

# Survey of Adult Skills 2023

## Insights and Interpretations

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# What is the Survey of Adult Skills?

**I**n today's fast-paced, information-rich societies, having the right skills is more important than ever. Skills help us navigate life's complexities, interpret vast amounts of data and information, and make smart decisions. But as technologies such as artificial intelligence (AI) evolve, some question whether human skills will retain their value or gradually become obsolete. The reality is more nuanced: AI is likely to complement, not substitute, human intelligence while changing the nature of work and the skills that are needed. How can governments ensure that adults have relevant skills for the labour market and social life?

This is where the Survey of Adult Skills comes in. It assesses how well adults can read and understand text, work with numbers and solve complex problems – foundational skills necessary for the development of more advanced skills. The survey, a product of the OECD Programme for the International Assessment of Adult Competencies (PIAAC), provides a comprehensive snapshot of some of a population's fundamental capabilities, allowing policymakers to identify where people excel and pinpoint gaps that need to be addressed.

In 2022-2023, 31 countries and economies took part in the 2nd Survey of Adult Skills, including 27 who participated in the first survey a decade earlier. As a result, we now have a decade's worth of data outlining how literacy and numeracy skills have evolved. This allows policymakers to compare their adult populations' skills with those of other nations, track changes over time and identify areas needing improvement. The survey also helps the design of relevant and effective training programmes, ultimately leading to a more skilled and adaptable workforce.

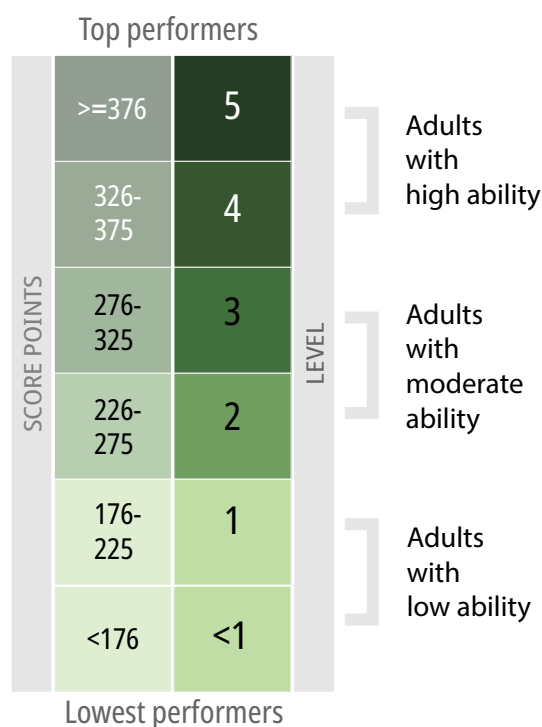
In total, about 160 000 adults aged 16-65 were interviewed as part of the 2nd Survey of Adult Skills, representing 673 million people. The previous survey was conducted over three rounds between 2011 and 2017 in 39 countries. The information in this Insights & Interpretations brochure reflects the findings from the survey.

## Performance Levels

In literacy, adults at Level 1 can understand short texts and organised lists when information is clearly indicated, find specific information and identify relevant links. Those below Level 1 can, at best, only understand short, simple sentences. Adults at Levels 4 or 5 are top performers. They can comprehend and evaluate long, dense texts across several pages, grasp complex or hidden meanings, and use prior knowledge to understand texts and complete tasks.

In numeracy, adults at Level 1 can do basic calculations with whole numbers or money, understand decimals, and find single pieces of information in tables or charts, but they may struggle with tasks needing multiple steps. Those below Level 1 can add and subtract small numbers. Adults at Levels 4 or 5 can calculate and understand rates and ratios, interpret complex graphs, and critically evaluate statistical claims.

In adaptive problem solving, adults at Level 1 can solve simple problems with few variables and little irrelevant information, which remain unchanged as they progress towards a solution. They struggle with multi-step problems or those requiring the monitoring of multiple variables. Adults below Level 1 only understand very simple problems, typically solved in one step. Adults at Level 4 have a deeper understanding of problems and can adapt to unexpected changes, even if they require a major re-evaluation of the problem.



