

A shared strategy driven by the European Commission

ZOOM

The education and training policies have won a new place in the European Union (EU) since the adoption in 2000 of the Lisbon strategy which made «knowledge» the pillar of economic and social development. A year later the Member States and the European Commission defined a framework of co-operation in the fields of education and training. The current strategic framework, *Education and Training 2020*, was implemented in 2009 as an integral part of the Europe 2020 strategy. The EU disposes of the ability to support, co-ordinate and complement the action of Members States. Although each of them maintains policy sovereignty in applying the principle of subsidiarity, the effects on the national management of the educational and training systems are significant.

SEVEN BENCHMARK CRITERIA DEFINED

Each of the following targets have been set by the European Union for 2020:

1. Early leavers: The rate of young people from 18 to 24 who have left the education system without graduating and without doing training over the four weeks previous to the survey should not surpass 10% (cf. 5.2, p. 52);
2. Higher education graduates: the proportion of people from 30 to 34 years old that have a degree from higher education should be at least 40% (cf. 5.3, p. 54);
3. Early education: the participation in pre-primary education of children aged between 4 and the age of compulsory education should be at least 95%;
4. Proficiency baseline in reading, mathematics and science: The percentage of underachieving young people aged 15 as measured by PISA in each of these subjects should be below 15% (cf. 5.4, p. 56);
5. Life-long learning: the participation of adults (25 to 64) in life-long educational and training activities should be at least 15%;
6. Mobility for learning purposes: Two goals have been set, i.e.
 - a. at least 20% of higher education graduates should have a period of study or training abroad related to this education (including internships), acquiring a minimum of 15 ETCS credits or for a period of at least three months;
 - b. At least 6% of the 18 to 34 year-old graduates of initial vocational education and training should have done a period of study or training abroad related to this type of learning or training (including internships) of at least two weeks. *These two targets are not yet measured by Eurostat;*

7. The employability of recent graduates: the employment rate of recent graduates of upper secondary and tertiary education aged from 20 to 34 having left the education and training system for a maximum of three years should be at least 82%.

Beyond these shared goals, countries have sometimes set their own national goals that are either more demanding than the shared target or less. For example in the case of early leavers, France has set more stringent goals of 9.5% instead of 10%, whereas Spain has set a less demanding threshold of 15%.

THE EUROPEAN UNION COUNTRIES REGARDING THE SEVEN BENCHMARK CRITERIA

Although these goals have been set for the entire European Union, they are subject to follow-up by the European Commission for each of the EU countries.

On average in the EU-28 in 2016 no goal was attained, although the goals for early leavers, tertiary education attainment and participation in pre-primary learning are nearing the mark. (5.1.1). On national levels the two most commonly attained goals per country are those for early leavers and the percentage of tertiary education-attainment graduates. Each target was attained by 17 countries (including France for both goals) of the 28 European Union Members (5.1.2). In 2016 only 7 countries (including Denmark, Finland and France) attained or surpassed 4 or more goals of the 6 that are subject to measurement in the Education and Training 2020 strategy, and none attained all the goals. Only Bulgaria, Portugal and Romania have attained none of the goals. Lastly only Estonia and Finland attained or surpassed each of the three PISA sub-goals. ■

Survey on types of work and benchmark criteria

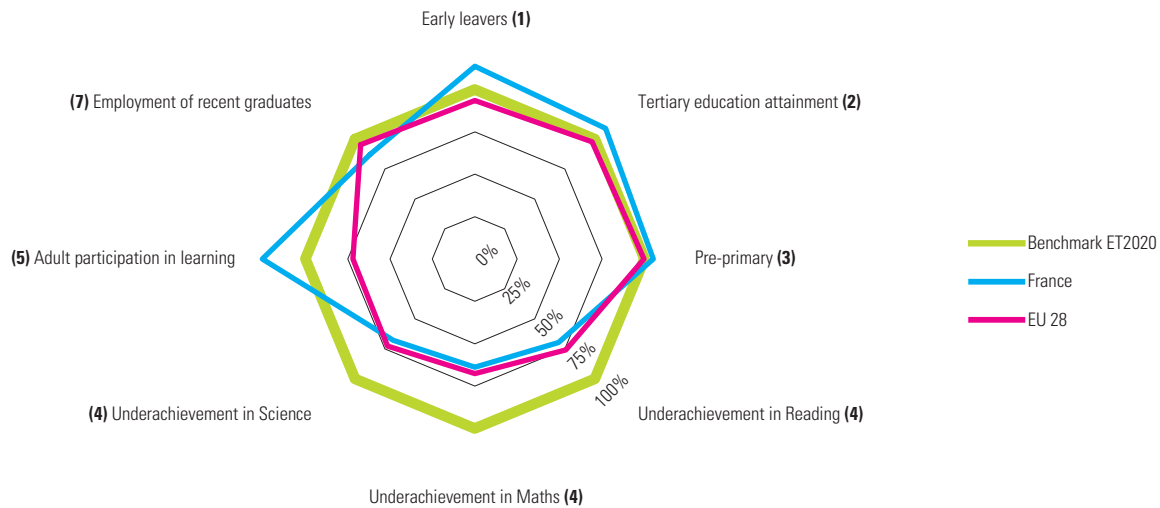
ZOOM

Early leavers, the percentage of tertiary education graduates and adults in training are measured from the **EU labour force survey (EU LFS)**^[1]. In France the continuous employment survey is the section of the survey on the labour force. Although they enable it, these surveys were not initially designed to measure education levels, encouraging a certain caution about the international comparison of data. Given the size of the survey's samples, moreover, comparing data to the nearest decimal has limited relevance.

^[1] See definition p. 74.

5.1.1 Relative position of France and of the EU 28 with respect to Education and Training 2020 targets, as of 2016

↳ Eurostat.



Note: As of 2016, France achieved and went beyond 4 targets of Education and Training 2020 framework: Adult participation in learning, Early leavers of education and training, Tertiary education achievement and Early childhood education and care. The Early leavers objective, with a 8.9% score for France, (which is below the 10% threshold), is translated on the figure by a $10/9 \times r$ radius, if r is the European target's radius.

5.1.2 The 28 countries of the European Union's situation regarding each Education and Training 2020 headline target, as of 2016

↳ Eurostat.

2016	Early leavers (1)	Tertiary education attainment (2)	Pre-primary (3)	Underachievement in Reading (4)	Underachievement in Maths (4)	Underachievement in Science (4)	Adult participation in learning (5)	Employment of recent graduates (7)
Target	10	40	95	15	15	15	15	82
EU 28	10.7	39.1	94.8	19.7	22.2	20.6	10.8	78.2
BE	8.8	45.6	98	19.5	20.1	19.8	7	81.2
BG	13.8	33.8	89.2	41.5	42.1	37.9	2.2	72
CZ	6.6	32.8	88	22	21.7	20.7	8.8	86.7
DK	7.2	47.7	98.5	15	13.6	15.9	27.7	83.9
DE	10.2	33.2	97.4	16.2	17.2	17	8.5	90.2
EE	10.9	45.4	91.6	10.6	11.2	8.8	15.7	77.1
IE	6.3	52.9	92.7	10.2	15	15.3	6.4	79.5
EL	6.2	42.7	79.6	27.3	35.8	32.7	4	49.2
ES	19	40.1	97.7	16.2	22.2	18.3	9.4	68
FR	8.9	43.6	100	21.5	23.5	22.1	18.8	71.7
HR	i	29.5	73.8	19.9	32	24.6	3	72.5
IT	13.8	26.2	96.2	21	23.3	23.2	8.3	52.9
CY	7.7	53.4	89.6	35.6	42.6	42.1	6.9	73.3
LV	10	42.8	95	17.7	21.4	17.2	7.3	81.4
LT	4.8	58.7	90.8	25.1	25.4	24.7	6	82.4
LU	5.5	i	96.6	25.6	25.8	25.9	16.8	85.4
HU	12.4	33	95.3	27.5	28	26	6.3	85
MT	19.6	29.8	100	35.6	29.1	32.5	7.5	96.6
NL	8	45.7	97.6	18.1	16.7	18.5	18.8	90.1
AT	6.9	40.1	95	22.5	21.8	20.8	14.9	87.6
PL	5.2	44.6	90.1	14.4	17.2	16.3	3.7	80.2
PT	14	34.6	93.6	17.2	23.8	17.4	9.6	73.8
RO	18.5	25.6	87.6	38.7	39.9	38.5	1.2	69.3
SL	4.9	44.2	90.5	15.1	16.1	15	11.6	76.7
SK	7.4	31.5	78.4	32.1	27.7	30.7	2.9	79.6
FI	7.9	46.1	83.6	11.1	13.6	11.5	26.4	77.4
SE	7.4	51	95	18.4	20.8	21.6	29.6	86.7
UK	11.2	48.1	100	17.9	21.9	17.4	14.4	84.4

Note: Figures in bold represent the cases where the country already reached the objective of the Education and Formation 2020 framework. For instance, as of 2016, with 6.6% of Early leavers, Czech Republic already reached the common target of 10%. The letter "i" designates statistically inconsistent data due to the size of the sample.

Early school leavers: what are we talking about? **ZOOM**

Young people are in an early school-leaving situation when they are from 18 to 24 years old and have achieved a low level of education, have left the education system and have had **no formal**^[1] or **non-formal education**^[1] in the four weeks prior to the survey. Persons defined as having “low levels of education” (ISCED 0-2) have an educational attainment level lower than or equivalent to the end of the first cycle of secondary education or those prepared beyond this first cycle but with a timeframe strictly less than two years, or those leaving before 11 years of cumulated education from the beginning of ISCED 1. Early leavers in France have not attained a CAP, a BEP or any higher degree.

A MEASUREMENT DEPENDENT ON THE CLASSIFICATION OF DEGREES

Two examples show the difficulty of classifying degrees per country. The first stems from the existence of attainment levels coming in the middle of a cycle and not at the end: Malta, the education system of which is very close to that of the United Kingdom, nonetheless did not practise the same classification for the holders of the General Certificate of Secondary Education (GCSE, cf. 2.2, p. 20) because of applying ISCED 1997 late. A Eurostat simulation exercise for the years 2010 and 2011 made it possible to show that only the reclassification of holders of the GCSE from ISCED 2 to ISCED 3 made the indicators of early leavers in Malta drop by more than 10 points. The second example concerns the vocational training degrees obtained in less than two years which exist in numerous eastern European countries. In these countries it appears difficult to classify as early leavers the holders of such degrees that traditionally give access to the labour market.

THE GAPS BETWEEN COUNTRIES REMAIN CONTRASTED DESPITE AN OVERALL REDUCTION

In the 2016 European Union the average rate of early leavers stood at 11%. Romania and Spain (19%) and Malta (20%) had the highest rates in Europe (5.2.1). At the other end of the spectrum 9 countries (including Austria, Ireland and Poland) had fewer than 7% early leavers. A last group of countries (including Finland, France and the Netherlands) occupied an intermediate position (between 8 and 10%). 17 countries in 2016 reached the Europe 2020 goal of fewer than 10% of early leavers. It is noteworthy that there was an overall drop in the rates of early leavers in

the EU with the European average reducing from 15% to 11% between 2007 and 2016. In that decade a similar evolution was achieved for both genders (5.2.2). The gap favouring females was nonetheless reduced slightly, from 4 points in 2007 to 3 points in 2016.

