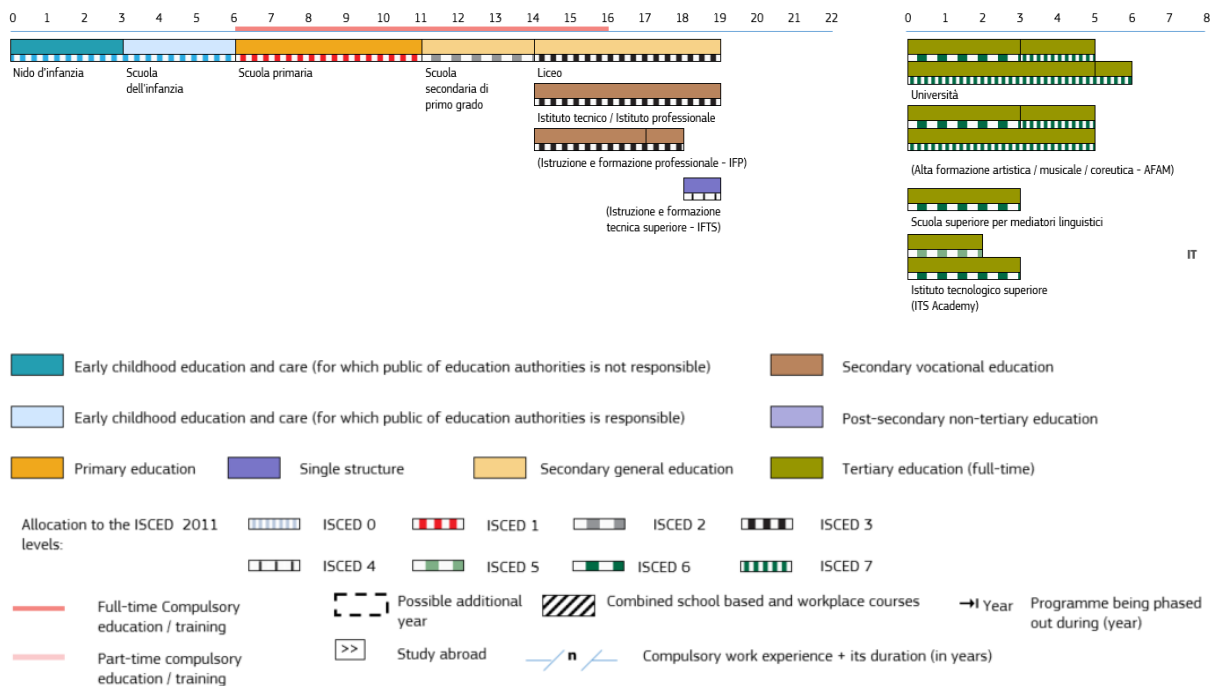
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<sup>13</sup> Tuition fees are based on income.

## Annex I: Key indicators sources

Indicator	Source
Participation in early childhood education	Eurostat (UOE), educ_uoe_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. Notes: In 2022, the law no. 99 has reformed the Istituto tecnico superiore (ITS). The name was changed to Istituto tecnologico superiore (ITS Academy). In addition to 2-year ISCED 5 courses, they now offer 3-year ISCED 6 programmes.

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