# TURKEY

### Key findings

- Compared with adults in the other OECD countries participating in the Survey of Adult Skills, adults in Turkey show below-average proficiency in all three domains assessed – literacy, numeracy and problem solving in technology-rich environments.
- The gap between the literacy proficiency of 16-24 year-olds in Turkey and the OECD average is smaller than it is for all other age groups.
- In Turkey, educational attainment is less strongly associated with proficiency than is the case in other participating countries/economies.
- Gender-related differences in proficiency in information-processing skills are among the largest across all countries and economies surveyed, particularly among older adults.
- In Turkey, higher skills proficiency and educational attainment are not associated with labour market status, but the wage returns to qualifications are among the highest across OECD countries.
- The relationship between information-processing skills and certain social outcomes, like trust, the belief that one can influence the political process and self-reported health, is considerably weaker in Turkey than in other countries.

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### The Survey of Adult Skills

The Survey of Adult Skills, a product of the OECD Programme for the International Assessment of Adult Competencies (PIAAC), provides a picture of adults' proficiency in three key information-processing skills:

- literacy – the ability to understand and respond appropriately to written texts
- numeracy – the ability to use numerical and mathematical concepts
- problem solving in technology-rich environments – the capacity to access, interpret and analyse information found, transformed and communicated in digital environments.

Proficiency is described on a scale of 500 points divided into levels. Each level summarises what a person with a particular score can do. Six proficiency levels are defined for literacy and numeracy (Levels 1 through 5 plus below Level 1) and four are defined for problem solving in technology-rich environments (Levels 1 through 3 plus below Level 1).

The survey also provides a wide range of information about respondents' use of skills at work and in everyday life, their education, their linguistic and social backgrounds, their participation in adult education and training programmes and in the labour market, and other aspects of their well-being.

**The Survey of Adult Skills was conducted in Turkey from 1 April 2014 to 31 March 2015.**
**Some 5 277 adults aged 16-65 were surveyed.**

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The statistical data for Israel are supplied by and are under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

**Compared with adults in the other participating OECD countries, adults in Turkey show below-average proficiency in all three domains assessed – literacy, numeracy and problem solving in technology-rich environments.**

**Adults in Turkey score 227 points in literacy, on average**, **significantly** below the OECD average of 268 points. Turkey has the third lowest average score in literacy among the countries and economies that took part in the survey. Only Chile (220 points) and Jakarta (Indonesia) (200 points) score below Turkey in literacy.

**The mean score in numeracy among adults in Turkey is 219 points**, significantly below the OECD average of 263 points. Turkey has the third lowest average score in literacy among the countries and economies that took part in the survey. Only Jakarta (Indonesia) (210 points) and Chile (206 points) score below Turkey in numeracy.

The mean literacy and numeracy scores in Turkey are more than 40 points lower than the international average (around one standard deviation). This means that the average literacy and numeracy proficiency among adults in Turkey, which is between the upper end of Level 1 and the lower end of Level 2, is almost one proficiency level lower than the international average, which lies in the upper end of Level 2.

The low average proficiency in literacy and numeracy reflects the relatively low levels of educational attainment among adults in Turkey. Nearly 80% of 55-65 year-olds and over 50% of 25-34 year-olds in Turkey have not completed upper secondary education.

**In addition, a majority of adults show no or only basic proficiency in problem solving in technology-rich environments.** Only 8% of adults in Turkey attain one of the two highest proficiency levels in this domain. Given that almost 40% of adults reported no computer experience or failed the ICT core test, the lack of basic ICT skills among a large proportion of adults may be chiefly responsible for the poor performance in this domain.

**Large proportions of adults in Turkey have poor literacy, numeracy and problem-solving skills.**

**As many as 45.7% of adults in Turkey attain only Level 1 or below in literacy** (a considerably higher percentage than the OECD average of 18.9%) **and 50.2% attain Level 1 or below in numeracy** (above the OECD average of 22.7%). At Level 1 in literacy, adults can read brief texts on familiar topics and locate a single piece of specific information identical in form to information in the question or directive. In numeracy, adults at Level 1 can perform basic mathematical processes in common, concrete contexts, for example, one-step or simple processes involving counting, sorting, basic arithmetic operations and understanding simple percentages.

**Some 38.0% of adults in Turkey** (compared with 14.7% of adults in all participating countries/economies) **indicated that they had no prior experience with computers or lacked basic computer skills, while 34.6% score at or below Level 1 in problem solving in technology-rich environments.** This is slightly below the OECD average (42.9%), but substantially more adults in Turkey either were not able to take the computer-based assessment or opted out of it (17.7%) compared to the OECD average (9.9%). This means that, in Turkey, considerably fewer adults with limited ICT skills took the computer-based assessment compared to similarly proficient adults other OECD countries. At Level 1, adults can use only widely available and familiar technology applications, such as e-mail software or a web browser, to solve problems involving few steps, simple reasoning and little or no navigation across applications.