Determined, co-ordinated political actions seemed to bring results. In the Netherlands, for example, the policy revolves around three pillars, i.e. the law now imposes on underachieving students one or two additional years of part-time education until the age of 18 and makes it compulsory for schools to report leavers; the early identification of absenteeism and early leaving makes it possible to individually follow those students implicated; a contract between State-town-school stimulates the co-ordination of stakeholders locally and makes it possible to better orient early leavers to the vocational track in close collaboration with economic stakeholders. Lastly, financial incentives have been put in place for the schools managing to reduce the number of their early leavers.

Moreover, public policies in the fight against school leavers don't very often include the dimension of gender. However, the Swedish programme can be mentioned, *#jagmed* (literally “me too”), the main goal of which is to identify and prevent cases of school leaving, as well as encouraging already-departed students to resume their studies. This regional programme is aimed at students of both genders from 15 to 24 and focuses on the second cycle of secondary education. One of its main actions is to develop counselling in educational orientation so as to enable each student to have as broad a view as possible of their career choices by “defusing” orientations that are traditionally monopolised by one gender or the other. Although rare, these strategies also seek to deconstruct certain gender stereotypes more generally in the society as a whole.

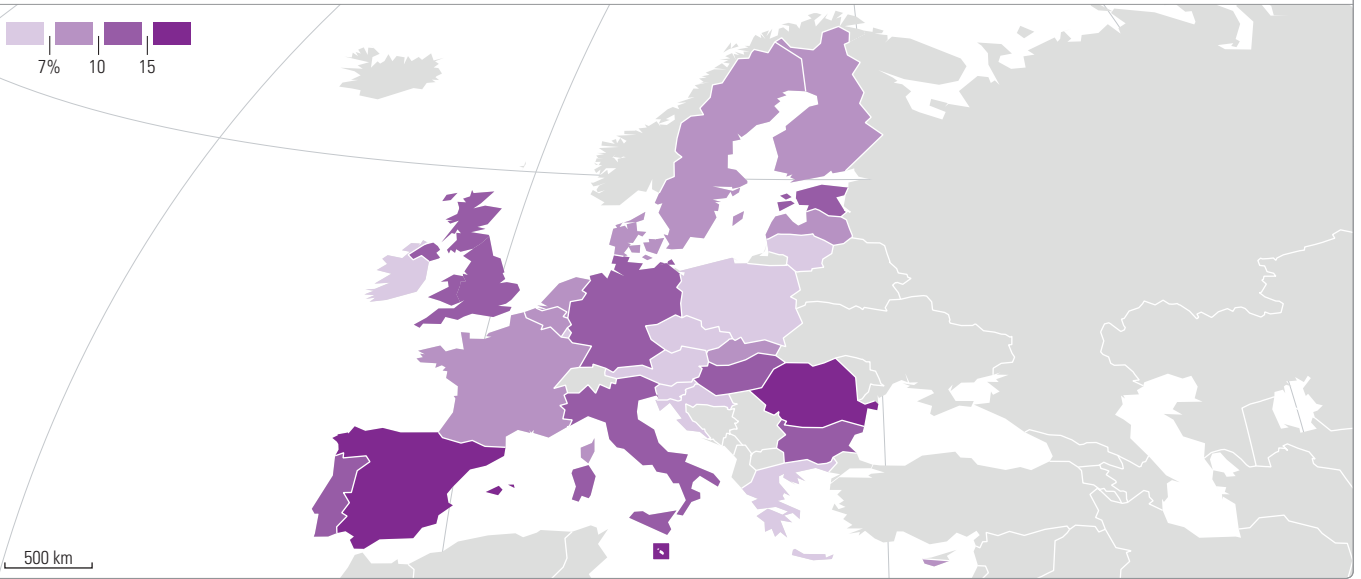
WOMEN: LESS CONCERNED BY EARLY LEAVING BUT PENALISED MORE ON THE LABOUR MARKET

Women are less concerned than men by leaving school early. Among the countries presented in figure 5.2.3, only the Czech Republic and Romania show nearly identical rates for both genders. In Italy, Portugal and Spain the gap between men and women comes to or surpasses 5 percentage points. With its 3-point gap between men and women, France is near the European average. For all that, although more men than women are early leavers, the latter more often occupy the status of inactivity than men. Yet the higher rate of employment of male early leavers says nothing about the quality of the employment. ■

^[1] See definition p. 74.

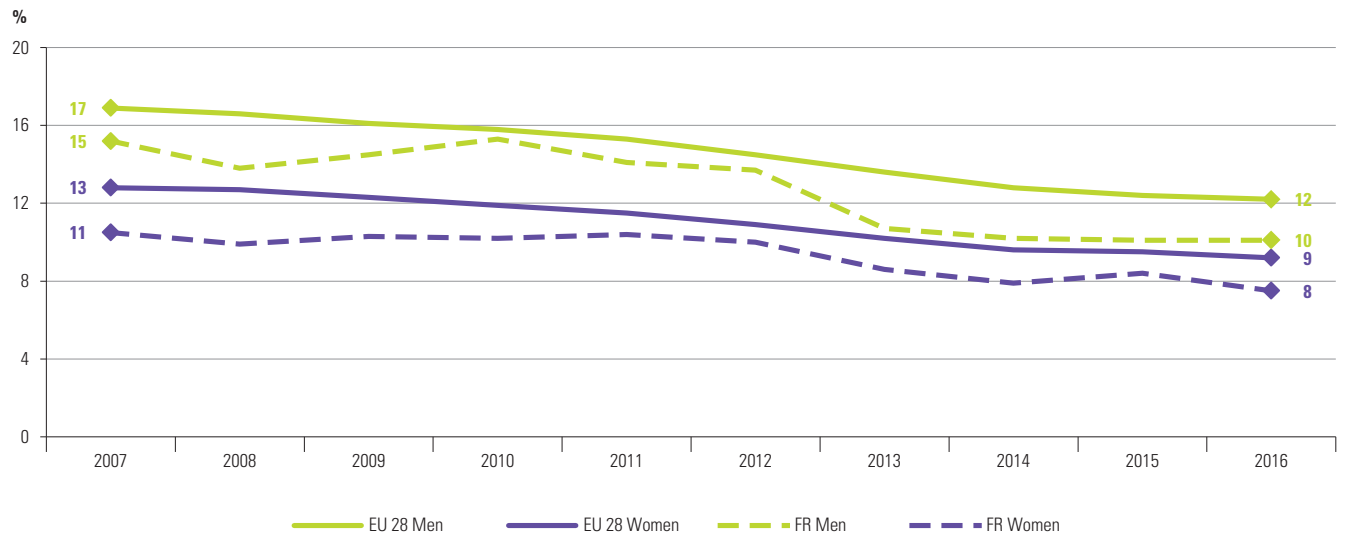
5.2.1 Proportion of early school leavers among 18-24 year olds in 2016

↳ Eurostat ; edat_lfse_14.



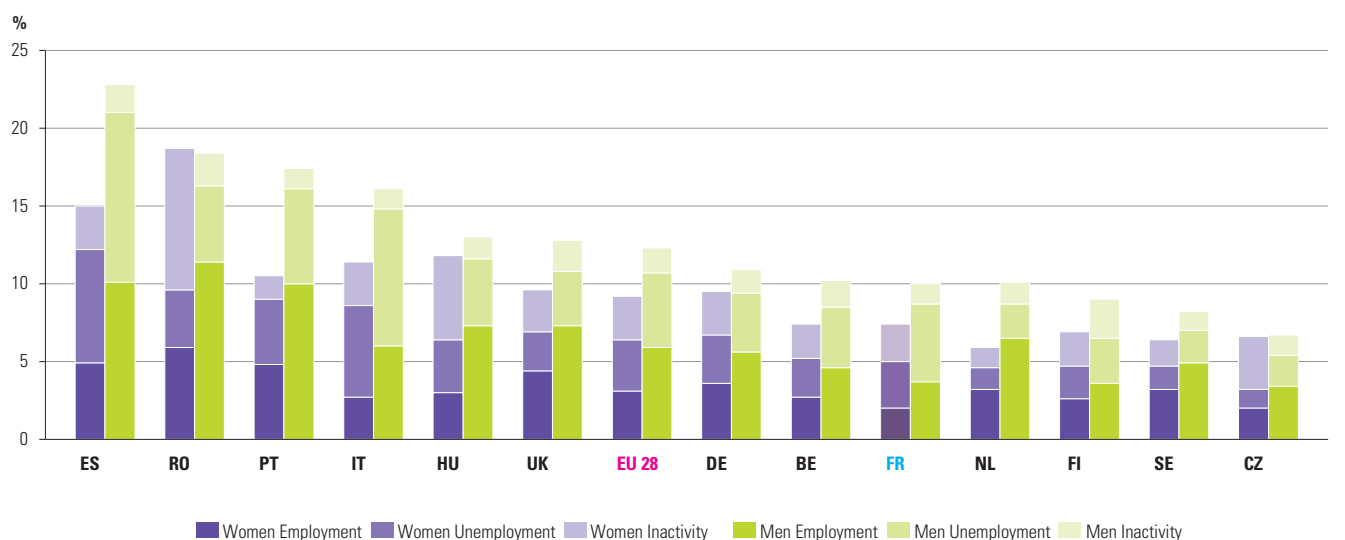
5.2.2 Proportion of early school leavers among 18-24 year olds by gender in the EU 28 and in France between 2007 and 2016

↳ Eurostat ; edat_lfse_14.



5.2.3 Early school leavers by labour status and gender in 2016

↳ Eurostat ; edat_lfse_14.



5.3 THE EDUCATIONAL ATTAINMENT LEVELS OF THE 25 TO 34 YEAR-OLDS

THE GREAT MAJORITY OF YOUNG EUROPEANS HAVE ATTAINED DEGREES

The proportion of the 25 to 34 year-old population with at least a degree from the second cycle of secondary education (ISCED 3) has risen within the European Union. Between 2007 and 2016 the percentage of the 25 to 34 year-olds attaining at least ISCED-3 level or above rose from 79% to 83% in the EU-28. Malta and Spain were the only countries of the EU-28 whose rate of secondary education attainment was under 70% in 2016 (5.3.1).

One of the priority goals of the Europe 2020 strategy is to reach, even surpass, the threshold of 40% of tertiary education graduates among the 30 to 34 year-olds by 2020. In 2016 this rate was 39% on average in the EU-28 (5.3.2). In all, 18 countries reached or surpassed this target. The highest rates in the EU-28 were for the most part located in northern Europe (Lithuania 59%, Ireland 53% and Sweden 51%). The lowest rates were seen in Italy and Romania (26%). France more than met the European target (44%).

