

SKILLS MATTER: FURTHER RESULTS FROM THE SURVEY OF ADULT SKILLS

SLOVENIA

Key issues

- On average, adults in Slovenia score below the OECD average in literacy, numeracy and problem solving in technology-rich environments.
- Around one in four adults in Slovenia has poor literacy, numeracy and problem-solving skills, a slightly larger proportion than the OECD average.
- Adults' literacy scores have improved substantially over the past two decades.
- The variation in Slovenian adults' proficiency scores is greater than on average across OECD countries.
- Differences in proficiency related to age, education and social background are considerable among adults in Slovenia.
- Most workers in Slovenia are well-matched with their jobs.
- In Slovenia, as in other OECD countries, higher proficiency in literacy and numeracy has a positive impact on labour force participation and wages, and on several non-economic outcomes, such as trust in others, political efficacy, participation in volunteer activities and self-reported health.

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 Slovenia from 1 April 2014 to 31 December 2014.
Some 5 331 adults aged 16-65 were surveyed.**

On average, 16-65 year-olds in Slovenia score below the OECD average in literacy, numeracy and problem solving in technology-rich environments.

Some 5.6% of adults attain the two highest levels of proficiency (Level 4 or 5) in literacy, significantly less than the average of 10.6% of adults across participating OECD countries. 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 31.2% of adults are proficient at Level 3 in literacy**, somewhat less than the average of 35.4% of adults 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 8.6% of adults in Slovenia attain Level 4 or 5 in numeracy, less than the average of 11.3% 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. **Some 30.8% of adults are proficient at Level 3 in numeracy**, similar to 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.

Although in absolute terms adults in Slovenia score similarly in literacy (256 points, on average) and numeracy (258 points), compared with the OECD averages, they perform better in numeracy (6 points below the OECD average) than in literacy (14 points below the OECD average).

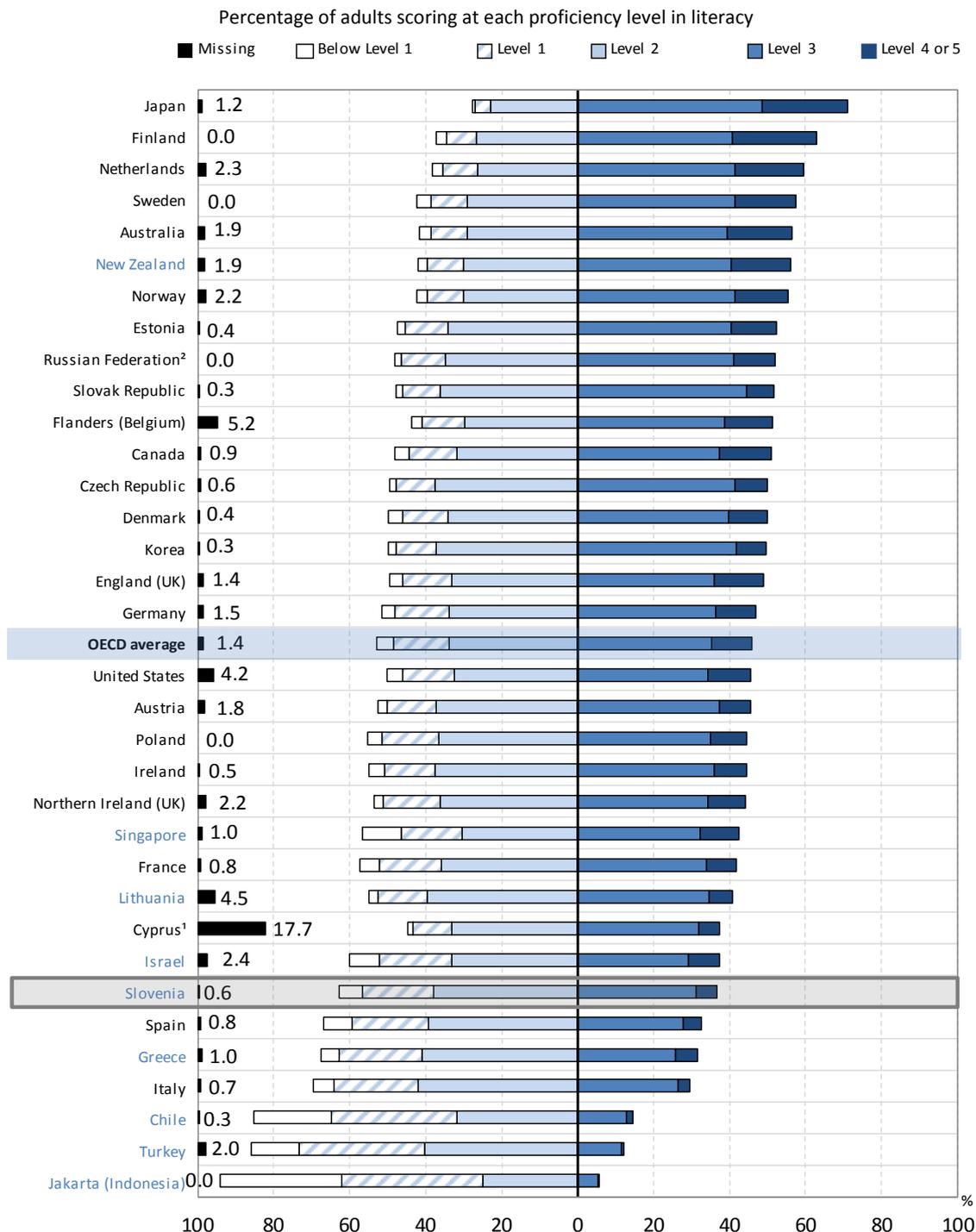
Some 3.7% of adults are proficient at Level 3, the highest proficiency level, in problem solving in technology-rich environments (the OECD average is 5.8%). Adults at Level 3 can complete tasks involving multiple computer applications, a large number of steps, and the discovery and use of ad hoc commands in a novel environment. **Around one in five adults (21.6%) attains proficiency Level 2 in problem solving** compared with the 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.