**A small proportion of adults in Turkey has high literacy, numeracy and problem-solving skills.**

**Only around 0.5% of adults attain the two highest levels of proficiency (Level 4 or 5) in literacy**, significantly lower than the OECD average of 10.6%. At Level 4, adults can integrate, interpret and synthesise information from complex or lengthy texts that contain conditional and/or competing information (for more details on what adults can do at each proficiency level, see the table at the
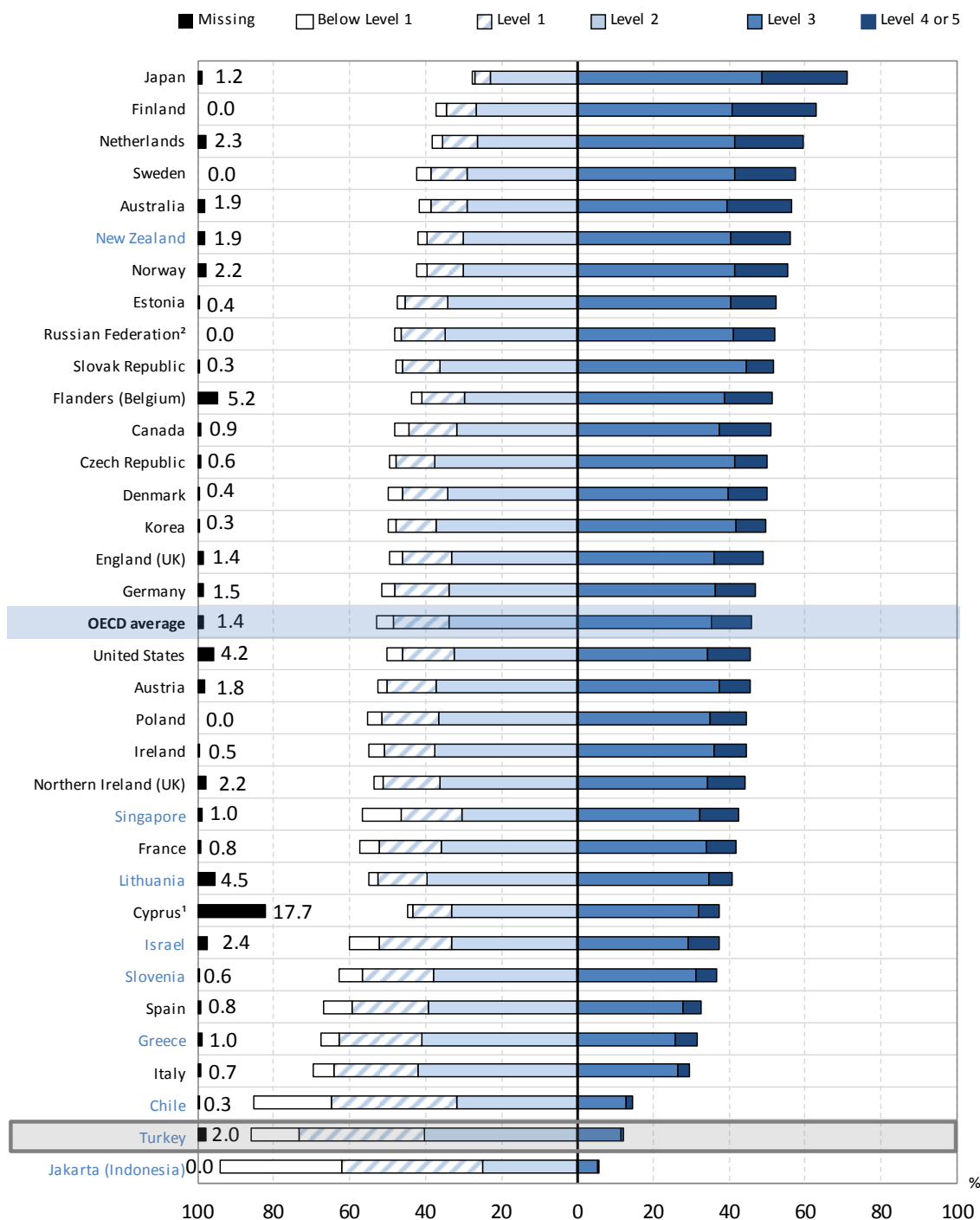
end of this note). **Some 11.5% of adults are proficient at Level 3 in literacy**, significantly lower than 35.4% average across participating OECD countries. Adults performing at this level can understand and respond appropriately to dense or lengthy texts, and can identify, interpret or evaluate one or more pieces of information and make appropriate inferences using knowledge text structures and rhetorical devices.

**Some 1.5% of adults in Turkey attain Level 4 or 5 in numeracy**, significantly lower than the average of 11.2% of adults across participating OECD countries. At Level 4, adults understand a broad range of mathematical information that may be complex, abstract or found in unfamiliar contexts. **Around one in ten adults (13.0%) are proficient at Level 3 in numeracy**, far below the OECD average of 31.8%. At this level, adults have a good sense of number and space; can recognise and work with mathematical relationships, patterns and proportions expressed in verbal or numerical form; and can interpret and perform basic analyses of data and statistics in texts, tables and graphs.

**Some 0.9% of adults are proficient at Level 3, the highest proficiency level, in problem solving in technology-rich environments**, which is considerably below the OECD average of 5.4%. Adults at Level 3 can complete tasks involving multiple computer applications, a large number of steps, and the discovery and use of ad hoc commands in a novel environment. **Some 6.9% of adults in Turkey attain proficiency Level 2 in problem solving** compared with the OECD average of 25.7%. At Level 2, adults can complete problems that involve a small number of computer applications, and require completing several steps and operations to reach a solution.

## Figure 1 **Literacy proficiency among adults**

Percentage of adults scoring at each proficiency level in literacy

Legend: ■ Missing  □ Below Level 1  ▨ Level 1  ▨ Level 2  ▨ Level 3  ▮ Level 4 or 5

| Country | Missing |
|---|---|
| Japan | 1.2 |
| Finland | 0.0 |
| Netherlands | 2.3 |
| Sweden | 0.0 |
| Australia | 1.9 |
| New Zealand | 1.9 |
| Norway | 2.2 |
| Estonia | 0.4 |
| Russian Federation[2] | 0.0 |
| Slovak Republic | 0.3 |
| Flanders (Belgium) | 5.2 |
| Canada | 0.9 |
| Czech Republic | 0.6 |
| Denmark | 0.4 |
| Korea | 0.3 |
| England (UK) | 1.4 |
| Germany | 1.5 |
| OECD average | 1.4 |
| United States | 4.2 |
| Austria | 1.8 |
| Poland | 0.0 |
| Ireland | 0.5 |
| Northern Ireland (UK) | 2.2 |
| Singapore | 1.0 |
| France | 0.8 |
| Lithuania | 4.5 |
| Cyprus[1] | 17.7 |
| Israel | 2.4 |
| Slovenia | 0.6 |
| Spain | 0.8 |
| Greece | 1.0 |
| Italy | 0.7 |
| Chile | 0.3 |
| Turkey | 2.0 |
| Jakarta (Indonesia) | 0.0 |