The proportion of higher education graduates does not always reflect the performance of a national educational system. The brain gain/drain, for example, which corresponds to the migration of highly skilled individuals, influences this rate upwardly if the welcoming country receives an already trained person or downwardly when the country trains them, then sees them emigrate (cf. 5.2, p. 48). In some cases, the influence of the apprenticeship in vocational education (Germany) or the tracks of secondary education leading to professions (eastern Europe) can “compete” in continuing higher education. Lastly and generally speaking, countries presenting a high rate of early leavers have also had a relatively low rate of higher education degrees. Spain, however, showed a situation where the two indicators didn't follow this pattern, with 40% rate of higher-education degrees despite an early-leavers rate of 19% in 2016.

THE GAP BETWEEN MEN AND WOMEN WIDENED TO THE LATTER'S ADVANTAGE

In the 2016 EU-28 the proportion of individuals aged between 30 and 34 have a higher average education attainment than 10 years before. On average in the 28 countries the percentage of ISCED 5-8 graduates among the 30 to 34 year-olds rose from 30% in 2007 to 39% in 2016. This average faithfully reflects the national situations where men and women nearly systematically more often earned ISCED 5-8 degrees in 2016 than in 2007. There

were only 4 cases where the proportions fell. This was the case for men in Cyprus (-0.5 of a point) and in Spain (-2.3 points), as well as for both genders in Finland (-0.9 of a point for men and -1 point for women). The portion of women with higher education degrees was already higher than the men in 2007, meaning that the gap between both genders was increased over the following period (5.3.3). In 2016 the only EU country where women did not hold more higher-education degrees than men was in Germany.

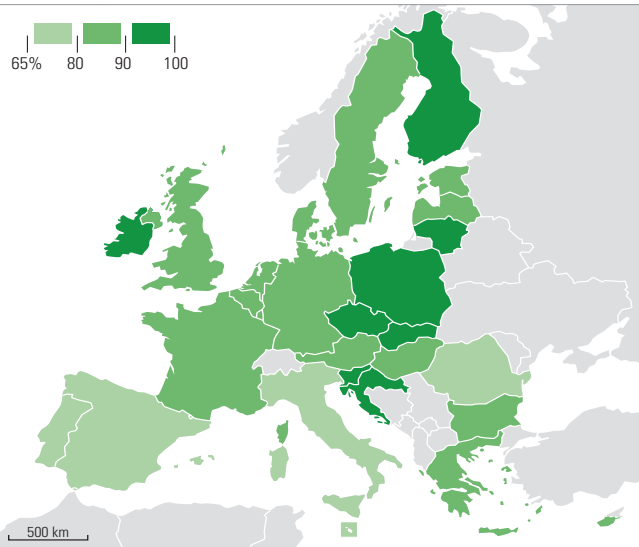
WOMEN WITH MORE DEGREES BUT LESS PRESENCE IN THE SCIENTIFIC FIELDS

Few European countries have centred their policies for developing higher education on the issue of gender. Where such policies exist, they have single leverage: the balance in gender in the higher tracks and two main goals related to the labour market. The first among them was to reduce inequalities between men and women, whether it be inequality in pay or job opportunities. The second was to regulate the needs of skilled personnel on the labour market. Although the overarching strategy consisted in creating a balance within tracks, two approaches could nonetheless be distinguished. The first consisted in promoting tracks among students in secondary education in which women in particular were not inclined to go. This approach was particularly seen in France and the United Kingdom. The second approach, adopted in Norway (a non-EU country) resorted to more direct action by public authorities. The Norwegian system of candidates for higher learning works on the principle of classifying candidates by a central body for managing admissions to higher education. Several criteria are taken into account in decision-making for a candidate (academic achievement in secondary education, age, gender, the regional distribution of students, etc.). Coefficients are attributed to these criteria with the academic results remaining primary, but the student's gender can also influence the decision. For example a higher coefficient is given to women who apply for engineering, maritime or agricultural programmes.

However this balance between the genders in the higher-education tracks has not been achieved in Europe. Women have been the majority presence in training leading to teaching or the fields of health, literary or artistic subjects and the social sciences; women were much less numerous in training for the sciences, ICTs, engineering or the manufacturing industries (5.3.4). In as much as higher education degrees provide relative protection from unemployment and the risk of poverty, the orientation of women into secondary and tertiary teaching goes some way to explaining some of the inequalities in pay and status between the genders. ■

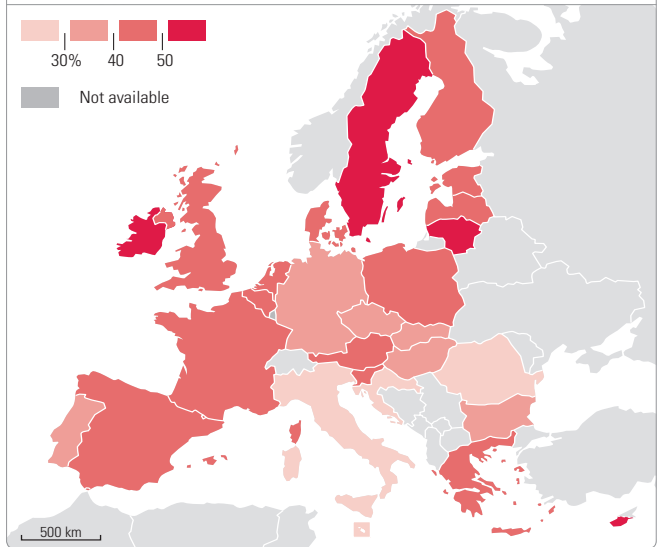
5.3.1 Proportion of 25-34 year olds with at least an upper secondary educational attainment in 2016

↳ Eurostat ; edat_lfse_o3.



5.3.2 Proportion of 30-34 year olds with a Tertiary education educational attainment in 2016

↳ Eurostat ; edat_lfse_o3.



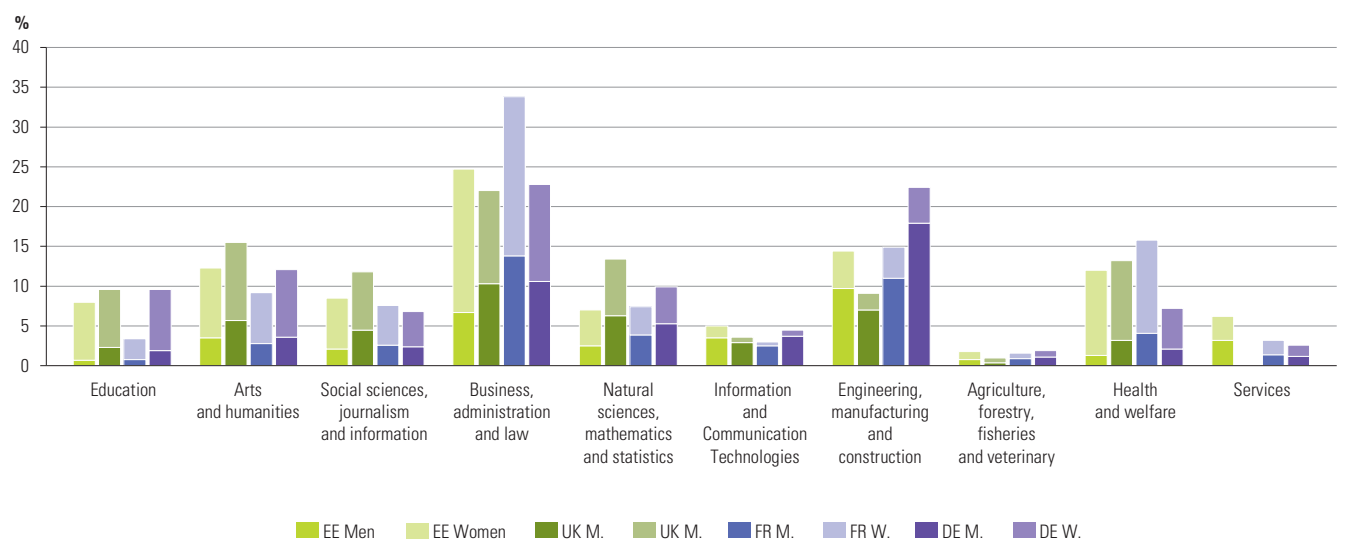
5.3.3 Proportion of 30-34 year olds with an ISCED 5-8 education attainment level in the EU 28 and in France between 2007 and 2016

↳ Eurostat ; edat_lfse_o3.



5.3.4 Distribution of the higher education graduates by field of study and gender during the 2015 academic year

↳ Eurostat ; educ_uoe_grado3.



Every three years since 2000 and under the aegis of the OECD **PISA**[□] (*Programme for International Student Assessment*) assesses the skills of 15-year-old students in three fields: reading, mathematics and science. PISA is intended for the age group that comes to the end of compulsory schooling in most of the OECD countries whatever the educational career past or future. In France this essentially means seconde of ISCED 3 (10th grade, in general and technological or vocational tracks in Lycées) and troisième of ISCED 2 (9th grade, in collèges, about a quarter of the french students for PISA 2015). Students are not assessed on knowledge per se but more on their ability to harness and apply their knowledge in various situations, sometimes well removed from the classroom framework. The survey included a total sample of 510,000 students in the 72 countries/economies of PISA 2015.

ZOOM

PERFORMANCES IN THE SCIENCE TEST SINCE 2006

In 2015 the survey was mainly devoted to science (the ability of individuals to respond to questions relating to science and technology as thoughtful citizens). Indeed each version of PISA contains one major and two minor fields. To be completely relevant, comparisons of major fields must therefore be done in nine-year cycles. Thus in science, PISA 2015 can be compared to PISA 2006.

Can countries be ranked in PISA?

The PISA scores are subject to statistical uncertainty related, in particular, to measurement error due to the size of the sample used. Rankings are therefore not relevant, for countries that follow each other in the ranking rarely have significantly different scores. So in 2015 of the OECD countries in science France could be ranked anywhere between 17th and 25th.

ZOOM

In 2015 the mean scores of the 35 OECD countries in science was 493, and 498 in 2006. This difference in the OECD mean scores between the two surveys is not significant, no more so than the national mean scores of 15 countries, including France, Germany or Italy (5.4.1). During this period the mean score dropped significantly in 9 EU countries (including Finland, Greece and the Netherlands). It rose in only 2 countries (Portugal and Romania). Although Finland, Hungary and Slovakia underwent the biggest drops between the two PISA surveys (33, 27 and 28 points respectively), the first remained tangibly above the OECD mean score, whereas the two others were significantly below it.

ARE 15 YEAR-OLDS PLANNING ON SCIENTIFIC CAREERS?