Around one in four adults in Slovenia has poor literacy, numeracy and problem-solving skills.

Some 24.9% of adults in Slovenia attain only Level 1 or below in literacy (a larger proportion than the OECD average of 18.9%) **and 25.8% attain Level 1 or below in numeracy** (slightly larger than 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 18.4% of Slovenian adults (compared with 14.6% of adults in all participating countries/economies) **indicated that they had no prior experience with computers or lacked basic computer skills; and some 49.2% score at or below Level 1 in problem solving in technology-rich environments** (compared to the OECD average of 42.9%). 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. Some 6.3% of adults in Slovenia (9.6%, on average across OECD countries) chose to opt out of the computer assessment.

Figure 1 Literacy proficiency among adults



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.

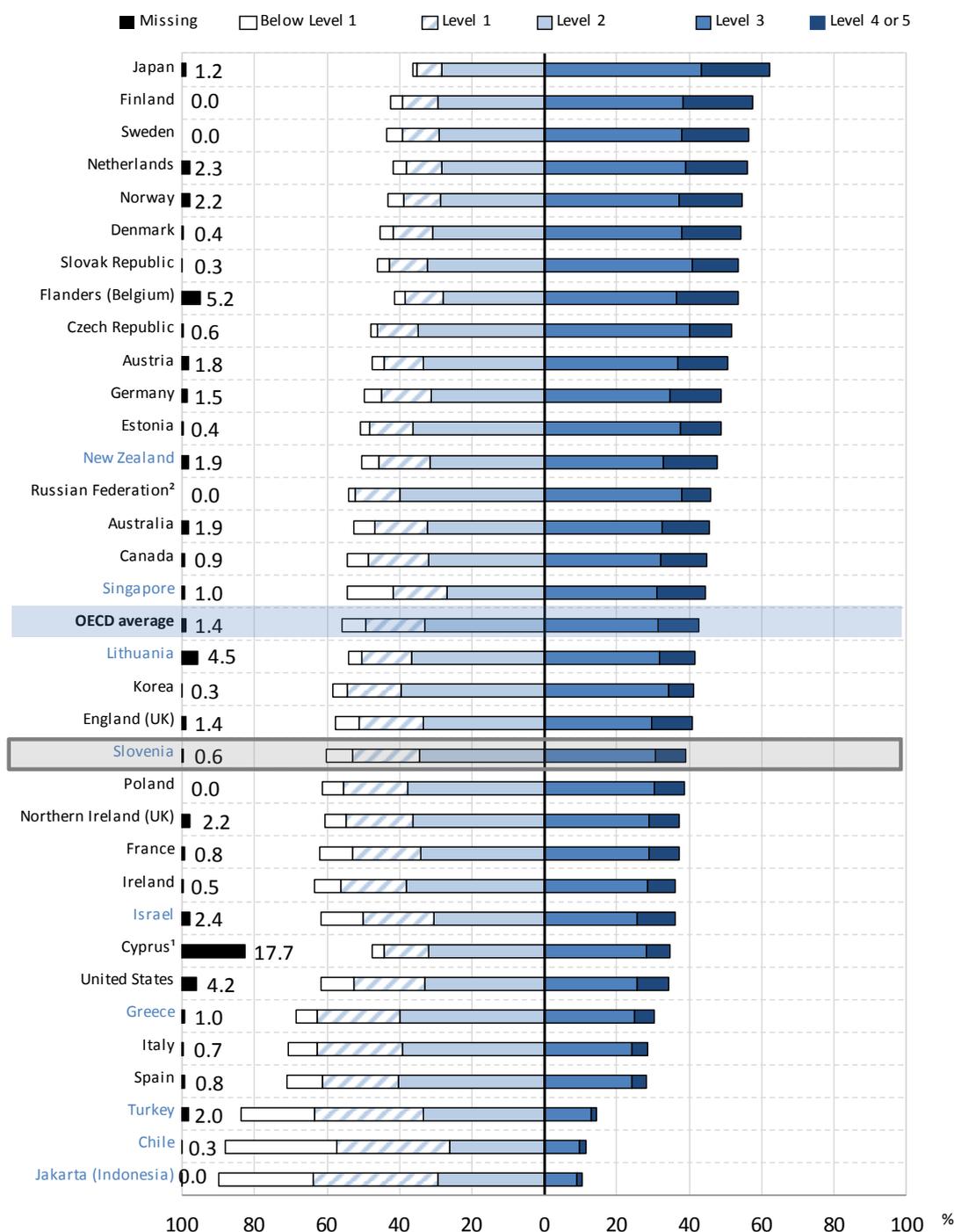
2. The sample for the Russian Federation does not include the population of the Moscow municipal area.

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.