Axis: 100  80  60  40  20  0  20  40  60  80  100  %

**Note:** Adults in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related non-response).

1. Note by Turkey:

The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.
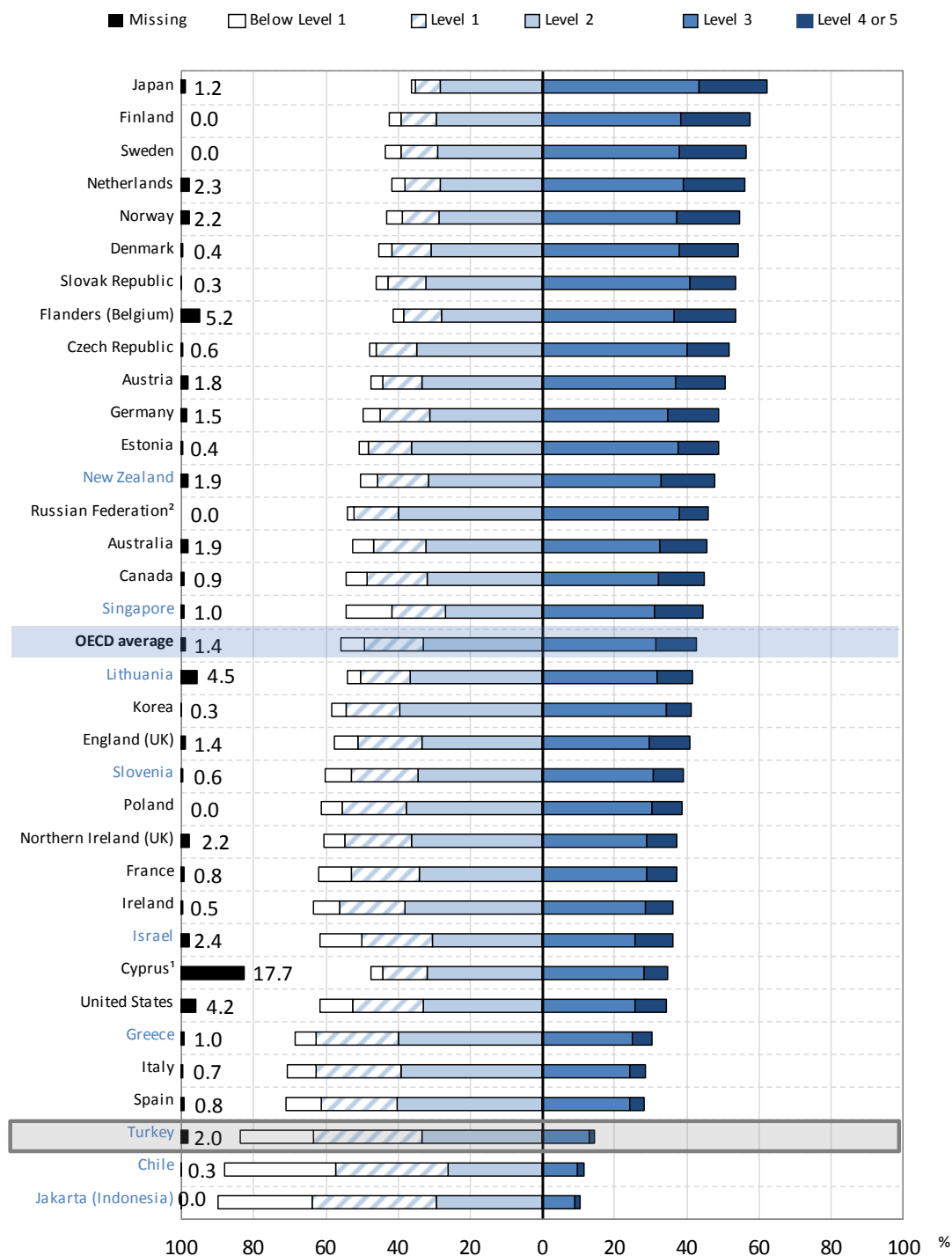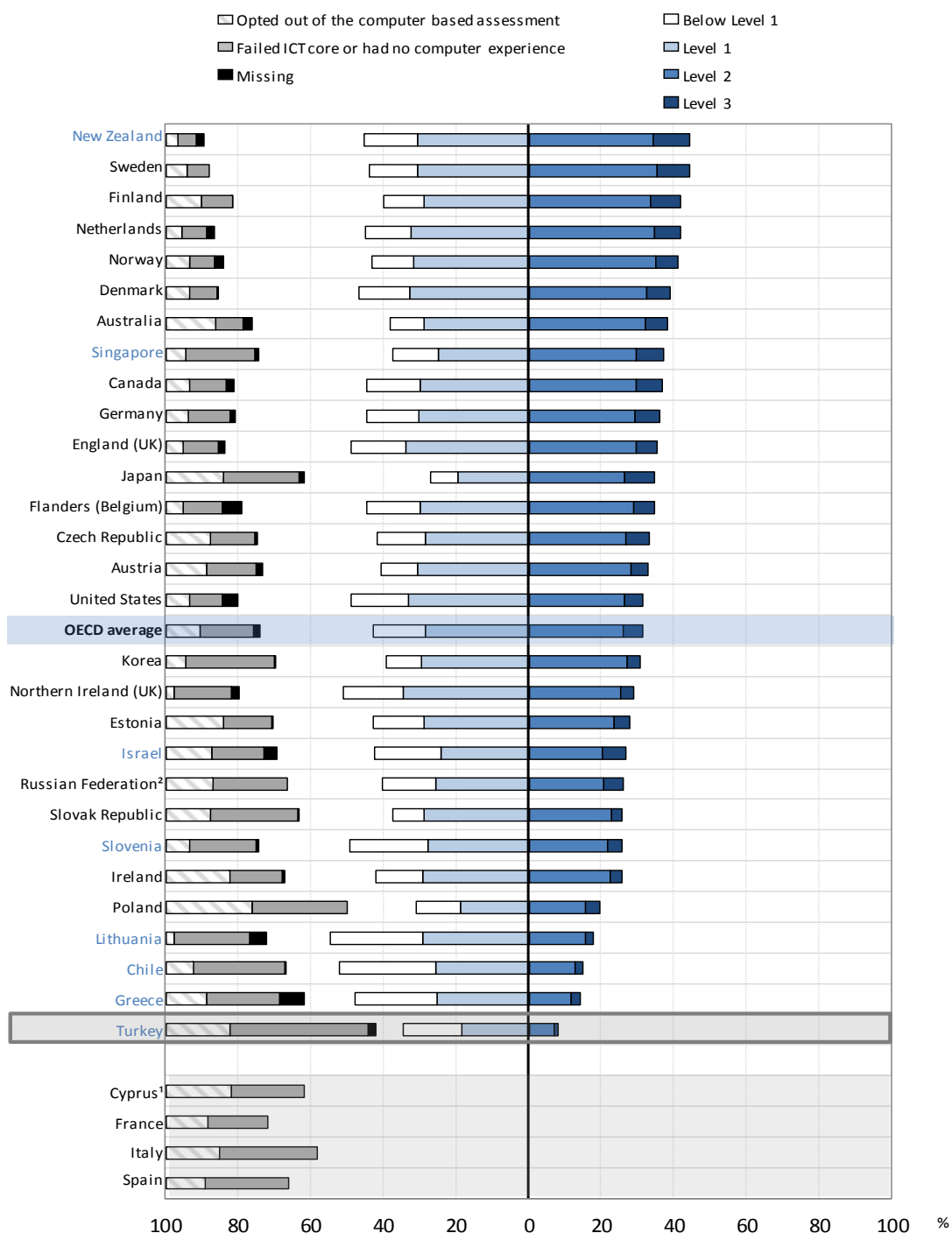
2. The sample for the Russian Federation does not include the population of the Moscow municipal area.

*Countries and economies are ranked in descending order of the combined percentages of adults scoring at Level 3 and at Level 4 or 5.*

**Source:** Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.1 (http://dx.doi.org/10.1787/888933366458).

Figure 2 **Numeracy proficiency among adults**

Percentage of 16-65 year-olds scoring at each proficiency level in numeracy



**Note:** Adults in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related non-response).

1. See note 1 under Figure 1.

2. The sample for the Russian Federation does not include the population of the Moscow municipal area.

*Countries and economies are ranked in descending order of the combined percentage of adults scoring at Level 3 and at Level 4 or 5.*

**Source:** Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.4 (http://dx.doi.org/10.1787/888933366458).

Figure 3 **Proficiency in problem solving in technology-rich environments among adults**

Percentage of 16-65 year-olds scoring at each proficiency level



**Notes:** Adults included in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related non-response). The missing category also includes adults who could not complete the assessment of problem solving in technology-rich environments because of technical problems with the computer used for the survey. Cyprus[1], France, Italy, Jakarta (Indonesia) and Spain did not participate in the problem solving in technology-rich environments assessment. Results for Jakarta (Indonesia) are not shown since the assessment was administered exclusively in paper and pencil format.