In addition to the cognitive tests, a context questionnaire was submitted to students so as to gather information on their socio-economic profiles as well as their mindsets and engagement regarding science [Source: DEPP-MEN, *Note d'information*, 16-37, 2016]. The 2015 questionnaire asked students what professions they expected to be exercising by the time they were 30. The OECD proposed 4 major scientific career families into which students could project themselves: “speciality of science and engineering”, “speciality of health”, “specialist of Information and Communications Technologies” and “science-related technicians or associate”. In the OECD countries 25% of the boys and 24% of the girls on average stated they wanted to pursue a scientific profession.

Among the 5 countries presented here, 15 year-old students expressing a desire to pursue a scientific profession manifested professional ambitions. For each of the genders only a very small percentage of students planned on an associate profession of a scientific nature (5.4.2). Moreover it was observed that already at 15 years-old there was a strong gendered representation of professions: girls mainly expected to enter health-related professions, while boys saw themselves more in traditional engineering professions or as engineers in the ICTs (cf. 5.3, p. 50).

NUMEROUS COUNTRIES STILL FAR FROM THE GOAL OF THE 2020 EUROPE STRATEGY

The “Europe 2020” strategy set a goal of 15% or less of low-performing students in science in PISA (cf. 5.1). In the distribution of students per PISA **proficiency level**[□], low-performing students are those who are ranked below level 2 (or the “under 1b”, “1b” and “1a” groups). Level 2 is thus the “baseline level starting at which students begin to manifest skills that will enable them to effectively and productively participate in the life of society”. Students known as “top performers” are those students ranked at levels 5 and 6.

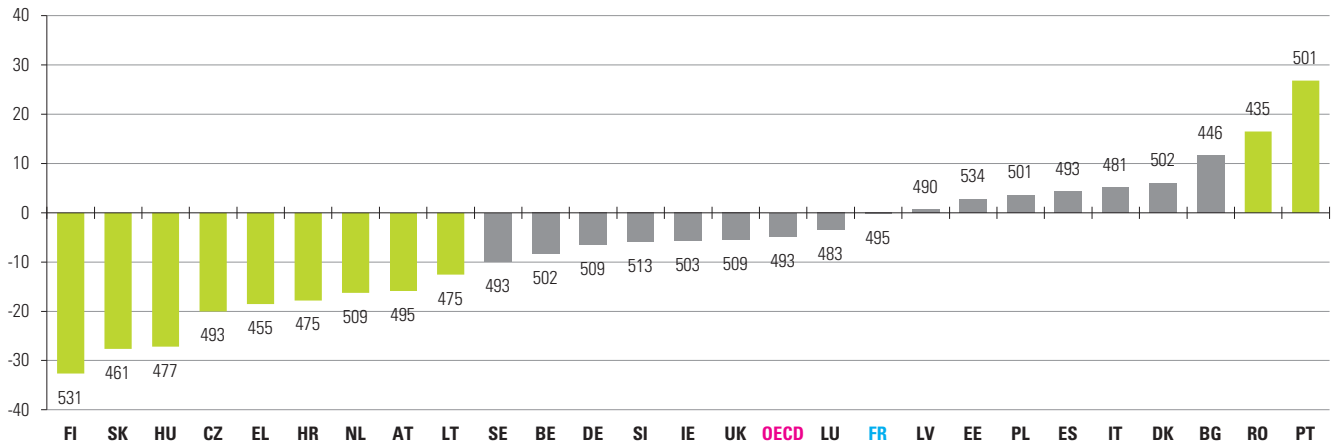
In 2015 in the EU-28 only 3 countries attained this “Europe 2020” goal: Estonia, Finland and Slovenia (5.4.3). Moreover, Estonia and Finland were the only countries to have a greater proportion of high-performing students than low-performing students. With 22% of its students low-performing and 8% high-performing in science, France was located very close to the OECD average. ■

[□] See definition p. 74.

5.4.1 Evolution of the mean score in science between PISA 2006 and PISA 2015

OECD ; PISA 2015 volume I, table I.2.4a.

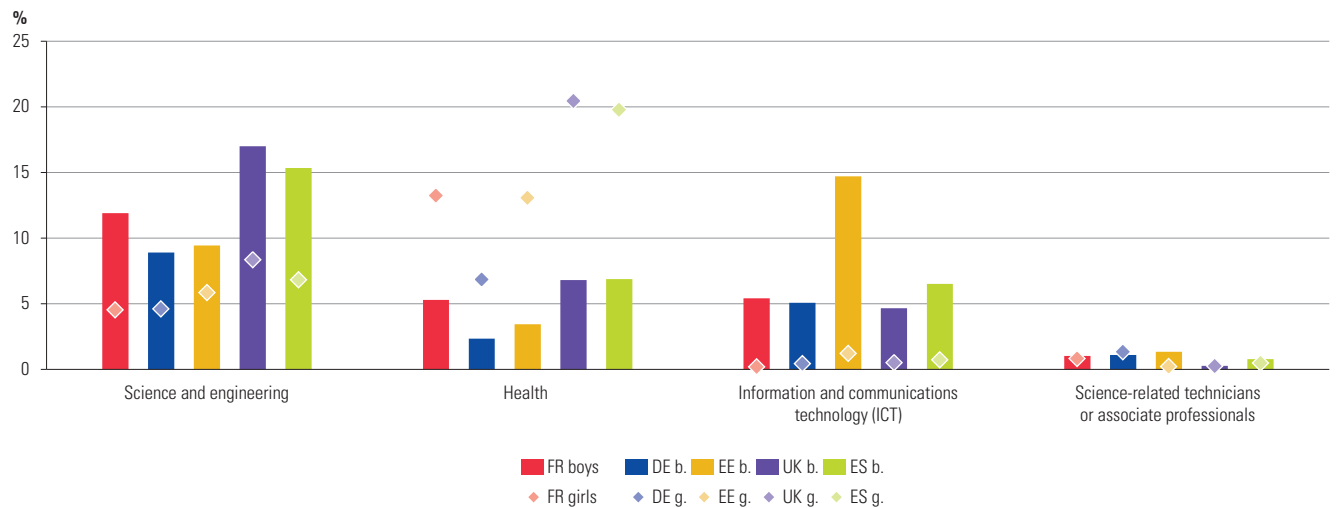
Score difference, in points



Note: Between 2006 and 2015, the mean score of performance of 15 year old students at the PISA science assessment in Portugal increased by 27 points and reached 501 in 2015. Grey histograms correspond to the countries where the score difference is not statistically significant.

5.4.2 Students expecting to work as science-related high-level professionals or associate professionals at age 30, by gender in 2015

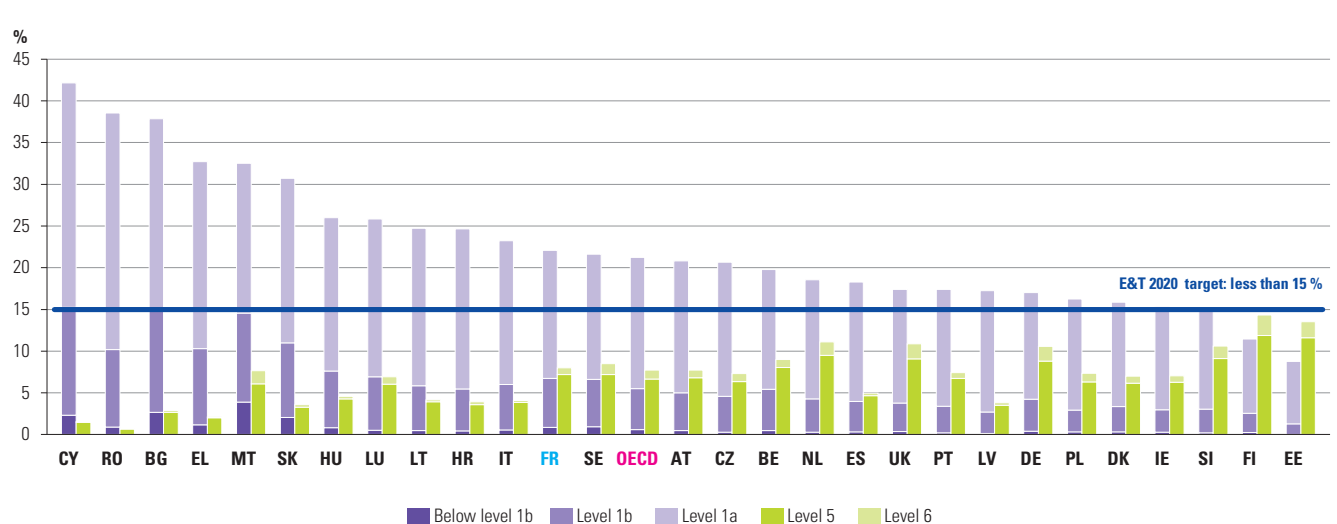
OECD ; PISA 2015 volume I, table I.3.10a.



Note: In 2015 in France, 12% of 15 year old boys and 5% of 15 year old girls are expecting to work as science-related high-level professionals in Science and engineering.

5.4.3 Proportion of low performers and top performers in science in PISA in 2015

OECD ; PISA 2015 volume I, table I.2.1a.



5.5 PISA 2015: SOCIAL AND ECONOMIC STATUS AND STUDENTS' PERFORMANCES

Measuring the influence of social and economic status ZOOM

So as to measure the influence of a student's social and economic status on the PISA[□] test scores, the OECD has concocted an index of Economic, Social and Cultural Status (ESCS) from a set of elements about the situation of the student's parents (e.g. educational attainment level and the father and mother's professional status) and on a student's access to certain goods or study conditions (individual room, an office to work in, internet connection, the amount of books present in the home, etc.). Students are thus classified in four equal groups: the "bottom quarter" containing the 25% of students with the lowest ESCS index, and the "top quarter", the 25% of students with the highest ESCS index [Source: DEPP-MENESR, *Note d'information*, 13-31, 2013].

A PERFORMANCE LEVEL LINKED TO SOCIAL STATUS

In 2015 the mean score of all students in OECD countries was 493 in the science tests (cf. 5.4). The OECD's "bottom quarter" students had a mean score of 452 points, whereas the "top quarter" students scored a mean of 540 (5.5.1). Estonia saw both the top score of "bottom quarter" students in the EU-28 (504) and the top score of the "top quarter" students (573). In contrast Bulgaria, Cyprus and Romania saw the lowest scores, both for their "top quarter" students (502, 474 and 477 points respectively) and for their "bottom quarter" students (395, 399 and 401 points respectively).

Estonia and France showed contrasting profiles. Estonia was typified by a high mean score – among the highest in the EU-28 countries – but also by the narrow differences of scores between "top quarter" and "bottom quarter" students. In 2015 only Latvia showed a score difference between quarters of the ESCS index lower than that of Estonia in the science test (a 63 point difference in Latvia and 69 points in Estonia). Conversely in France the "bottom quarter" students scored lower than the mean score of students in OECD countries in the same ESCS quarter; its "top quarter" students scored the highest. Within the EU-28 only Luxembourg saw a bigger score difference between the "top quarter" and "bottom quarter" students (a 128 point difference in Luxembourg to 118 in France). Germany also was in a situation where the performance gap was socially significant (103 points). In France, however, this strong correlation between the social and economic status of students and their performance in science tests did not get worse between 2006 and 2015.