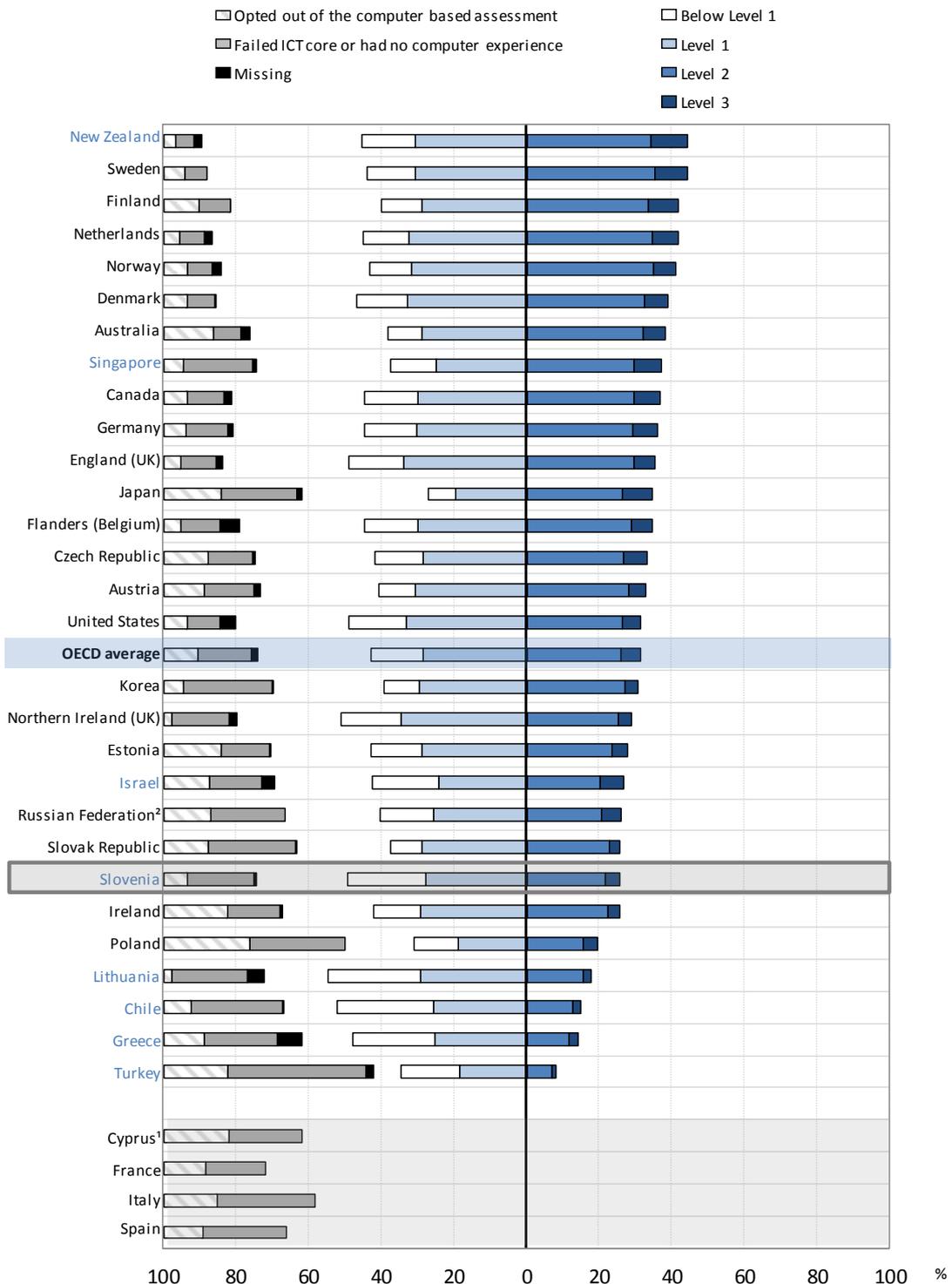
2. The sample for the Russian Federation does not include the population of the Moscow municipal area.

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>).