## The state of adult skills

Country	Literacy	Literacy Change	Numeracy	Numeracy Change	Adaptive Problem Solving
Finland	296	<b>15</b>	294	<b>17</b>	276
Japan	289	-6	291	4	276
Sweden	284	5	285	6	273
Norway	281	4	285	<b>8</b>	271
Netherlands	279	-2	284	<b>7</b>	265
Estonia	276	1	281	<b>9</b>	263
Flemish Region (BE)	275	3	279	3	262
Denmark	273	<b>9</b>	279	<b>8</b>	264
England (UK)	272	-1	268	<b>7</b>	259
Canada	271	-1	271	<b>7</b>	259
Switzerland	266	N/A	276	N/A	257
Germany	266	0	273	5	261
Ireland	263	-3	260	5	249
Czechia	260	<b>-9</b>	267	-3	250
New Zealand	260	<b>-21</b>	256	<b>-15</b>	249
United States	258	<b>-12</b>	249	<b>-7</b>	247
France	255	<b>-7</b>	257	3	248
Singapore	255	-3	274	<b>17</b>	252
Austria	254	<b>-12</b>	267	-5	253
Croatia	254	N/A	254	N/A	235
Slovak Republic	254	<b>-20</b>	261	<b>-15</b>	247
Korea	249	<b>-23</b>	253	<b>-10</b>	238
Hungary	248	<b>-15</b>	254	<b>-17</b>	241
Latvia	248	N/A	263	N/A	244
Spain	247	-3	250	6	241
Italy	245	-5	244	-3	231
Israel	244	<b>-10</b>	246	-4	236
Lithuania	238	<b>-28</b>	246	<b>-22</b>	230
Poland*	236	<b>-31</b>	239	<b>-21</b>	226
Portugal	235	N/A	238	N/A	233
Chile	218	-2	214	8	218

**Note:** Adults aged 16-65. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024). Statistically significant changes at the 5% level are highlighted in bold. APS is not comparable with survey cycle 1. Switzerland, Croatia, Latvia and Portugal did not participate in survey cycle 1.

**Source:** OECD (2024), Table A.2.1 (L,N,A) and Table A.3.1 (L,N) in Annex A.

# Did you know...

... on average, across OECD countries, the share of adults that use the Internet increased from 76% in 2012 to 93% in 2023.





# The state of adult skills

**I**n an era where the digital revolution is reshaping economies and societies, it is crucial to evaluate the proficiency of adults in literacy, numeracy and adaptive problem solving. Literacy allows individuals to understand and interact with a wide range of information, from online content to intricate documents. Numeracy is vital for managing finances, interpreting data and making informed decisions. Adaptive problem solving allows adults to face challenges head-on, innovate and adapt to new circumstances.

Taken together, these skills provide the basis not just for personal and professional growth but for navigating the complexities of modern life. The Survey of Adult Skills reveals an uneven skills landscape both within and across countries and economies.

A few countries stand out in skills performance. Finland, Japan, the Netherlands, Norway and Sweden excel in all three skill domains, outperforming all other countries and economies. This means that, for example, a higher proportion of their populations can understand and evaluate long texts, grasp complex or hidden meanings, and use existing knowledge to understand and complete tasks.

At the other end of the spectrum, 11 countries scored below the OECD average across literacy, numeracy and adaptive problem solving: Chile, Croatia, France, Hungary, Israel, Italy, Korea, Lithuania, Poland\*, Portugal and Spain.

Alarmingly, across all countries and economies surveyed, nearly 20% of adults are considered low performers in all skill domains. These adults struggle with basic skills, such as reading simple texts or solving basic arithmetic and problems. The share of low performers ranges from 44% of adults in Chile to 7% in Japan.

When comparing how the skills of adults have developed over the past decade, the picture is similarly mixed. Between surveys, adult literacy proficiency has stagnated or declined in most participating countries and economies. Only Finland and Denmark saw statistically significant improvements in literacy over the last decade (15 and 9 points, respectively).