1. See note 1 under Figure 1.

2. The sample for the Russian Federation does not include the population of the Moscow municipal area.

*Countries and economies are ranked in descending order of the combined percentages of adults scoring at Level 2 and at Level 3.*

**Source:** Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.6 (http://dx.doi.org/10.1787/888933366458).
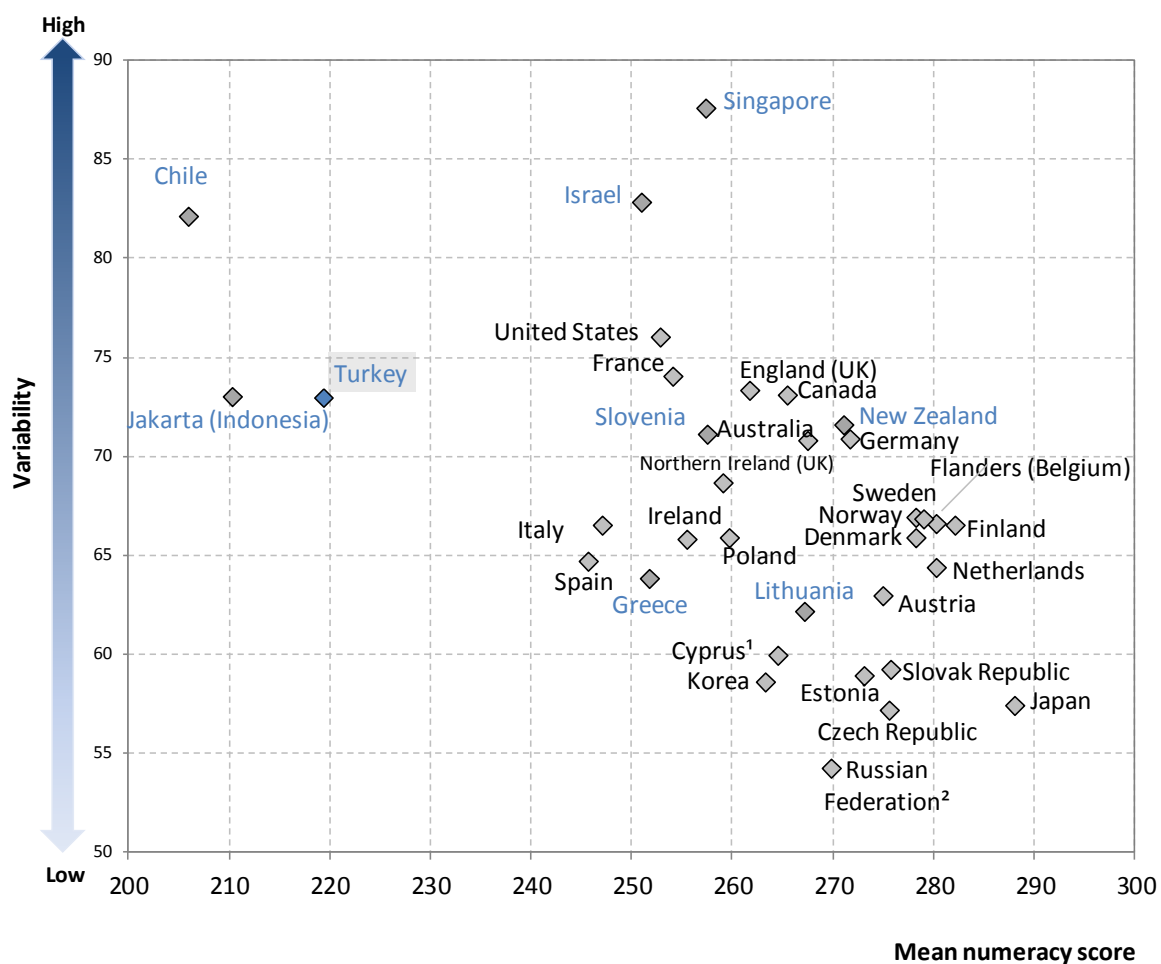
**There is less variability in individual literacy scores in Turkey than in other countries with low average proficiency in literacy.**

In Turkey, the variability in adults' literacy scores is similar to the average across OECD countries. The difference between adults scoring better than 25% of respondents in Turkey and those scoring better than 75% of respondents in Turkey is 58.2 score points, compared with the OECD average difference of 61.7 points. There is less variation in literacy and numeracy proficiency across adults in Turkey than is observed in some other countries/economies with relatively low average proficiency in literacy, such as Chile, Israel, Jakarta (Indonesia) and Spain.

The level of variability in individual numeracy scores is greater than the OECD average. The difference between adults scoring better than 25% of respondents and those scoring better than 75% of respondents in Turkey is 72.9 score points, compared with the OECD average of 67.7 score points.

Figure 4 **Average and distribution of numeracy scores**

Relationship between mean numeracy proficiency score and variability



**Note**: The measure of variability used is the interquartile range (third quartile minus first quartile).
1. See note 1 under Figure 1.
2. The sample for the Russian Federation does not include the population of the Moscow municipal area.
**Source**: Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.5 (http://dx.doi.org/10.1787/888933366458).

**Men in Turkey are more proficient than women in all of the three domains assessed – and the difference between the genders is one of the largest observed among all participating countries and economies.**

Across participating OECD countries, men and women perform equally well in literacy while men are more proficient than women in numeracy. In Turkey, men are more proficient than women in both domains. The gender-related difference in literacy is around 11 score points, and Turkey, along with Chile, Jakarta (Indonesia) and Singapore, is one of the few countries/economies where this difference is larger than 7 points. The gender-related difference in numeracy scores – 27 points – is larger in Turkey than in any other participating country/economy. The OECD average difference is 12 points.