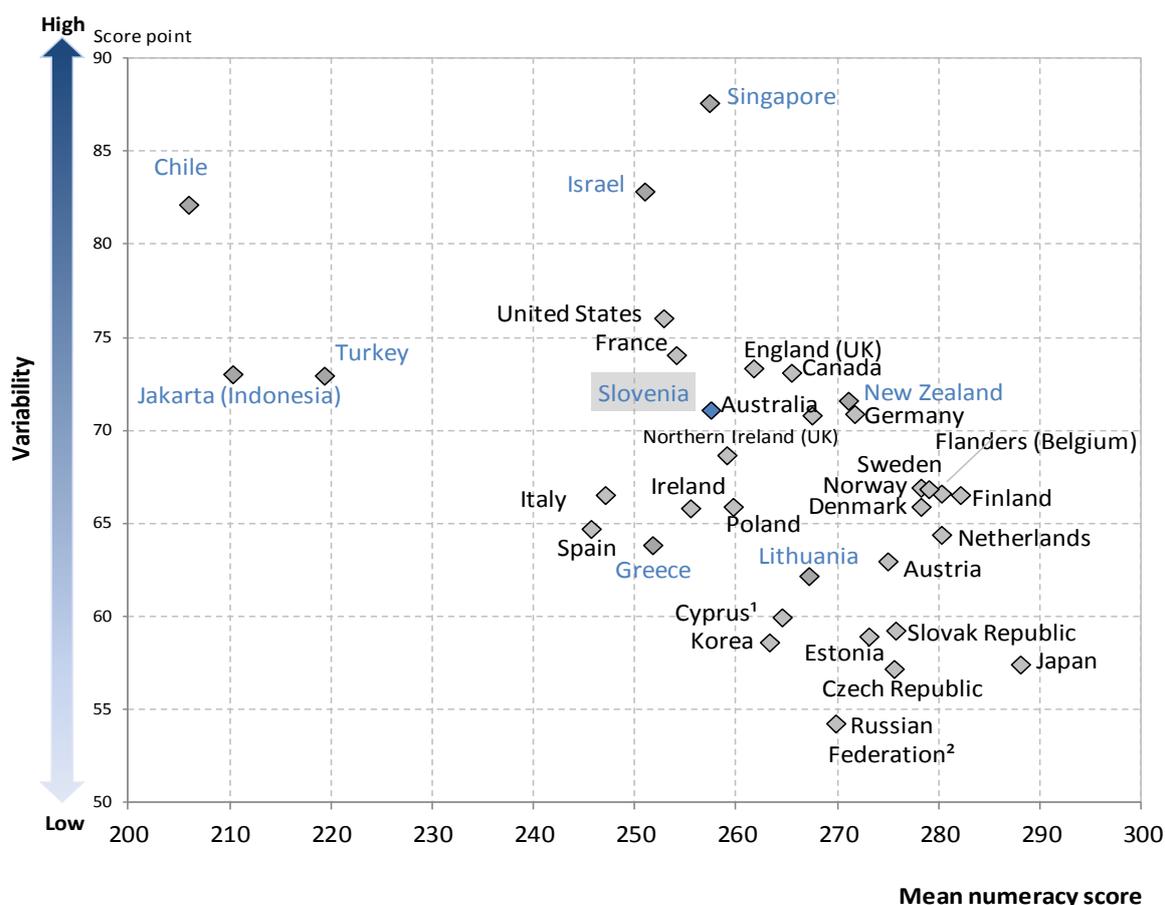
The variation in Slovenian adults' proficiency scores is greater than the average across OECD countries.

In Slovenia, the difference between adults at the 75th percentile of the proficiency distribution (adults who perform better than 75% of survey respondents) and those at the 25th percentile (adults who perform better than 25% of survey respondents) is 64.7 score points, while the OECD average difference is 61.7 score points.

The degree of variability in numeracy scores is also greater than the average across participating OECD countries: a difference of 71.1 scores points between adults at the 75th and 25th percentiles of the proficiency distribution, compared with the OECD average difference 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.

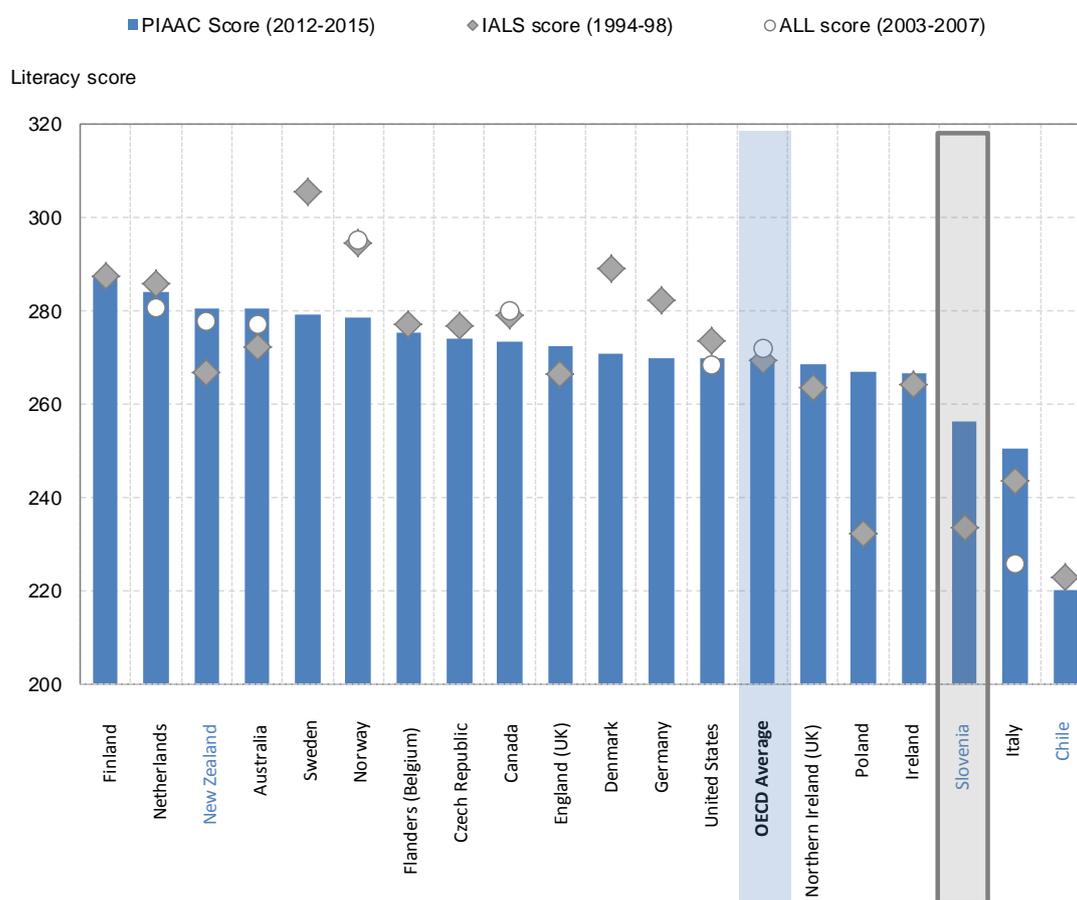
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.5 (<http://dx.doi.org/10.1787/888933366458>).