In contrast, the largest falls in literacy were observed in Lithuania, Korea, New Zealand and Poland\* (all dropped at least 20 points). And in many places, the lowest-performing adults saw the biggest decline. Half of the countries and economies surveyed saw a rise in the share of adults scoring at the lowest literacy levels (Level 1 and below), which means they can only comprehend simple, basic texts. At a time when the world is becoming more complex, far too many adults lack basic reading comprehension skills. This issue is significant not only for economic participation but also for democracy and informed political engagement, particularly given the rise of misinformation, fake news and fabricated AI content.

The skills people have at different ages are also an important factor to consider. In most countries, literacy proficiency has evolved similarly across all age groups. However, there's a concerning trend: in 24 of the 27 countries and economies that participated in both surveys, literacy skills among young adults (aged 16-24) either dropped or remained static. Improvements in this age group were seen only in England (United Kingdom), Finland and Norway. Older adults (aged 55-65) in Denmark, Finland, Sweden and Spain have shown improvements in literacy, which is encouraging given the ageing populations and the fact that people have longer careers.

Why are many populations becoming less literate? Most OECD countries have scaled up efforts to provide formal and non-formal training to adults, and yet we are not seeing commensurate skills improvements in many countries. This finding raises questions about the effectiveness of all stages of education and training systems and their ability to embed lifelong learning. It is also crucial to evaluate if today's workplaces are nurturing essential skills or if many modern jobs are linked to skills decline. Are we building a skilled workforce or inadvertently contributing to de-skilling?

When it comes to numeracy, the situation is more positive. Eight countries saw their average scores improve, with Finland and Singapore recording the largest gains (both 17 points). The biggest increases occurred for 35-44 year-olds in Finland and 55-65 year-olds in Singapore. Only seven countries saw declines in numeracy proficiency, with the largest drops in Lithuania and Poland\* (decreases of 22 and 21 points, respectively).

Young adults aged 16-24 in England (United Kingdom), Ireland, Finland, Japan and Norway have made large strides, while their peers in Hungary, Lithuania, New Zealand, Poland\* and the Slovak Republic saw significant declines. Interestingly, older adults aged 55-65 in the Flemish Region (Belgium), Germany, Singapore, Spain and Sweden have improved their numeracy skills more than their younger counterparts.



It's not just policymakers and educators who should be paying attention to these findings; individuals should be too. Life satisfaction is positively associated with skills proficiency, as are higher earnings. On average, roughly moving up one level – for example, from Level 1 to Level 2 – correlates with a 9% wage increase on the numeracy proficiency scale. This association is largest in Chile, England (United Kingdom), France, Germany and Singapore.

What can policymakers do to counteract the skills decline? It requires a multifaceted approach to ensure learners are prepared for more rapid changes than ever before. Embracing lifelong learning even more decisively will be crucial. Therefore, policymakers should shift their focus from “life-long employment” to “life-long employability”.

In today's rapidly evolving job market, individuals need to develop the skills and flexibility to adapt to changing industries and technologies rather than relying on long-term job security with a single employer. This shift necessitates life-long learning and life-wide learning, where individuals learn in different environments and situations, not just in formal education settings. Together with social partners, policymakers must review how modern workplaces allow adults to maintain and develop literacy, numeracy and problem solving skills.

Developing adaptability is necessary. Education and training providers must be more responsive to changing demands and ensure that the right skills are being provided in the most effective ways. This demands forward thinking and more flexibility in the provision of training, giving learners greater ownership over what, how and when they learn.

Education and training must also become more accessible. Countries can reduce barriers to lifelong learning by accommodating diverse learning needs and schedules, such as offering modular, part-time courses, evening classes and online learning options. High initial costs deter some potential learners, so financial support, such as covering course fees, can help. Expanding entry points to recognise the skills individuals have acquired through non-formal and informal learning can also smooth the path towards formal learning opportunities.

Improving the visibility and recognition of skills is also necessary, with skills documented in a commonly accepted and understandable form. Strengthening skills that are valuable across different industries, such as critical thinking, problem solving and communication, is also important.

Finally, governments need to build strong coalitions with the business sector to find sustainable solutions for funding the rapidly increasing demand for skills. This approach could include sharing the costs of adult learning between governments, enterprises and individuals, as well as involving businesses in decisions on when and where funding should be allocated.