PERFORMANCE AND EQUITY: CONTRASTING CONFIGURATIONS WITHIN THE EUROPEAN UNION

Graph 5.5.2 makes it possible to compare the **social equity of performances**[□] (horizontal axis) and the mean score of students in the PISA science test (vertical axis). In 2015 all EU-28 countries were distributed in equal number above and below the mean performance of the OECD countries, also on both sides of the OECD's mean equity axis. France combined a low equity score (comparable to Hungary and Luxembourg) and a performance score similar to the OECD average. Latvia and Sweden, both with performance scores identical to the OECD average, were typified, however, by an equity of results higher to those of the OECD. Bulgaria, Hungary, Malta and Slovakia showed both low performance scores and low equity. Estonia and Finland alone combined high performances and equity higher than the OECD average.

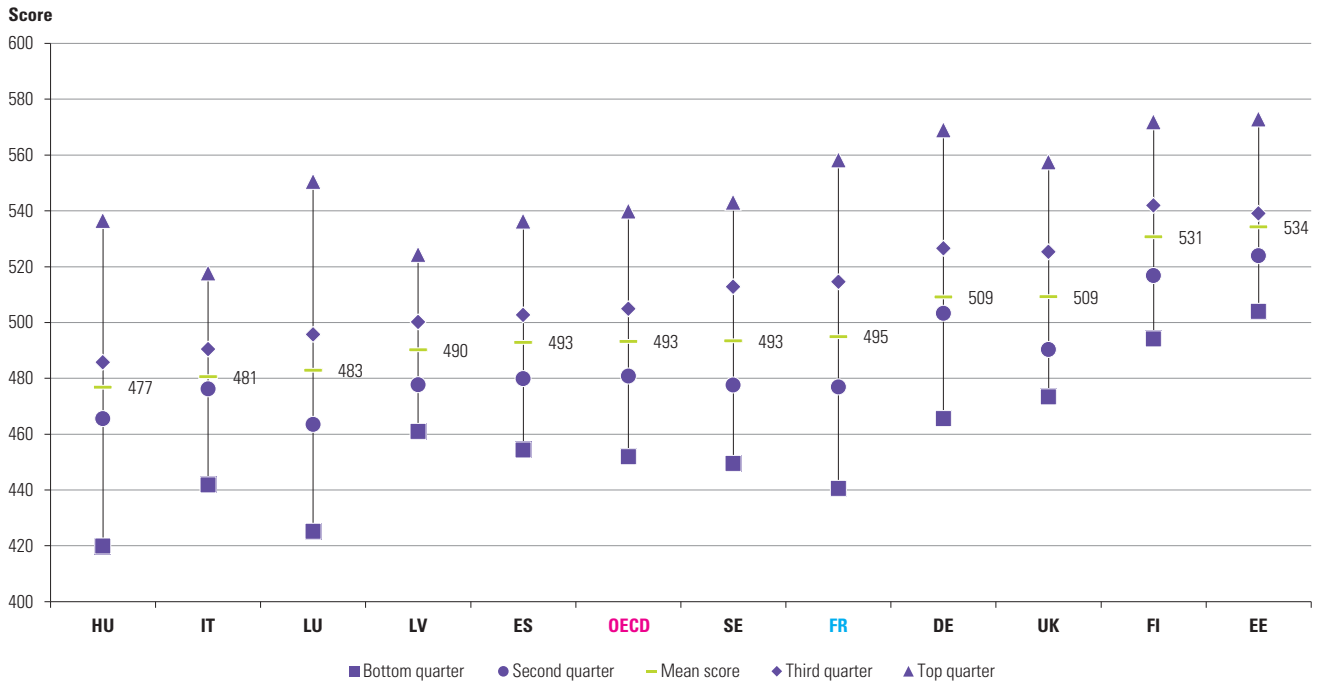
THE MANY FACTORS INFLUENCING PERFORMANCE

The factors increasing the probability for 15-year-old students to find themselves strictly below the **proficiency baseline**[□] were not limited to a disadvantaged social and economic status but included other family and individual characteristics. The OECD illustrates the extent and influence of these characteristics with an example given for PISA 2012, the major subject of which was mathematics (an individual's ability to formulate, use and interpret mathematical reasoning in a range of real-life contexts). On average in the OECD countries, a student with an advantaged social and economic status, was male, living in a two-parent family, native born, speaking the same language at home as at school, living in an urban setting, having attended more than one year of pre-primary school, never having repeated a school year and enrolled in a general track/general school, had a 5% probability of under-performing in science. Conversely, a student with a disadvantaged status who was female, living in a single-parent, immigrant-origin family, speaking a different language at home than at school, living in a rural area, not having attended pre-primary school, having repeated a school year and following a vocational track, had an 83% chance of underperforming [OECD, *PISA In Focus*, num. 60, February, 2016]. ■

[□] See definition p. 74.

5.5.1 Mean score in science by PISA index of student's economic, social and cultural status (ESCS) in PISA 2015

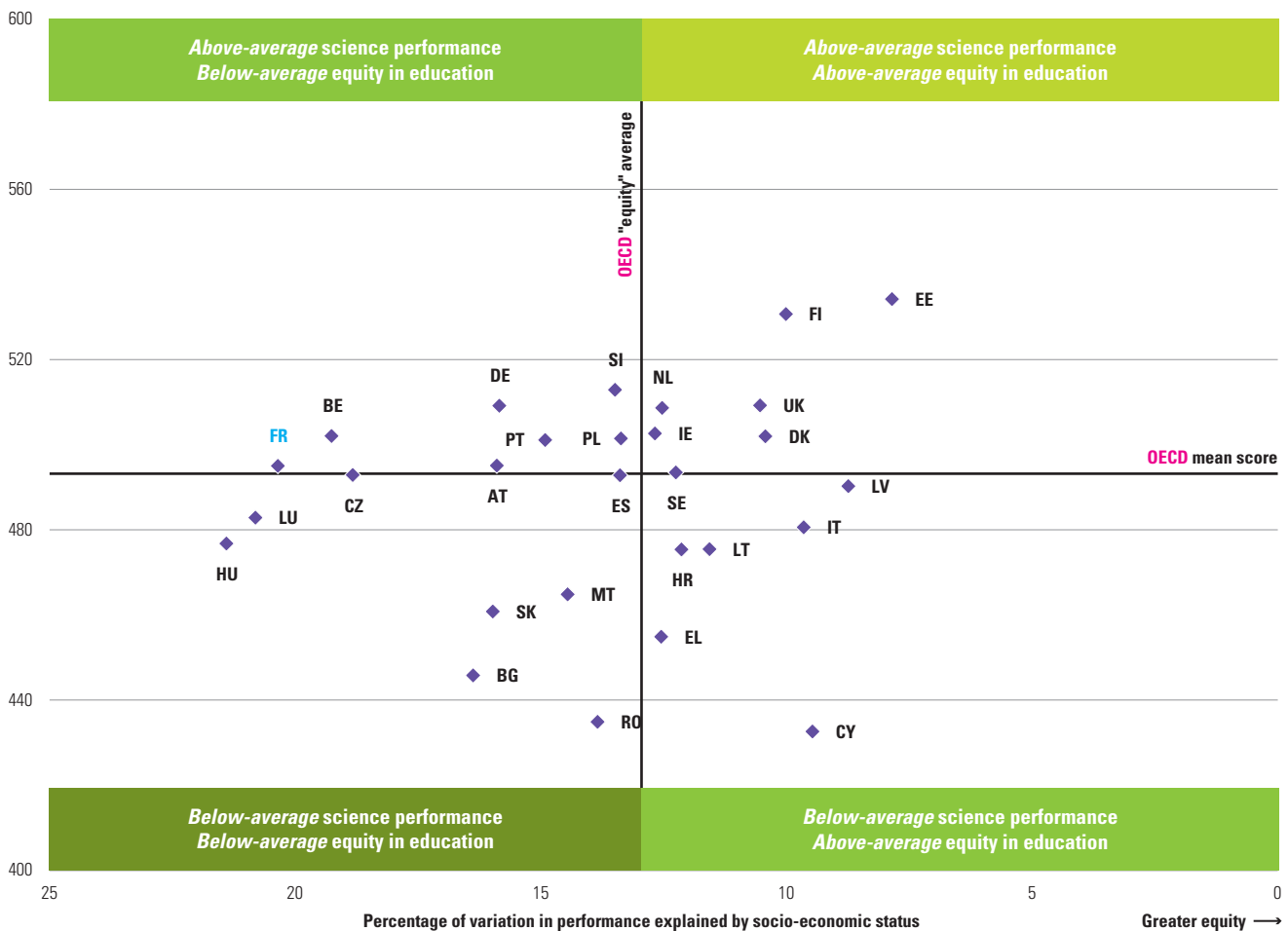
OECD ; PISA 2015 volume I, table I.6.3a.



Note: In 2015 in France, the mean score in science for students of the bottom quarter in the ESCS index is 441, while the mean score of the students of the top quarter of the index is 558. The mean score for the entirety of the sample is 495. Only a panel of the EU 28 countries is presented above.

5.5.2 Student performance and equity in science in PISA 2015

OECD ; PISA 2015 volume I, table I.6.3a.



Note: In 2015 in France, the mean score in science of the students is 495, while the percentage of variation explained by the social and economic status of the student is 20% (see annex "social equity in performances").

5.6 PISA 2015: READING COMPREHENSION AND COLLABORATIVE PROBLEM-SOLVING

FEWER UNDERPERFORMING STUDENTS IN READING THAN IN THE OTHER PISA SUBJECTS

In PISA[□] 2015, reading comprehension was assessed as a secondary subject. **Distribution by proficiency[□]** levels made it possible to observe the proportion of students known as “low-performing” and “high-performing”. “Low performing” students are ranked below level 2, which corresponds to the “baseline from which students begin to demonstrate skills that enable them to participate effectively and productively in the life of society” (cf. 5.4, p. 54). Students known as “high performers” are ranked in levels 5 and 6.

The proportion of student’s not yet possessing these skills in the OECD (levels strictly below 2) was 20% on average (22% for the EU-28) (5.6.1). Within the EU-28 in 2015 only 5 countries met or surpassed the assessment criteria of the European strategy in reading comprehension (Denmark, Estonia, Finland, Ireland and Poland – cf. 5.1. p. 48). In 2015 Bulgaria was the EU-28 country with the largest percentage of low-performing students in reading comprehension with more than 40% of students below level 2. Estonia, Finland and Ireland were the EU’s only countries with more 15-year-old students performing highly than under-performing. Lastly France presented a unique profile, characterised both by a high rate of low-performing students (21%) and a high rate of high-performing students, which only Finland surpassed in the EU (13% for France and 14% for Finland).