Adults' literacy scores have improved substantially over the past two decades.

Comparisons of the results of the International Adult Literacy Survey (IALS) and the Survey of Adult Skills suggest that the average literacy proficiency of Slovenian adults increased by 23 score points between 1998 and 2014-15. Second only to Poland, this is the largest increase in literacy proficiency among the 19 countries for which similar data are available. The analysis of results across age cohorts (see below) indicates that this increase largely reflects the higher proficiency among younger cohorts compared with older cohorts, both in absolute terms and compared with their peers in other OECD countries.

Figure 5 **Changes in the literacy scores in IALS, ALL and PIAAC surveys**

Mean literacy proficiency in the International Adult Literacy Survey (IALS), the Adult Literacy and Lifeskills Survey (ALL) and the Survey of Adults Skills (PIAAC)



Countries are ranked in descending order of the mean score on the Survey of Adult Skills (PIAAC).

Source: Survey of Adult Skills (PIAAC) (2012,2015), International Adult Literacy Survey (IALS) and Adult Literacy and Lifeskills Survey (ALL), see Table A2.10 (<http://dx.doi.org/10.1787/888933366458>).

Foreign-language immigrants in Slovenia are much less proficient in both literacy and numeracy than native-born Slovenians and native-language immigrants.

As expected, in all countries and economies, foreign-language immigrants tend to have poorer literacy skills than both native-born adults and immigrants who have spoken the language of the assessment from birth. However, their level of proficiency and their proficiency compared with native-born adults vary considerably. These variations reflect the changing size and composition of immigrant inflows into the countries concerned, and the impact of language and integration policies.

The difference in literacy proficiency between foreign-language immigrants and native-born Slovenians is 31 points, similar to the difference of 30 points that is observed on average across OECD countries. The difference in numeracy proficiency between the two groups is 42 points, considerably larger than the OECD average 30-point difference. But native-born Slovenians and foreign-language immigrants in Slovenia both perform worse than their respective counterparts in other participating OECD countries. In literacy, native-born Slovenians score 11 points below the OECD average for native-born adults, while foreign-language immigrants in Slovenia score 12 points below the OECD average for foreign-language immigrants.

Differences in proficiency related to age, education and social background are considerable.

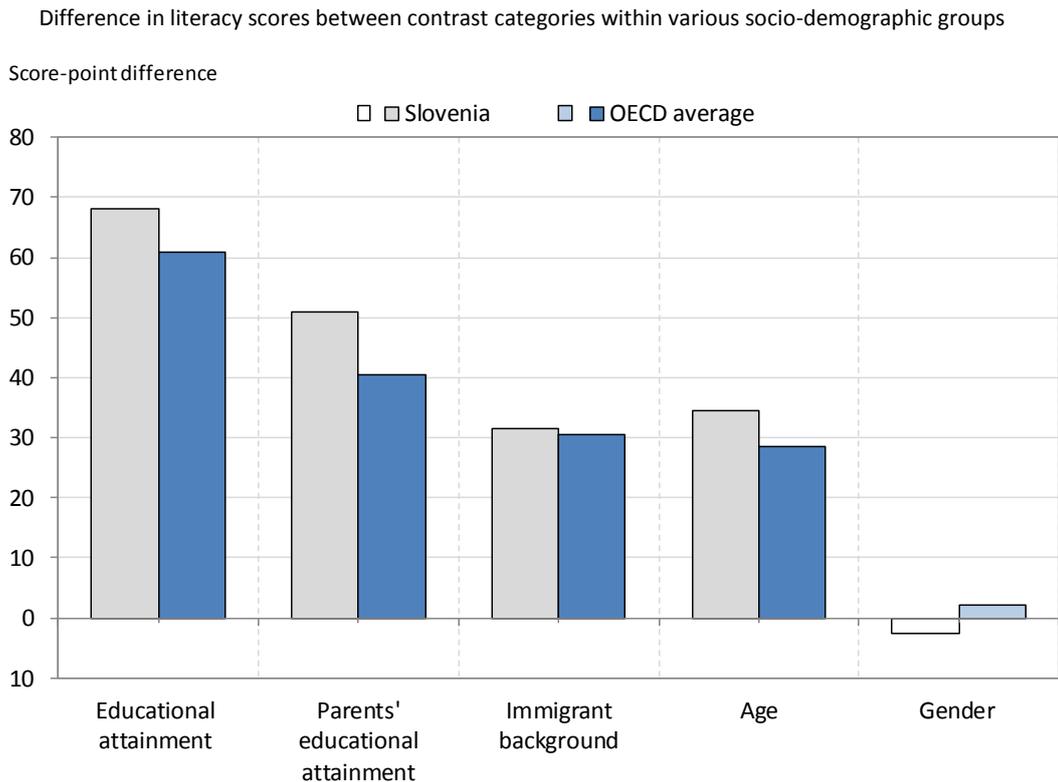
In Slovenia, as in other countries, there are substantial differences in proficiency related to socio-demographic characteristics, such as age, immigrant background, level of education and socio-economic status.

Differences in proficiency related to educational attainment are particularly large in Slovenia. Adults (25-65 year-olds) with a tertiary degree score 68 points higher in literacy and 85 points higher in numeracy than adults who have not attained an upper secondary degree. By comparison, the average difference across OECD countries is 61 points in literacy and 71 points in numeracy.