**The gender gap is particularly pronounced in Turkey because of women's notably poor performance**. The gap between the average numeracy score of men in Turkey and the average numeracy score of men across OECD countries is 37 points. For women, the gap between the average numeracy score of women in Turkey and women across OECD countries is 51 points.
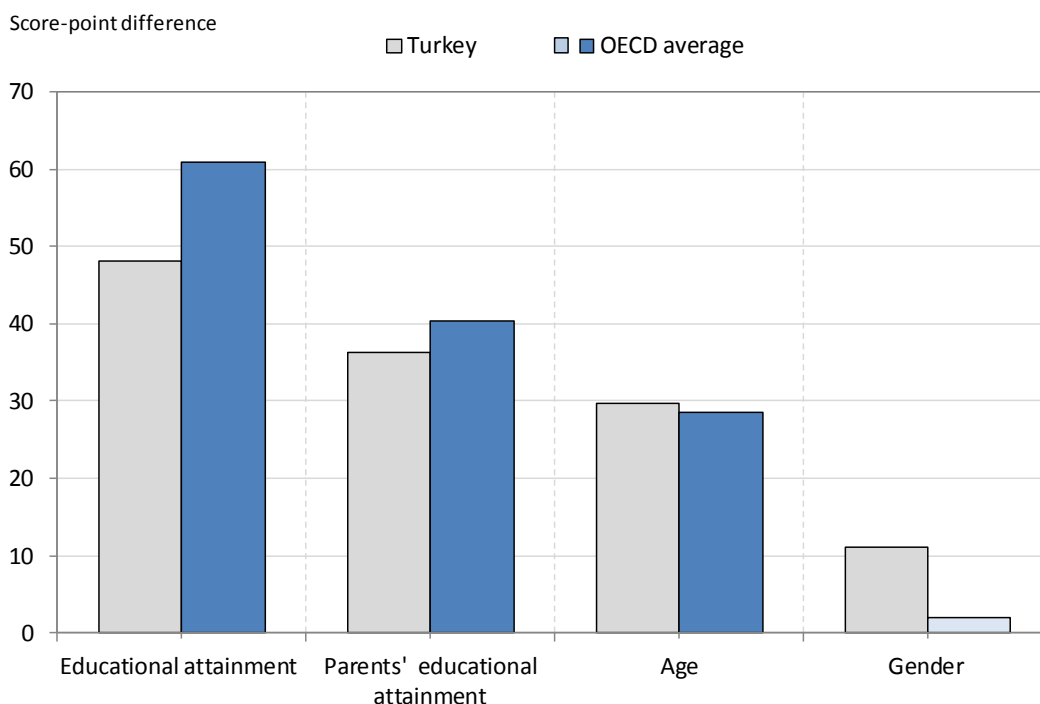
In Turkey, 47% of women and 29% of men reported that they have no experience with computers or failed the ICT core test, compared with 15% of women and 14% of men on average across OECD countries.

The gender gap in literacy, numeracy and problem solving in technology rich environments in Turkey is particularly pronounced among older adults. For example, among 45-65 year-olds, the gender gap in numeracy corresponds to 42 score points (the OECD average gender gap among this age group is 14 points), and it is considerably wider than the 11-point gender gap observed among 16-24 year-olds in Turkey (the OECD average gender gap among this age group is 7 points).

**Gender-related differences in proficiency reflect the fact that, in Turkey, men tend to have higher educational attainment than women**, particularly among older adults. For example, differences between men and women in educational attainment explain around one-fifth of the gender gap in numeracy among 45-65 year-olds in Turkey – around twice the impact as on average across OECD countries.

Figure 5 **Synthesis of socio-demographic differences in literacy proficiency**

Difference in literacy scores between contrast categories within various socio-demographic groups



**Notes:** Statistically significant differences are marked in a darker tone. The estimates show the differences between the two means for each contrast category). The differences are: tertiary minus less than upper secondary (educational attainment), at least one parent attained tertiary minus neither parent attained upper secondary (parents' educational attainment) and 25-34 year-olds minus 55-65 year-olds (age).
**Source:** Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.2(L), A3.5 (L), A3.9 (L), A3.12 (L) and A3.14 (L) http://dx.doi.org/10.1787/888933366463.

**In Turkey, as in other participating countries and economies, adults with higher levels of education are more proficient in information-processing skills.**

**In Turkey, the difference in literacy proficiency between tertiary-educated adults and those without an upper secondary qualification is 48 score points compared to the average difference of 61 points across OECD countries. In Turkey and Italy, the relationship between educational attainment and literacy proficiency is weakest**; but in numeracy, the difference between tertiary-educated adults and those who had not attained upper secondary education is 70 score points, close to the OECD average difference of 71 points. The relatively small difference in literacy proficiency between tertiary-educated adults and adults with less than upper secondary education is related to the low proficiency among tertiary graduates in Turkey.

**Younger adults are the most proficient in literacy while older adults are the least proficient.**

Across most countries and economies, adults' proficiency tends to peak at around age 30 then begins to decline, such that 55-65 year-olds tend to have the lowest proficiency of all age groups. Turkey deviates somewhat from this pattern. Proficiency appears to be flat between the ages of 16 and 30 and declines thereafter. This may reflect the low participation rates in formal education after the age of 16 (the Survey of Adult Skills reveals that, in Turkey, as many **as one in three people [31%] between the ages of 16 and 24 in Turkey are not in education and have not attained an upper secondary degree**). It could also signal that the quality of education after compulsory schooling is poor, and that the features of the labour market that may not be conducive to developing information-processing skills when people first enter the labour market. The majority of occupations in Turkey are in fact in low value-added sectors, which demand a limited use of information processing skills. Finally, it may reflect cohort effects, as the latest cohort participating

in PIAAC were affected by major reforms in compulsory schooling which significantly improved the quality of the education system.