GIRLS OUTPERFORMED BOYS IN COLLABORATIVE PROBLEM-SOLVING

In 2015 24 of the 28 EU Member States of the OECD participated in the PISA test for collaborative problem-solving. The girls in these countries systematically out-performed the boys. The average score of the 15-year-old students in all countries of the OECD was 500. This mean score varied tangibly across the countries of the European Union with the lowest mean score seen in Cyprus (444) and the highest in Estonia and Finland (535). If the scores are examined by gender, the girls’ mean score on average of the OECD countries was 515, whereas the boys’ mean score was 486 (5.6.2). The widest mean score difference according to gender was seen in Finland (a 48-point difference), whereas the narrowest difference was seen in Portugal (19 points). With a mean score of 494 for all students and a score difference per gender of 29 points, France was located very near the OECD average.

Collaborative problem-solving according to PISA **ZOOM**

Since the 2012 round, the PISA problem-solving test has aimed at assessing the following 4 processes: exploring and understanding information given; conjuring up a problem and formulating assumptions; planning and executing a strategy; and assessing the result obtained. The 2015 survey repeated these processes and enriched each with a collaborative skill. Collaborative problem-solving has been defined as “an individual’s ability to engage effectively in a process where two individuals (or more) attempt to solve a problem by sharing their thoughts and efforts required to find a solution, as well as in sharing their knowledge, skills and efforts to implement this solution”. The test is computerised, and the agents who collaborate with the student are simulated by computers. As assessed in PISA 2015, the collaboration-related skills (which were as many categories of the 4 processes of problem-solving assessed in 2012) were the following: establishing and maintaining a common understanding; establishing and maintaining an organised group; and implementing appropriate collaborative actions to solve the problem. Only 52 countries participated in this reworked problem-solving test.

THE COLLABORATIVE PROBLEM-SOLVING TEST LESS SENSITIVE TO SOCIAL ORIGINS

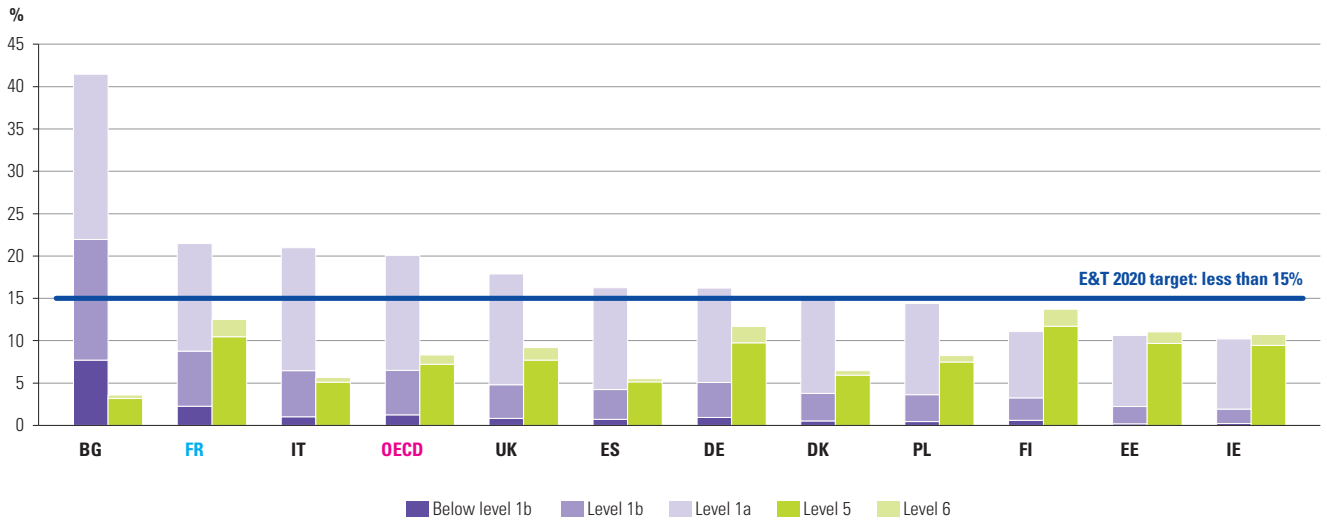
The results obtained for the PISA collaborative problem-solving test can be broken down according to the economic, social and cultural (ESCS) status of the students (cf. 5.5 p. 54). In 2015 in all of the OECD countries participating in this test, the mean score of the 15-year-old students was 500, that of the “bottom quarter” students was 468 and for the “top quarter” it was 536 (5.6.3). The score difference according to social origins (69 points) – thus the assumed impact of social status on the results – was less large than for the science test (88 points). The same was true for all of the EU-28 countries participating in the collaborative problem-solving test.

As for the science test, Estonia and Latvia were the countries with the lowest score difference between “top quarter” and «bottom quarter” students (differences of 56 and 55 points respectively). Yet Estonia showed a mean score for all students that was clearly higher than Latvia. Of the countries presented here, France, Germany, Hungary and Luxembourg were the only countries where the score difference between the top and bottom quarter of the ESCS index was higher than the OECD average. ■

[□] See definition p. 74.

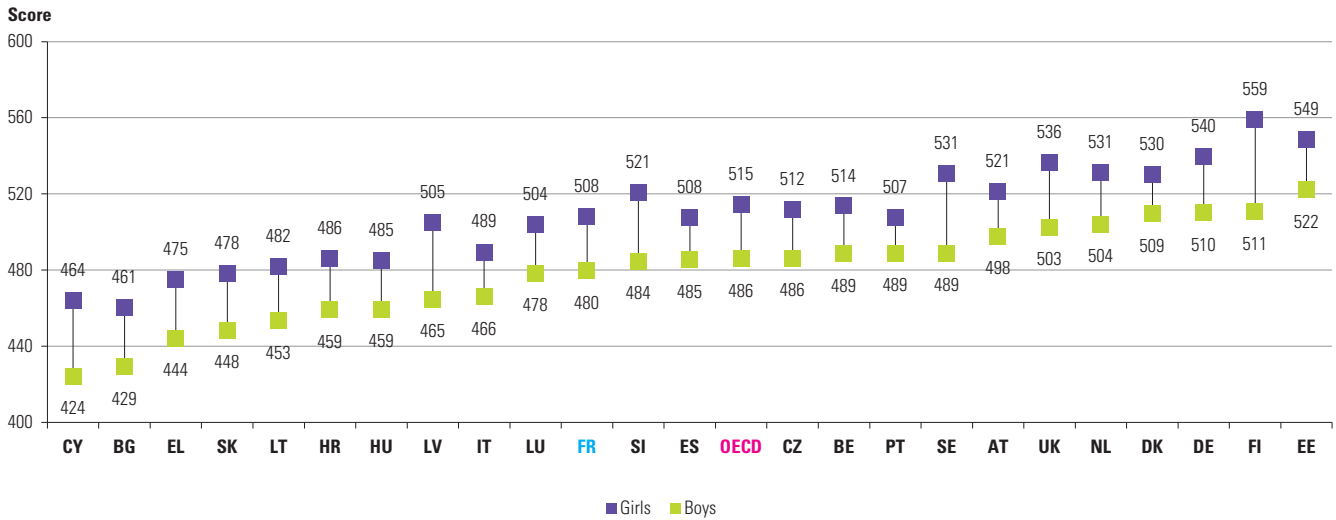
5.6.1 Proportion of low performers and top performers in reading in PISA in 2015

OECD ; PISA 2015 volume I, table I.4.1a.



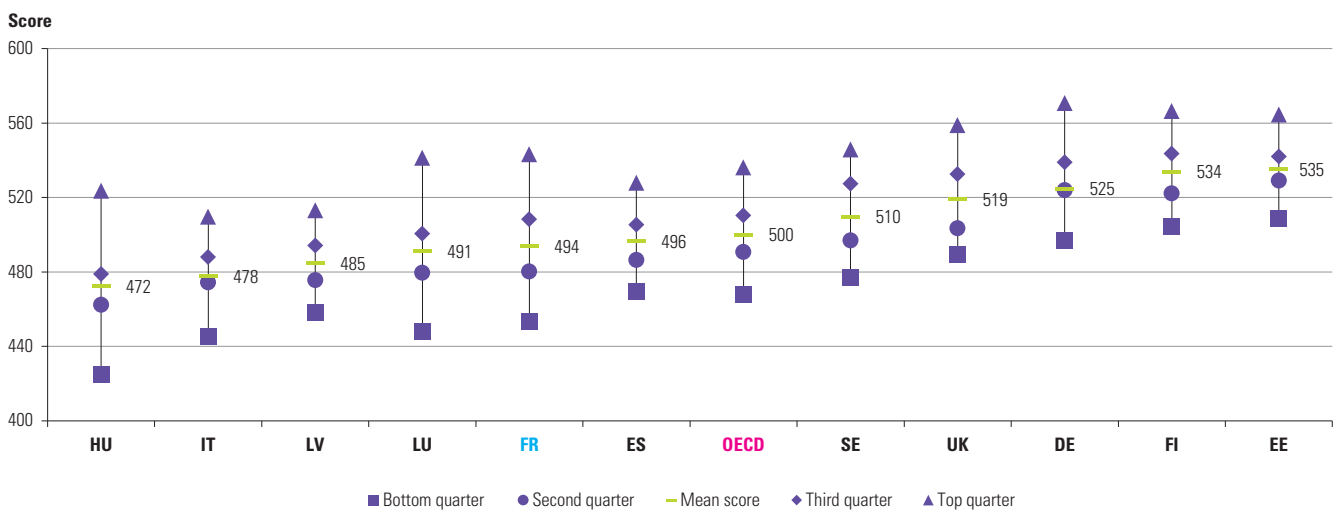
5.6.2 Score difference in collaborative problem-solving by gender in 2015

OCDE ; PISA 2015 volume V, table V.4.3a.



5.6.3 Score difference in collaborative problem-solving by PISA index of student's economic, social and cultural status (ESCS)

OCDE ; PISA 2015 volume V, table V.4.6a.



The **TIMSS**[□] international survey (*Trends in International Mathematics and Science Study*) is held every 4 years by the *International Association for the Evaluation of Educational Achievement* (IEA). It is a survey that assesses performances in mathematics and science of students in the fourth and eighth grades. Graphs **5.7.1** and **5.7.2** show only the data for tests of fourth graders in primary school. France did not take part in the eighth grade test. Like **PISA**[□] and **PIRLS**[□], TIMSS sets the centre of the scale at 500. In 2015 49 countries/partner economies participated in the TIMSS survey for the fourth grade of primary school (except for England, where it is the fifth grade given the fact that primary school there begins at the age of 5). Within the European Union 19 countries, 2 nations (England and Northern Ireland) and the Flemish community in Belgium participated [Source: DEPP-MEN, *Note d'information*, 16-33, 2016].