Across the countries and economies that participated in the survey, proficiency peaks among 25-34 year-olds while the proficiency of 55-64 year-olds is generally the lowest of all age groups. This is also the case in Slovenia, where 25-34 year-olds have the highest proficiency in literacy and 55-65 year-olds the lowest. Older Slovenians score significantly lower in literacy (235 score points) than the average among their peers across participating OECD countries (250 score points). Younger Slovenians (25-34 year-olds) underperform their peers across OECD countries in literacy (270 points compared to the OECD average of 279 points), but score similarly to their peers in numeracy (273 points compared to 274 points on average for that age group across OECD countries).

On average across all participating countries and economies, there is no significant difference in literacy proficiency between women and men, but men have somewhat higher proficiency than women in numeracy. In Slovenia, the gender difference in numeracy scores, in favour of men, is 4.7 points, which is much less than the OECD average difference of 12.2 points. Slovenian men and women perform similarly in problem solving in technology-rich environments.

In Slovenia, parents' educational background is more strongly related to proficiency than in most other participating countries/economies. Adults with at least one parent who attained tertiary education score 51 points higher in literacy, on average, than adults with neither parent having attained upper secondary education – a score-point difference considerably larger than the OECD average of 40 points. In numeracy, the performance gap between these two groups is 59 points (the OECD average difference is 43 points). Parents' educational attainment has an even stronger impact on proficiency in problem solving in technology-rich environments. Adults whose parents did not attain an upper secondary education are considerably more likely (36%) to have no or poor ICT skills than adults with at least one parent who attained a tertiary education (3.6%). Similarly, only 7.6% of adults with low-educated parents perform at the two highest proficiency levels in this domain, compared to 54.1% of adults with highly educated parents.

Figure 6 **Synthesis of socio-demographic differences in literacy proficiency**

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), native born and native language minus foreign born and foreign language (immigrant background) 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>).

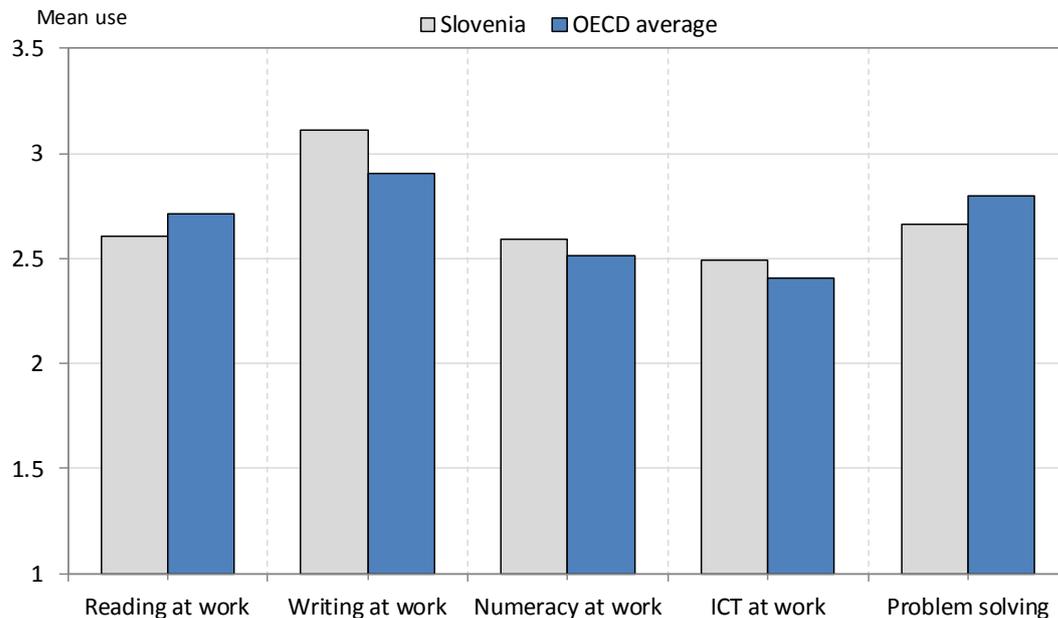
Most workers in Slovenia are well-matched with their jobs.

The survey collected information about the frequency with which adults use information-processing and various generic skills in the workplace.

Adults in Slovenia read, write, work with mathematics, solve problems and use computers in their jobs and in everyday life as frequently as do adults across participating OECD countries, on average. The proportion of workers whose literacy skills match the literacy demands of their jobs (88%) is similar to the average across OECD countries. In Slovenia, around 10% of workers appear to have greater proficiency in literacy than that required for their job (overskilled) and around 2% of workers are less proficient than required for their job (underskilled). Similarly, 11% of workers are overskilled and around 3% are underskilled in numeracy.