By implementing these strategies, policymakers can effectively address skills declines. Through leveraging data from the Survey of Adult Skills, countries can tailor their policies to address these issues and ensure a more adaptable workforce for the future. The journey towards a more skilled adult population is complex, but with concerted effort, it is achievable.

## Try a test item

*This is an example of the kind of numeracy skills that the Survey of Adult Skills aims to measure on a global scale.*

Look at the information about Scrub & Wear paint.

You want to re-paint a room in your house. You have calculated the total area of the walls in the room and have decided you will only apply one coat of paint.

Identify all of the information in the Fact Sheet that you would need to use to calculate how many cans of paint to buy.



### SCRUB & WEAR LOW SHEEN PAINT Fact Sheet

<b>Features</b>	<ul style="list-style-type: none"><li>• Hard-wearing, washable finish</li><li>• Withstands wear &amp; tear</li><li>• Mark &amp; stain resistant</li></ul>
<b>Clean-up</b>	<ul style="list-style-type: none"><li>• Water</li></ul>
<b>Drying Time</b>	<ul style="list-style-type: none"><li>• Dries to the touch in 30 minutes</li></ul>
<b>Re-coat</b>	<ul style="list-style-type: none"><li>• After 2 hours</li></ul>
<b>Coverage</b>	<ul style="list-style-type: none"><li>• 16 square meters per liter (m<sup>2</sup>/L)</li></ul>
<b>Application</b>	<ul style="list-style-type: none"><li>• Brush; Roller; Air Spray</li></ul>
<b>Quantity</b>	<ul style="list-style-type: none"><li>• 4 liters (L)</li></ul>

**Notes:** See the answer to this Level 3 item at the bottom of page 34. For the full set of publicly released items, see the OECD website <https://www.oecd.org/en/about/programmes/piaac/piaac-released-items.html>.



# Are people getting less smart?

**H**istorically, the expansion of education across generations — from the Baby Boomers to Generation Z — has played a key role in driving improvements in cognitive abilities, alongside better nutrition and living conditions.

However, data from the Survey of Adult Skills show that the overall literacy and numeracy proficiency of many adult populations has declined over the past decade. Worryingly, despite all countries expanding access to tertiary education, the evolution of literacy skills is roughly similar across all age categories and not more positive amongst younger cohorts as one might expect. Only three countries – England (United Kingdom), Finland and Norway – have seen improvements in the literacy skills of young adults aged 16-24.

Still, many of the drops in skills are concentrated among those with minimal levels of formal education. For example, the literacy proficiency of adults with lower than upper secondary education has fallen in most countries. Between surveys, the decline ranges from 12 score points in the Flemish Region (Belgium) to 46 score points in Lithuania. Only Canada, Denmark, Finland, Israel, Spain and Sweden didn't see drops. The proficiency of adults with upper secondary education also decreased significantly in 19 countries.

The picture isn't rosy for university-educated adults either, or those who took another tertiary qualification. Tertiary-educated adults' literacy scores dropped or did not improve in most countries, with Poland\* and Lithuania seeing drops of 42 points and 30 points, respectively. In fact, only Finland recorded increases in literacy proficiency among this section of the population.

Overall, this is leading to a growing skills divide, with an increasing disparity between the skills of the most and least educated adults. However, it's not because the "smartest" adults are getting smarter; their decline in skills is just less pronounced.

Why is this all happening? There are lots of possible reasons. Changing reading behaviours at work and home, as well as increased exposure to digital and social media, might have an impact. Additionally, social bias against those with lower education can sometimes lead to lower self-esteem and reduced opportunities for cognitive development.

As more people enter higher education, the average skill level among graduates has also dropped. This finding may be problematic as it implies that tertiary degrees might no longer be as strong an indicator of a person's skills as they once were.

## **Do teenage attitudes towards learning impact their adult learning behaviour?**

Is there anything we can learn about how attitudes to learning at the age of 15 relate to actual adult learning behaviour? Thanks to the OECD's PISA test and Survey of Adult Skills, we have some clues.

The data suggest that countries with low voluntary adult training participation rates often see 15-year-old students report below-average levels of motivation or lacking a "growth mindset".