Results from the OECD Programme for International Student Assessment (PISA) reveal that Turkey is one of the countries where 15-year-olds students improved the most in reading, mathematics and science over the past decade. This improvement was largely achieved by reducing the share of low performers and was the result of significant reforms affecting participation in primary education and the quality of the education provided. The Basic Education Programme (BEP), launched by the Ministry of National Education in 1998, sought to expand primary education, improve the quality of education and overall student outcomes, narrow the gender gap in performance, align performance indicators with those of the European Union, develop school libraries, ensure that qualified teachers were employed, integrate information and communication technologies into the education system, and create local learning centres, based in schools, that are open to everyone. The Master Implementation Plan (2001-05), designed in collaboration with UNICEF, and the Secondary Project (2006-11), in collaboration with the World Bank, included multiple projects to improve both equity and quality in the education system. The Standards for Primary Education, piloted in 2010 and recently expanded to all primary institutions, defines quality standards for primary education, guides schools in achieving these standards, develops a system of school self-assessments, and guides local and central authorities in addressing inequalities among schools. One of the major changes introduced with the BEP programme involved the compulsory education law. This change was first implemented in the 1997/98 school year, and in 2003 the first students graduated from the eight-year compulsory education system. Since the launch of this programme, the attendance rate among primary students increased from around 85% to nearly 100%, while the attendance rate in pre-primary programmes increased from 10% to 25%. In addition, the system was expanded to include 3.5 million more pupils, average class size was reduced to roughly 30 students, all students learn at least one foreign language, computer laboratories were established in every primary school, and overall physical conditions were improved in all 35 000 rural schools.
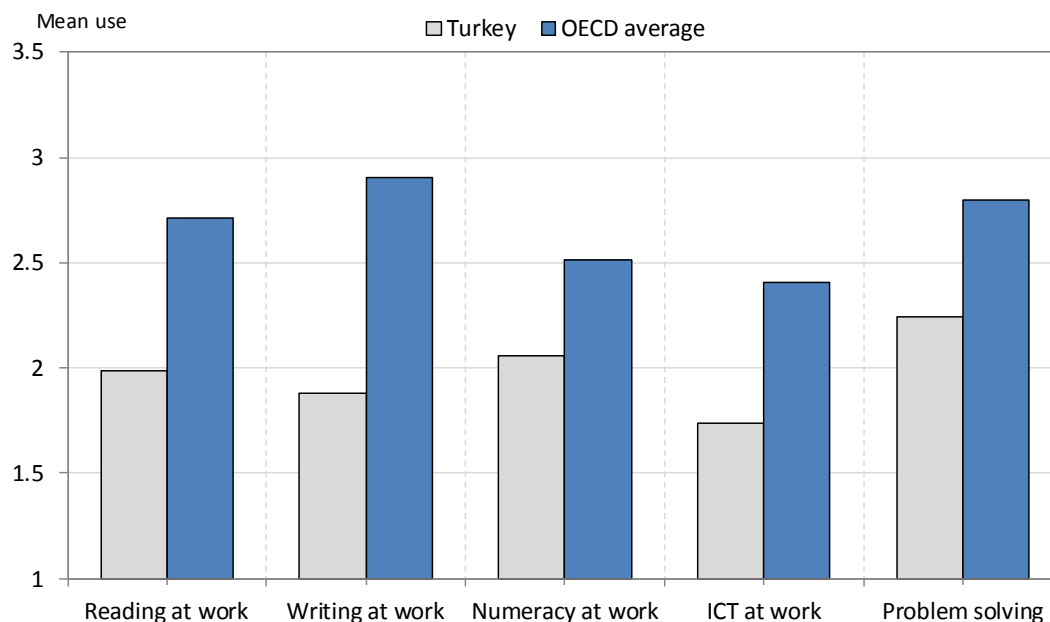
Results from the Survey of Adult Skills reflect these changes. The gap between the literacy proficiency of 16-24 year-olds in Turkey and the OECD average is smaller than it is for all other age groups, which suggests a considerable relative improvement over time. The average literacy score of 16-24 year-olds in Turkey is 237 points, compared to the OECD average of 275 points, a 38-point gap. Among 25-34 year-olds, the gap is 44 points (an average score of 234 points in Turkey compared with the OECD average score of 279 points). The gap is widest among working-age adults (35-44 year-olds): an average score of 225 points among adults in Turkey compared with the OECD average of 273 points. Older adults in Turkey are significantly less proficient than all other age groups, with an average literacy score of 204 points. Proficiency differences related to age are even wider in numeracy, where 16-24 year-olds in Turkey score 33 points below the OECD average (234 points compared with 267 points) and 55-65 year-olds score 58 points below the OECD average for their age group (188 points compared with 246 points). The challenge for Turkey will be to capitalise on investments in primary education and ensure that adults maintain and continue to build their skills as they transition into further education and the labour market.

**Workers in Turkey use information-processing skills at work and in their daily lives much less than do workers in other countries.**

The survey collected information about the frequency with which adults use information-processing and various generic skills in the workplace. Adults in Turkey are considerably less likely to read, write, work with mathematics, solve problems and use computers in their jobs and in everyday life than is the case across other participating OECD countries. But the match between workers' literacy skills and the literacy demands of their jobs is similar to that observed in other participating OECD countries. Some 13% of workers in Turkey are more proficient in literacy than their job requires (overskilled) while 2.5% of workers are less proficient than their job requires (underskilled). By comparison, across OECD countries, an average of 11% of adults are overskilled in literacy and 4% are underskilled.

Figure 6 **Information-processing skills used at work**

Average skills use, working population aged 16-65



**Notes:** For reading, writing, numeracy and ICT skills, skills use indicators are scales between 1 "Never" and 5 "Every day". Problem-solving skills use refers to respondents' answers to "How often are you usually confronted with more complex problems that take at least 30 minutes to find a good solution?". The set of possible answers also ranges between 1 "Never" and 5 "Every day".

**Source**: Survey of Adult Skills (PIAAC) (2012, 2015), Table A4.1 (http://dx.doi.org/10.1787/888933366479).

**In Turkey, neither educational attainment nor literacy proficiency is associated with labour market status. But the impact of education on wages is among the strongest across all countries and economies examined.**

In most participating countries/economies, adults who are more proficient in literacy, numeracy and problem solving in technology-rich environments are more likely to participate in the labour market and to be employed, and less likely to be unemployed, than adults who are less proficient, on average.

In Turkey, neither educational attainment nor proficiency is associated with employment status. Turkey's employment rate remains well below the OECD average, despite a rise from its pre-crisis level, while the unemployment rate remains well above the OECD average. However, the returns to education in Turkey are high: an increase of one standard deviation in years of schooling (around 3.4 years) is associated with a 20% increase in wages.

Figure 7 **Literacy and employment status**
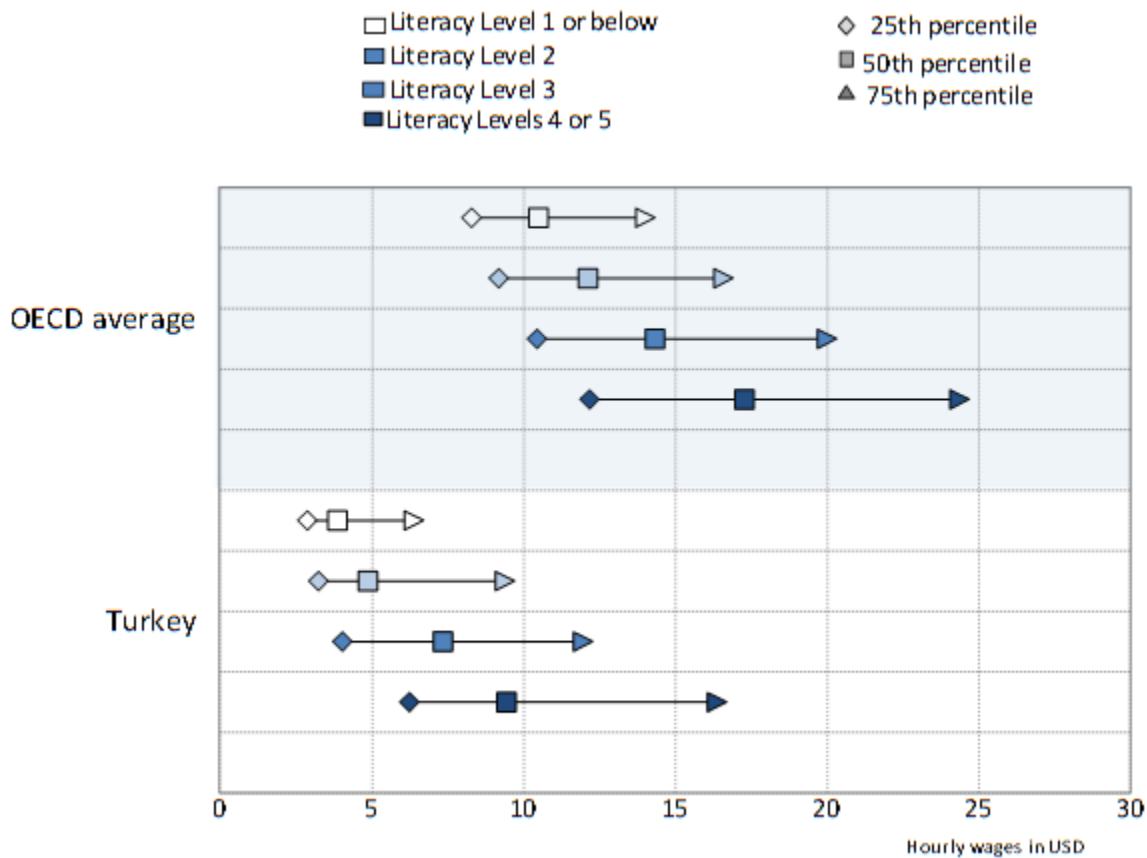
Mean literacy score by employment status