Figure 7 **Information-processing skills used at work**

Average skills use, working population aged 16-65



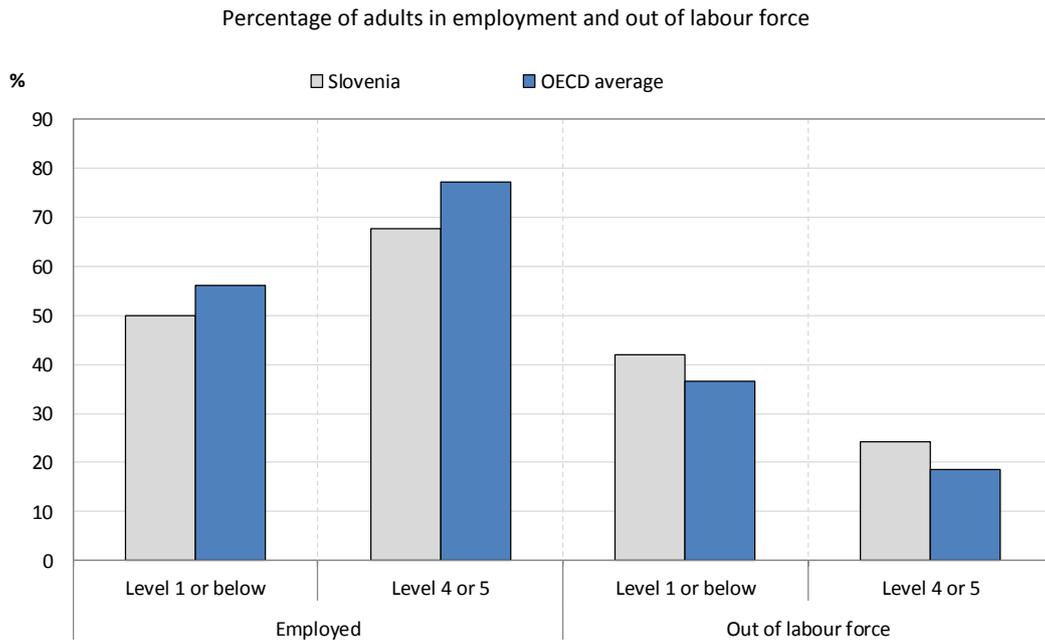
Notes: For reading, writing, numeracy and ICT skills, skills use indicators are scales between 1 "Never" and 5 "Every day". Problem-solving skills use refers to respondents' answers to "How often are you usually confronted with more complex problems that take at least 30 minutes to find a good solution?". 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 Slovenia, as in other OECD countries, higher proficiency in literacy and numeracy has a positive impact on labour force participation and wages.

In all participating countries and economies, adults with higher levels of proficiency in literacy, numeracy and problem solving in technology-rich environments are more likely to participate in the labour market and to be employed, and are less likely to be unemployed, than adults with lower levels of proficiency, on average.

Some 67.7% of Slovenian respondents scoring at Level 4 or 5 in literacy are employed, compared to only 50.1% of those scoring at or below Level 1. The proportion of highly proficient adults who are employed is smaller in Slovenia than the average across participating OECD countries. The proportion of highly proficient Slovenian adults who are not in the labour force (24.2%) is much smaller than the proportion of adults with low proficiency who are not in the labour force (41.9%).

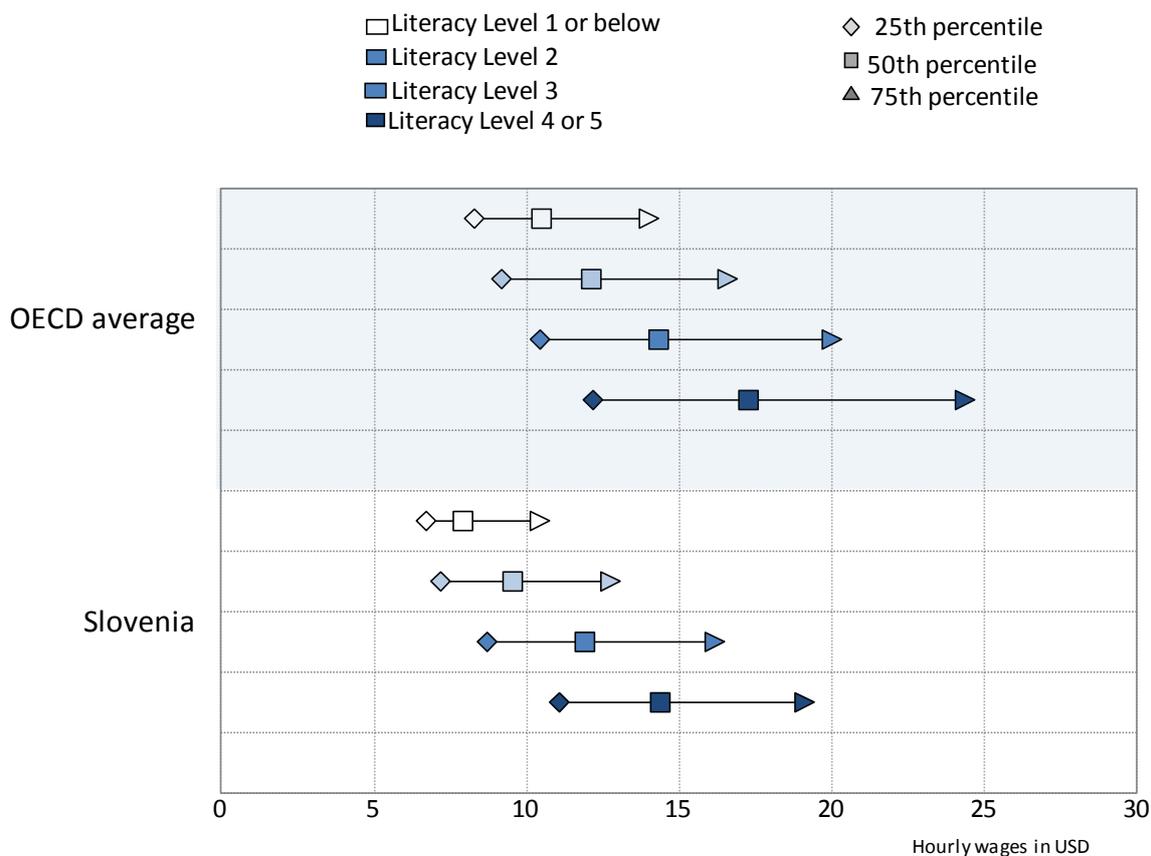
Figure 8 **Employment status, by literacy proficiency level**

Source: Survey of Adult Skills (PIAAC) (2012, 2015).