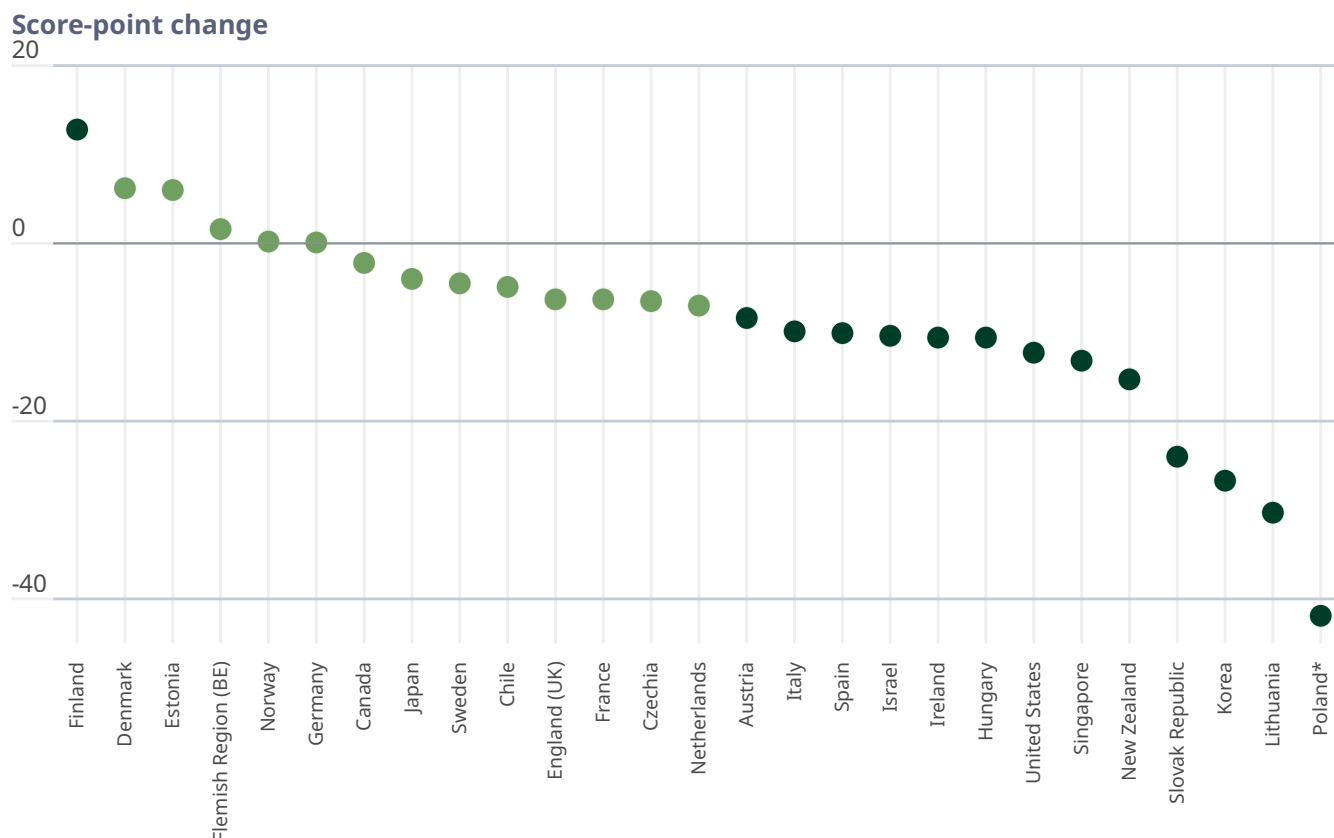
For example, countries like Croatia, Poland\* and the Slovak Republic have comparatively lower voluntary adult training participation and tend to show below-average levels of 15-year-old student motivation and mindset.

At the more positive end of the spectrum, Canada displays comparatively higher voluntary adult participation in training, and 15-year-olds report that they are motivated to learn and have a growth mindset.

This trend is evident among the top five and bottom five countries where data is available. However, this pattern differs for several countries, suggesting other factors also likely influence adult learning behaviour.

When analysing these comparisons, it is important to bear in mind that we are looking at two different age cohorts. The attitudes of today's 15-year-olds do not necessarily reflect those of older groups.