ZOOM

BOYS ALREADY HIGHER PERFORMERS IN MATHS IN THE 4TH GRADE

In 2015 in the 21 European Union countries participating in the TIMSS survey for students in the fourth year of primary school, the students scored an overall average of 527 in the maths test. This score varied tangibly across the countries. In Europe the lowest overall mean scores were recorded in France (488) and Slovakia (498), whereas the highest scores seen were in England and Ireland (546 and 547 respectively).

On average in the EU countries participating in the survey, the boys had a mean score in maths slightly higher (529) than the girls (523) (**5.7.1**). In 11 countries (including England, France, Italy and Spain) the boys scored significantly higher than the girls. Only Finland saw the girls score a significantly higher mean than the boys (9 points).

NO SIGNIFICANT DIFFERENCE IN SCORES BETWEEN THE GENDERS IN SCIENCE IN THE 4TH GRADE

In 2015 the EU countries participating in the TIMSS survey for the 4th grade of primary school had an overall mean score of 525 in the science test. As for maths, the overall mean score did not reflect the diversities of national situations. In science, the national mean score of the European countries varied from 481 in Cyprus to 553 in Finland.

However in contrast to the maths test, there was a relative mean score balance between the genders. Indeed on average in the 21 participating European countries the boys had a mean score of 526 and the girls a mean score of 524 (**5.7.2**). Moreover 7 countries (including the Czech Republic, Italy and Spain) had a profile characterised by a significantly higher score for the boys, and 3 countries (Bulgaria, Finland and Sweden) saw the reverse situation. As for France, where the girls and boys attained an identical overall mean score, once again it saw a very much lower mean score compared to the other EU countries.

BY THE END OF SECONDARY SCHOOL, BOYS HEADING FOR THE SCIENTIFIC TRACKS PERFORMED HIGHER THAN GIRLS

The timss international survey also makes it possible to assess student's acquired knowledge at the end of secondary school. Indeed the "advanced" TIMSS survey assesses knowledge in maths and physics of students who are intending to follow scientific, technological, engineering or math careers (STEM). These students have received the best scientific training offered by their countries. In France the targeted students are those in the final upper secondary year (*Terminale*) in the general track in the scientific series. A very limited number of countries participated in this aspect of the survey (9 countries in 2015, of which 5 were from the European Union). Contrary to PISA or TIMSS in the fourth year of primary school, advanced TIMSS is not representative of all students of a given age or a educational level. A coverage rate is calculated per country and corresponds to the proportion of targeted students (all of "Terminale-S" in France) in the total population of young people the same age (18 years-old in France) [Source: DEPP-MEN, *Note d'information*, 16-35, 2016]. Moreover two sub-samples were extracted in France among the students having chosen to follow a maths speciality in *Terminale-S* and among those postulating to scientific Preparatory Classes for *Grandes Écoles*.

ZOOM

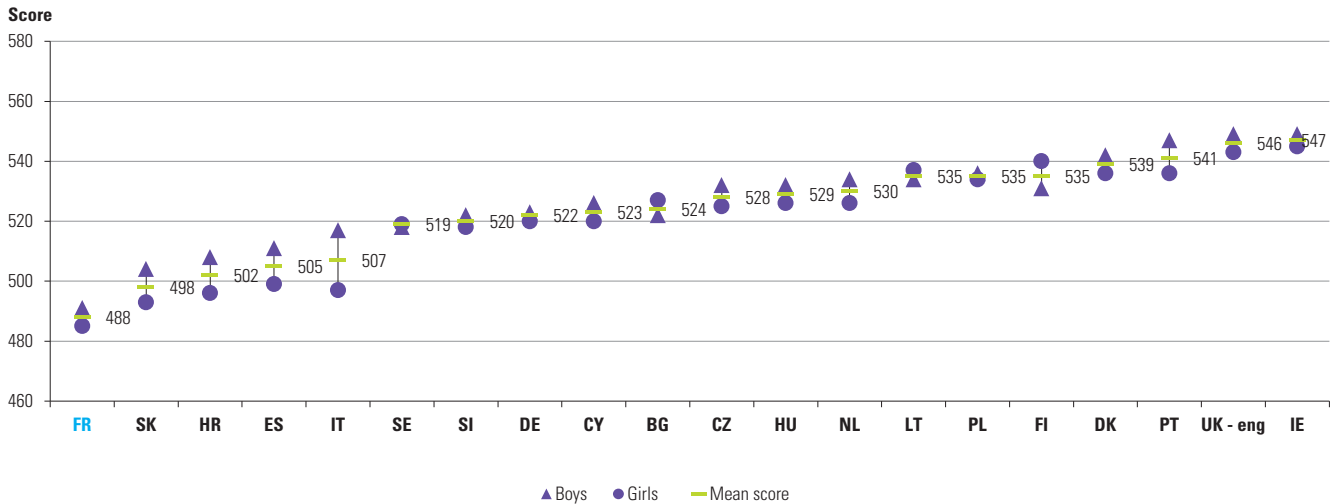
In 2015 the coverage rates of the 5 EU-28 countries participating in the advanced TIMSS survey were the highest of all the participating countries, but they nonetheless varied from 14% in Sweden to 34% in Slovenia. In France this coverage rate was 22%. The 5 European countries reported the following scores: Italy (422), Sweden (431), Slovenia (460), France (463) and Portugal (482).

The proportions of girls and boys among the assessed students in Europe were relatively balanced, i.e. a 37% minimum of girls in Italy and a maximum of 60% of girls in Slovenia (**5.7.3**). The differences in scores between the genders were statistically significant only in France, Slovenia and Sweden. They were, moreover, systematically in favour of the boys. ■

[□] See definition p. 74.

5.7.1 Score in mathematics in TIMSS fourth grade by gender in 2015

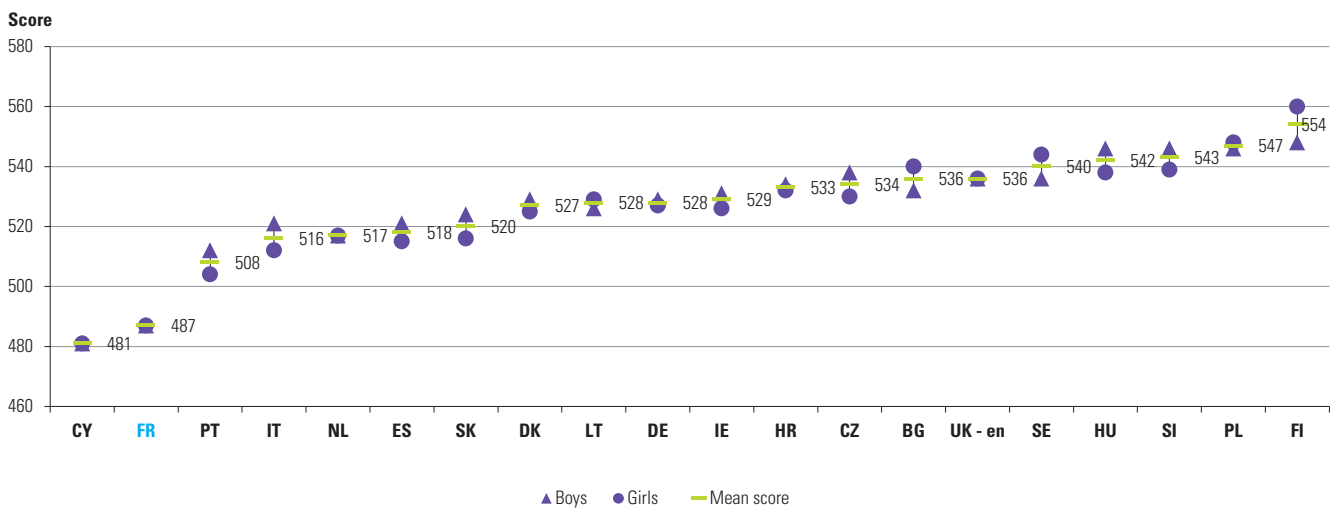
IEA, TIMSS 2015 mathematics, exhibits 1.1 et 1.10.



Note: In 2015 in France, 4th grade pupils have a general mean score of 488, 4th grade girls have a mean score of 491 and 4th grade boys have a mean score of 485. Countries are ranked by ascending order of the mean score.

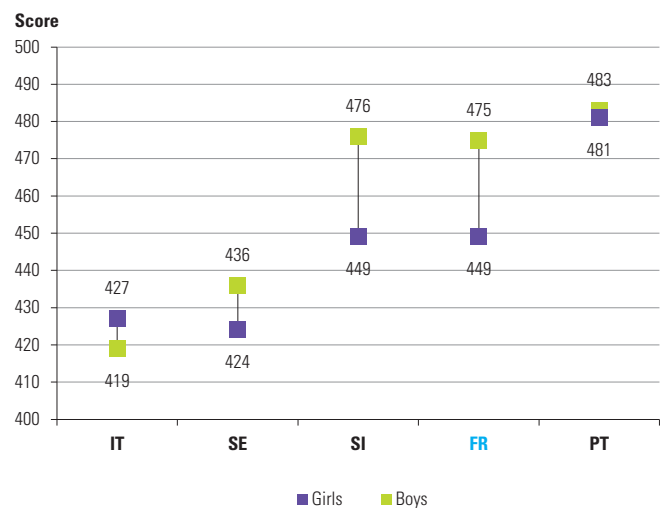
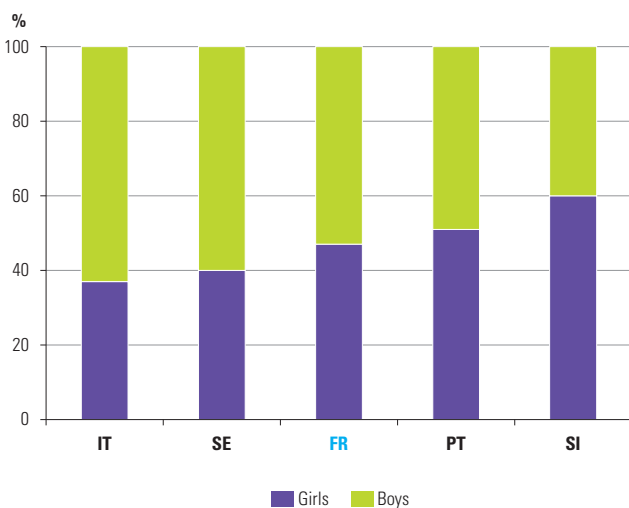
5.7.2 Score in science in TIMSS fourth grade by gender in 2015

IEA, TIMSS 2015 science, exhibits 1.1 et 1.10.



5.7.3 Distribution of students by gender and score difference by gender in TIMSS mathematics advanced in 2015

IEA, TIMSS 2015 mathematics advanced, exhibit M1.6.



The PIRLS[□] international survey (*Progress in International Reading Literacy Study*) is conducted every 5 years by the *International Association for the Evaluation of Educational Achievement* (IEA). This survey assesses the performance in reading literacy from a representative sample of students in the fourth year of primary school counting from the first year of primary school of the participating countries (except for England and Malta where the test is given in the 5th year due to the fact that primary education there begins at 5). As with PISA[□] and TIMSS[□], PIRLS sets the centre of the score scale at 500. In 2016 50 countries/partner economies participated in the PIRLS test for the 4th grade. Within the European Union, 20 countries, 2 nations (England and Northern Ireland) and Belgium's Flemish and French communities participated [Source: DEPP-MEN, *Note d'information*, 17-24, 2017].