■ OECD average    □ Turkey

Wages are strongly affected by proficiency in information-processing skills. **In Turkey, the best-paid workers who score at Level 4 or 5 in literacy earn about USD 10 more per hour (USD 16) than the best-paid workers who score at or below Level 1 (USD 6)**. However, there are large variations in earnings among adults with the same proficiency level, leading to an overlap in wage distributions across proficiency levels. For instance, in Turkey, a highly-paid worker with Level 2 proficiency in literacy earns just as much as a median-paid worker with Level 4 or 5 proficiency (USD 9). This indicates that apart of literacy and numeracy proficiency, employees' earnings are influenced by a number of other factors, such as education, experience and other individual characteristics. Turkey's statutory minimum wage, expressed as a share of median wages, is the highest among the OECD countries, although this ratio has slightly declined since 2007 and estimates suggest that, due to a high level of informality, compliance may be low and as many as 50% of eligible workers are paid below the minimum. Minimum wage legislations and differences in compliance across occupations may explain some of the observed variation in wages across individuals with similar levels of proficiency in information processing skills, particularly among those with low levels of proficiency.

Figure 8 **Distribution of wages, by literacy proficiency level**

25th, 50th and 75th percentiles of the wage distribution



**Notes**: Employees only. Hourly wages, including bonuses, in purchasing-power-parity-adjusted USD (2012).
**Source:** Survey of Adults Skills (PIAAC) (2012, 2015), Table 5.3 (L) (http://dx.doi.org/10.1787/888933366489).

**In most countries there is a strong positive association between literacy proficiency and certain non-economic outcomes, such as trust, political efficacy, participation in volunteer activities and self-reported health. But in Turkey, this relationship is weak.**

In Turkey, adults who score at Level 4 or 5 in literacy are more likely (19%, compared with the OECD average of 29%) to trust others than adults who score at or below Level (12%, compared with the OECD average of 13%).
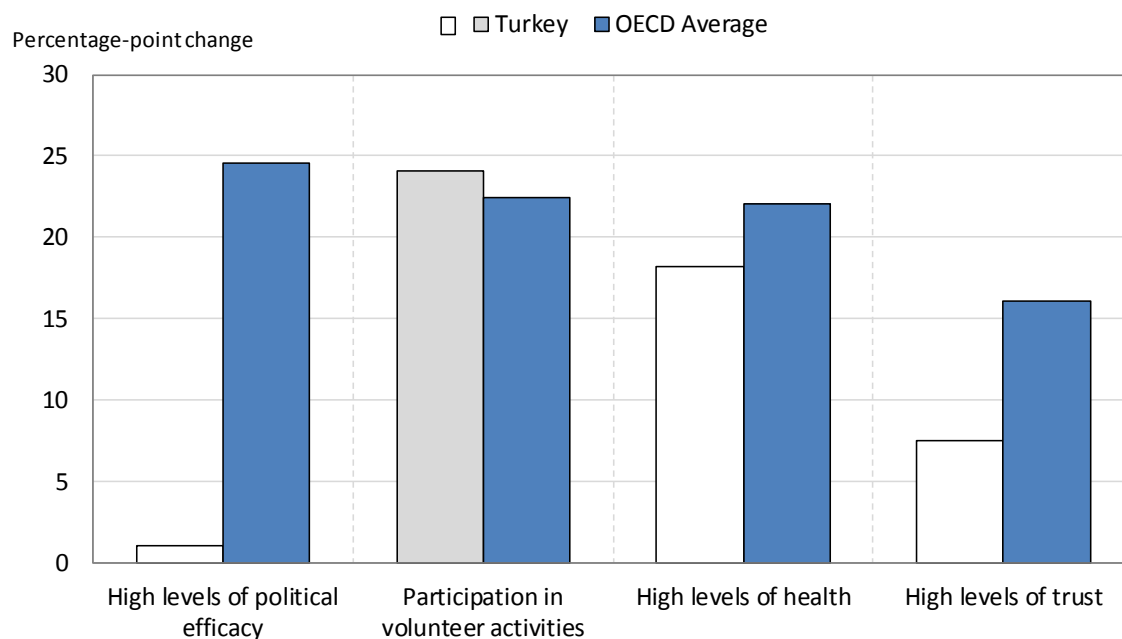
Similarly, highly proficient adults are more likely to report being in good to excellent health (85%, compared with the OECD average of 91%) than adults who score at or below Level 1 (67%, compared with the OECD average of 69%).

Smaller proportions of adults in Turkey participate in volunteer activities than on average across OECD countries: 40% of highly proficient adults (compared with the OECD average of 45%) and 16% of adults with low proficiency (compared with the OECD average of 23%) participate in volunteer activities.

In most countries, highly proficient adults are more likely to report that they believe they have an impact on the political process (political efficacy). On average across OECD countries, 48% of adults who score at Level 4 or 5 in literacy, but only 23% of those who score at or below Level believe so. In Turkey, the proportions are low and roughly the same across levels of proficiency: 24% of adults at Level 4 or 5 and 23% of adults at or below Level 1 in literacy believe they have an impact on the political process.

Figure 9 **Literacy proficiency and positive social outcomes**

Difference between the percentage of adults with high proficiency (Level 4 or 5) and the percentage of adults with low proficiency (Level 1 or below) who reported high levels of trust and political efficacy, good to excellent health, or participating in volunteer activities



**Note:** Statistically significant differences are marked in a darker tone.
**Source:** Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.14(L) (http://dx.doi.org/10.1787/888933366489).

**Key facts about the Survey of Adult Skills (PIAAC)**

**What is assessed**

- The Survey of Adult Skills (PIAAC) assesses the proficiency of adults from age 16 in literacy, numeracy and problem solving in technology-rich environments. These skills are "key information-processing competencies" that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life.

- In addition, the survey collects a range of information on the reading- and numeracy-related activities of respondents, the use of information and communication technologies at work and in everyday life, and on a range of generic skills, such as collaborating with others and organising one's time, that are required of individuals in their work. Respondents are also asked whether their skills and qualifications match their work requirements and whether they have autonomy over key aspects of their work.

**Methods**

- The Survey of Adults Skills was conducted over two rounds of data collection.