Wages are more strongly affected by proficiency in information-processing skills than is employment. **In Slovenia, the median hourly wage of workers who score at Level 4 or 5 in literacy is almost twice the median wage of workers who score at or below Level 1 (USD 14.4 compared to USD 7.9).** However, earnings vary widely among adults scoring at the same proficiency level, leading to overlaps in the wage distribution across proficiency levels. For example, in Slovenia, a better-paid worker with Level 2 proficiency in literacy earns slightly more, on average, than a low-paid worker with Level 4 or 5 proficiency.

Figure 9 **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>).

The relatively strong relationship between literacy proficiency and non-economic outcomes, such as trust in others, political efficacy, participation in volunteer activities and self-reported health, observed across OECD countries is also seen in Slovenia.

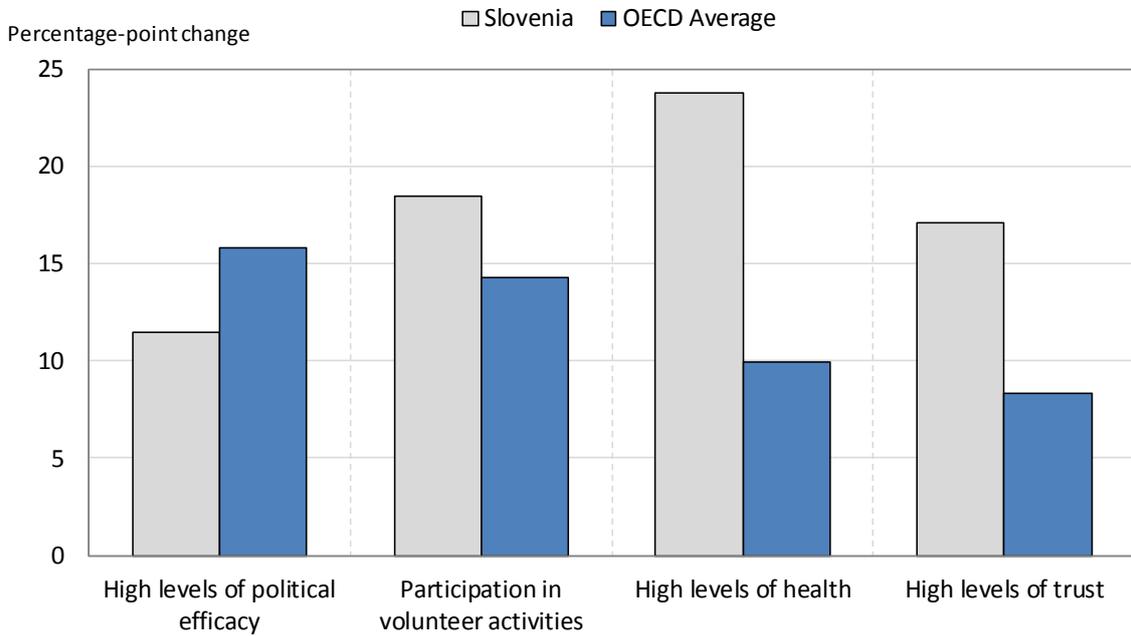
In Slovenia, adults with higher literacy proficiency (Level 4 or 5) are three times more likely than those who score at or below Level 1 (24.7% compared to 7.6%) to report that they trust others. The difference in social trust between those with high and low literacy proficiency across OECD countries is smaller than in Slovenia – 29.1% compared to 13.0% respectively.

Similarly, and in line with the OECD average, highly proficient adults are around twice as likely as adults with low proficiency (21.0% compared to 9.6%) to believe that they can influence the political process (political efficacy). Participation in volunteer activities is much more likely among highly proficient adults (44.9%) than among adults with low proficiency (26.5%).

Self-reported health is also related to literacy proficiency. Some 94.4% of Slovenian adults who are highly proficient in literacy reported being in good to excellent health compared to 70.7% of adults with low proficiency who so reported. These results are close to those observed across participating OECD countries, where 90.7% of highly proficient adults and 68.7% of adults with low proficiency reported being in good to excellent health.

Figure 10 **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: All differences are statistically significant.

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 under Figure 1.

** 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/publicdataandanalysis.htm.

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.

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	At this level, tasks 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	At this level, tasks 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	At this level, tasks 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.

Contacts:

Andreas Schleicher
Director
Directorate for Education and Skills
Email: Andreas.SCHLEICHER@oecd.org
Telephone: +33 6 07 38 54 64

Stefano Scarpetta
Director
Directorate for Employment Labour and Social Affairs
Email: Stefano.SCARPETTA@oecd.org
Telephone: +33 1 45 24 19 88

Milos Kankaras
Analyst, Skills Beyond School Division
Directorate for Education and Skills
Email: Milos.KANKARAS@oecd.org
Telephone: +33 1 45 24 79 60

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

www.oecd.org/site/piaac