ZOOM

GIRLS SYSTEMATICALLY PERFORMED HIGHER THAN THE BOYS IN THE 4TH GRADE

In 2016 in 22 of the 28 European Union countries participating in the PIRLS survey, the 4th grade students attained an overall mean score of 540. The highest European mean scores were seen in Finland and Ireland (566 and 567 points respectively), whereas the lowest scores occurred in France and Malta (511 and 452 points respectively) (5.8.1). At the time of the test, the average age of European students was 10.3 with the oldest students being Latvian (10.9 years old) and the youngest Italian and Maltese (9.7 years old). With its students at an average age of 9.8 when they took the test, France was one of 4 countries where the students were the youngest.

With the exception of Portugal, where the score differences per gender were not statistically significant, girls achieved better scores than boys in all the European countries participating in the survey. Finland and Malta, which recorded the highest and lowest extremes of the mean scores of the EU-28, were also the two countries where the score differences per gender were the greatest (22 and 21 point disparities respectively). France, with an 8 point difference, showed a girl-boy difference among the lowest in Europe.

GIRLS WERE HIGHER PERFORMERS WHATEVER THE READING PROCESS OR READING PURPOSE

PIRLS creates two groups of independent score scales. The first group of two scales makes it possible to analyse scores according to the type of texts read by students, i.e. "literary texts" (those that tell a story in the form of narrative fiction) and "informational texts". The latter are specifically drafted for the PIRLS survey within each participating country by authors who are used to writing for a young audience, which enables them to avoid, among other things, the prejudices relating to translation. The second group of scales combines four comprehension processes broken down into two sub-scales according to their degree of complexity: "retrieval" and "inference" (less complex sub-scale) and "interpretation" and "integration and evaluation" (more complex).

ZOOM

In 2016 the European Union students achieved a similar score whatever the texts read in the first group of scales, i.e. literary (542 points) or informational (539 points). Malta recorded the lowest scores for the two scales of the first group (452 and 451 respectively), whereas the highest score was achieved in Ireland for the literary texts (571) and in Finland for the informational texts (569). Scoring 513 on the literary texts scale and 510 on the informational texts scale, France displayed scores significantly lower than the European average.

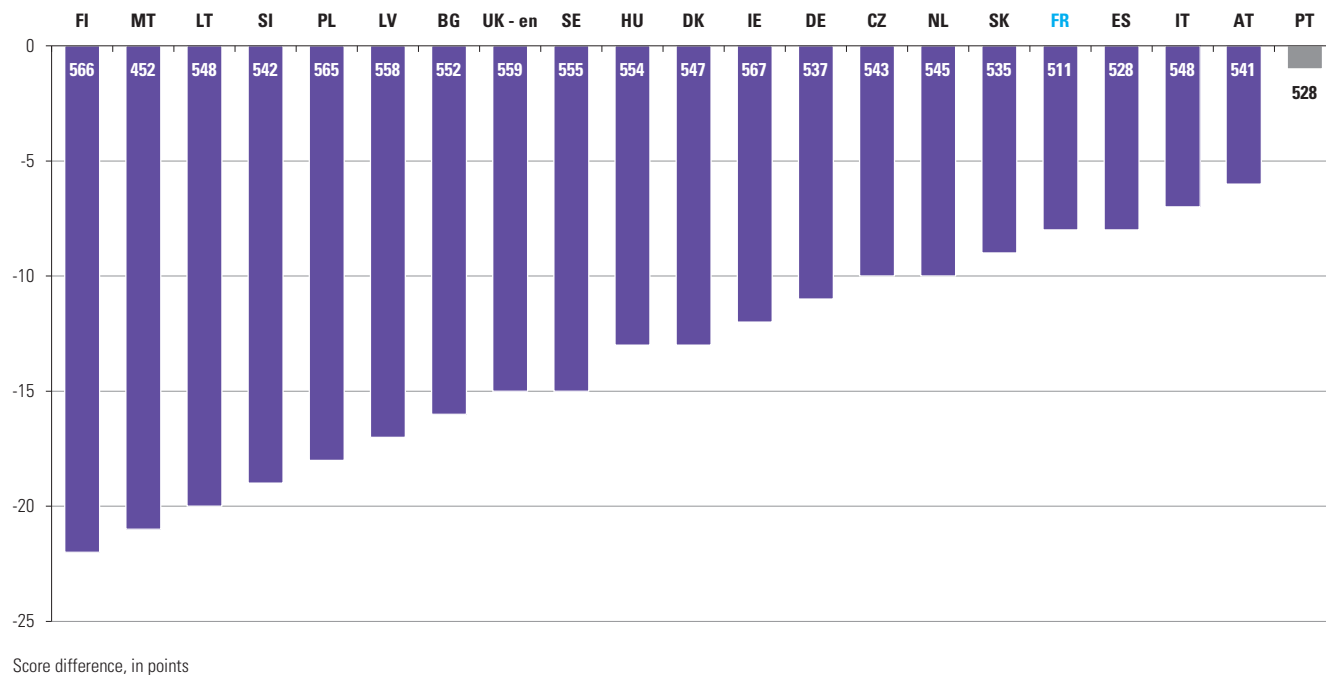
When the two score scales related to the literacy process (second group of scales) it is notable that the mean scores attained by 4th grade European students in primary school were 542 points for the "retrieval and infer" scale and 539 points for the "interpret and evaluate" scale. Here again Malta had the lowest mean scores (452 and 451 points respectively), while the highest scores were achieved in Finland for the "retrieve and infer" scale (572) and in Poland for the "interpret and evaluate" process (570). Once again France showed scores significantly lower than the European average with a score of 521 for the "simple" process and 501 for the more complex process.

Broken down by gender, the two scale groups of scores make it possible to show that boys, whatever the reading purpose (type of text) or comprehension process, achieved scores that, at best, were not statistically different from the girls' (5.8.2). Finland and Lithuania were the only countries where the score difference in favour of the girls was 20 points higher for all 4 score scales. Lastly, France showed the narrowest score disparities according to gender in Europe. ■

[□] See definition p. 74.

5.8.1 Boys' score compared to the girls in PIRLS fourth grade in 2016

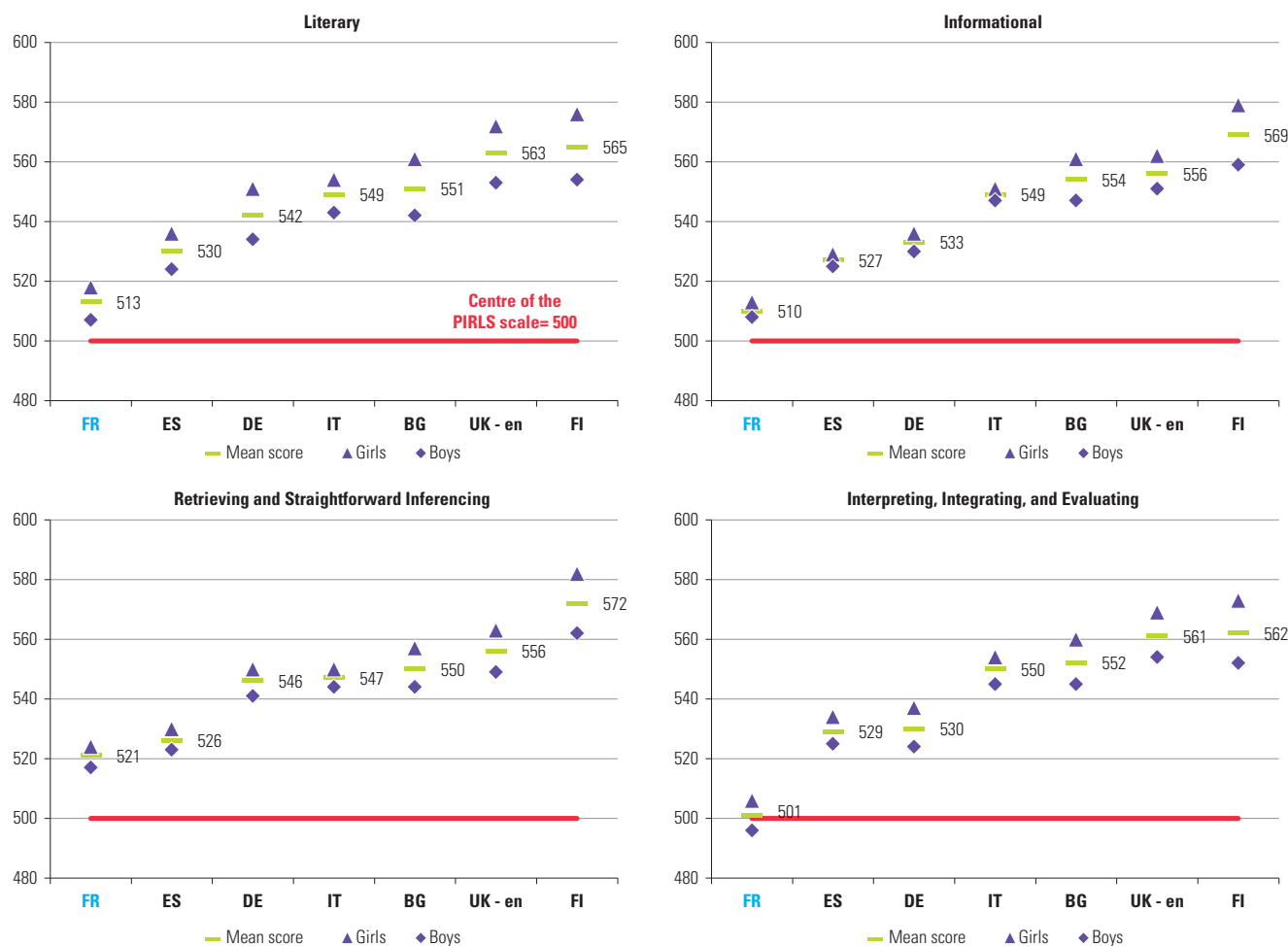
IEA, PIRLS 2016, exhibit 1.5.



Note: In 2016 in France, boys in 4th grade have achieved a score in average 8 points below the girls' score. On average, French 4th grade pupils' have reached a score 511. The grey histogram corresponds to the only country where the gender score difference is not statistically significant.

5.8.2 Mean score and gender score difference in PIRLS fourth grade according to reading purposes and comprehension processes in 2016

IEA, PIRLS 2016, exhibit 3.7.



Note: In 2016 in France, 4th grade pupils have reached a score of 513 on average on literary types of texts, 2 points above the general mean score of 4th grade pupils in PIRLS in France. Boys have achieved a score of 507 while girls have achieved a score 518 to the same type of text.