- In the first round, around 166 000 adults aged 16-65 years in 24 countries were surveyed – Australia, Austria, Belgium, Canada, Cyprus,[*] the Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, the Netherlands, Norway, Poland, the Russian Federation,[**] the Slovak Republic, Spain, Sweden, the United Kingdom and the United States. In all but three countries, data collection covered the entire national population. In Belgium, data were collected in Flanders; in the United Kingdom, data were collected in England and Northern Ireland (data are reported separately for England and Northern Ireland in the report). In the Russian Federation, the data do not cover the Moscow municipal area.

- Data collection for Round 1 of the Survey of Adult Skills took place from 1 August 2011 to 31 March 2012 in most participating countries. In Canada, data were collected from November 2011 to June 2012; and France collected data from September to November 2012.

- Nine countries took part in the second round of the assessment: Chile, Greece, Indonesia, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey. A total of 50 250 adults were surveyed. In all countries except Indonesia the entire national population was covered. In Indonesia, data were collected in the Jakarta municipal area only.

- Data collection for Round 2 of the Survey of Adult Skills took place from April 2014 to end-March 2015. The duration of fieldwork varied from around 100 to 330 days, depending on the country.

- The language of assessment was the official language(s) of each participating country/economy. In some countries, the assessment was also conducted in widely spoken minority or regional languages.

- The target population for the survey was the non-institutionalised population of 16-65 year-olds residing in the country or region at the time of the data collection, irrespective of nationality, citizenship or language status. The achieved national samples ranged from a minimum of approximately 4 000 persons to a maximum of nearly 27 300 persons.

- The survey was conducted under the supervision of trained interviewers usually in the respondent's home. The time taken to complete the questionnaire ranged between 30 and 45 minutes.

- After having answered the background questionnaire, the respondent completed the assessment either on a laptop computer or by completing a paper version using printed test booklets, depending on the respondent's computer skills. Respondents could take as much or as little time as needed to complete the assessment. On average, respondents took 50 minutes to complete the cognitive assessment.

- Identical instruments were used in Rounds 1 and 2 of the survey. The one exception was in Jakarta (Indonesia) where, since only paper-based instruments were used, additional test items were added to the paper-based instruments used in the other countries.

## Comparing the results of countries/economies in Round 1 and Round 2

Identical data-collection instruments and methodology were used in Rounds 1 and 2 of the survey. The one difference is that data collection for Rounds 1 and 2 occurred some three years apart. The difference in reference dates for the two rounds of the study is unlikely to have an impact on the proficiency of the adult populations in Round 1 countries/economies compared to that of adults in Round 2 countries/economies. However, data were collected at different points in the economic cycle in the two rounds; this may have some effect on the relationships observed between proficiency and labour market outcomes and jobs characteristics, in particular, in the countries/economies in the two different rounds.

### Notes

* See note 1 on page 4.

** The data from the Russian Federation are preliminary and may be subject to change. Readers should note that the sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in Russia but rather the population of Russia excluding the population residing in the Moscow municipal area.

More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the *Technical Report of the Survey of Adult Skills, Second Edition* (OECD, forthcoming).

### References and further reading

OECD (forthcoming), *Technical Report of the Survey of Adult Skills, Second Edition*.

OECD (2016a), *Skills Matter: Further Results from the Survey of Adult Skills*, OECD Skills Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258051-en.

OECD (2016b), *The Survey of Adult Skills: Reader's Companion, Second Edition*, OECD Skills Studies, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264258075-en.

OECD (2016c), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/public dataandanalysis.htm.

## Description of proficiency levels in literacy and numeracy

| Level | Score range | Literacy | Numeracy |
|---|---|---|---|
| Below Level 1 | Below 176 points | Tasks at this level require the respondent to read brief texts on familiar topics and locate a single piece of specific information. There is seldom any competing information in the text. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. | Tasks at this level require the respondent to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognising common spatial representations. |
| 1 | 176 to less than 226 points | Tasks at this level require the respondent to read relatively short digital or print texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Knowledge and skill in recognising basic vocabulary, determining the meaning of sentences, and reading paragraphs of text is expected. | Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit. Tasks usually require one-step or simple processes involving counting; sorting; performing basic arithmetic operations; and identifying elements of simple or common graphical or spatial representations. |
| 2 | 226 to less than 276 points | Tasks at this level require the respondent to make matches between the text, either digital or printed, and information, and may require paraphrasing or low-level inferences. | Tasks at this level require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs. |
| 3 | 276 to less than 326 points | Texts at this level are often dense or lengthy. Understanding text and rhetorical structures is often required, as is navigating complex digital texts. | Tasks at this level require the application of number sense and spatial sense; recognising and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpreting data and statistics in texts, tables and graphs. |
| 4 | 326 to less than 376 points | Tasks at this level often require the respondent to perform multiple-step operations to integrate, interpret, or synthesise information from complex or lengthy texts. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. | Tasks at this level require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions and formulas. They may also require understanding arguments or communicating well-reasoned explanations for answers or choices. |
| 5 | Equal to or higher than 376 points | Tasks at this level may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence based arguments. They often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialised background knowledge. | Tasks at this level may require the respondent to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and critically reflect on solutions or choices. |

### Description of proficiency levels in problem solving in technology-rich environments

| Level | Score range | The types of tasks completed successfully at each level of proficiency |
|---|---|---|
| No computer experience | Not applicable | Adults in this category reported having no prior computer experience; therefore, they did not take part in the computer-based assessment but took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain. |
| Failed ICT core | Not applicable | Adults in this category had prior computer experience but failed the ICT core test, which assesses basic ICT skills, such as the capacity to use a mouse or scroll through a web page, needed to take the computer-based assessment. Therefore, they did not take part in the computer-based assessment, but took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain. |
| "Opted out" of taking computer-based assessment | Not applicable | Adults in this category opted to take the paper-based assessment without first taking the ICT core assessment, even if they reported some prior experience with computers. They also did not take part in the computer-based assessment, but took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain. |
| Below Level 1 | Below 241 points | Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion without any categorical or inferential reasoning, or transforming of information. Few steps are required and no sub-goal has to be generated. |
| 1 | 241 to less than 291 points | Tasks at this level typically require the use of widely available and familiar technology applications, such as e-mail software or a web browser. There is little or no navigation required to access the information or commands required to solve the problem. The tasks involve few steps and a minimal number of operators. Only simple forms of reasoning, such as assigning items to categories, are required; there is no need to contrast or integrate information. |
| 2 | 291 to less than 341 points | Tasks at this level typically require the use of both generic and more specific technology applications. For instance, the respondent may have to make use of a novel online form. Some navigation across pages and applications is required to solve the problem. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, though the criteria to be met are explicit. |
| 3 | Equal to or higher than 341 points | Tasks at this level typically require the use of both generic and more specific technology applications. Some navigation across pages and applications is required to solve the problem. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, and the criteria to be met may or may not be explicit. Integration and inferential reasoning may be needed to a large extent. |

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**For more information on the Survey of Adult Skills (PIAAC) visit:**

www.oecd.org/site/piaac