## Change in literacy proficiency between surveys for tertiary-educated adults



**Notes:** Adults aged 25-65. Does not include adults who in survey cycle 2 were only administered the doorstep interview due to a language barrier, to maximise the comparability across survey cycles (OECD, 2024). Educational attainment is based on the International Standard Classification of Education (ISCED) 2011, see Note to Fig. 3.7 in OECD (2024). Unadjusted differences are presented. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024). Darker colours denote differences that are statistically significant at the 5% level.

Countries and economies are ranked in descending order of the unadjusted change in literacy proficiency among tertiary-educated adults.

**Source:** Source: OECD (2012; 2015; 2018), Survey of Adult Skills (PIAAC) databases, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> (accessed on 23 September 2024); OECD (2024), Table A.3.11 (L) in Annex A.

Observing a decline in skills despite increasing tertiary attainment may call for actions to enhance the quality of education and training. A possible approach could involve adapting tertiary education to accommodate the growing number of students or ensuring that students enter university with sufficient foundational skills. Arguably, it should not be a university's job to teach basic literacy and numeracy. Rather, universities should help students develop advanced skills by exposing them to more complex texts and problems. Policymakers must maintain the value of tertiary degrees and better equip graduates for the challenges of the modern workforce.

## **Did you know...**

**... across OECD countries taking part in the Survey, many adults score at Level 1 or below in the proficiency scales: 26% in literacy, 25% in numeracy and 29% in adaptive problem solving, on average.**



# More education doesn't guarantee higher skills

**F**ormal education plays a pivotal role in developing skills. Adults with tertiary education consistently score higher, on average, in the Survey of Adult Skills than those who left education at an earlier stage. However, higher levels of education do not always equate to better skills and knowledge.

For example, some adults educated at the high school level can have better literacy or numeracy skills than those educated at the tertiary level. This can make educational qualifications less reliable for judging those skills. For example, in numeracy, across all age groups, the top 25% of high school graduates score higher than the bottom 25% of tertiary graduates in all countries. And in many countries, high school graduates perform even better. In Italy, across all age groups, the top 10% of high school graduates score at least 10 points higher than 75% of adults with a university education. This finding could have implications for how employers identify talent at the time of hiring.

On an international scale, a high school education in some countries can equip learners with higher literacy or numeracy skill levels than a university education in others. For example, in Finland, adults who left education after completing high school outperformed most adults in 19 out of 31 countries and economies – even those who went to university. In some cases, the gap is especially wide. For example, Finnish high school graduates scored 288 points on average in literacy tests – over 25 points higher than tertiary-educated adults scored in Chile, Israel, Lithuania and Poland\*. High school graduates from Japan, the Netherlands and Sweden often possess competencies that are on par with, or even exceed, those of university graduates from other nations. These cross-country comparisons provide valuable insights, helping policymakers to evaluate the effectiveness of education systems, identify skills gaps and adopt best practices. The question for education and skills

policymakers to consider is how to improve credentialling systems so that they more accurately and consistently reflect a person's skills and knowledge. Systems should clearly show what people actually know and can do, rather than just indicating the educational path someone took. This approach would make it easier to compare skills.

Education systems obviously vary widely across the globe. They are impacted by cultural, economic and political factors. While some countries invest heavily in their educational infrastructure, others may struggle with limited resources and outdated curricula. This disparity can lead to significant differences in the quality of education provided at various levels.

Not all universities provide quality education to all students. Factors such as underfunding, lack of qualified faculty and outdated teaching methods can hinder the effectiveness of higher education. In such cases, a university degree may not necessarily reflect a high level of skill or knowledge – at least by international comparison. Also, the selectivity of tertiary studies may vary, as well as the effectiveness of lower stages of education in building foundational literacy and numeracy skills. Not least, not all educational programmes may value the kind of information processing skills assessed by the Survey of Adult Skills equally.

For students, this means that the prestige of a degree should not be the sole factor in choosing an educational path. It's crucial to consider the quality of the institution and the skills it imparts. For employers, understanding these differences can help make more informed hiring decisions, focusing on the actual competencies of candidates rather than just their educational qualifications.

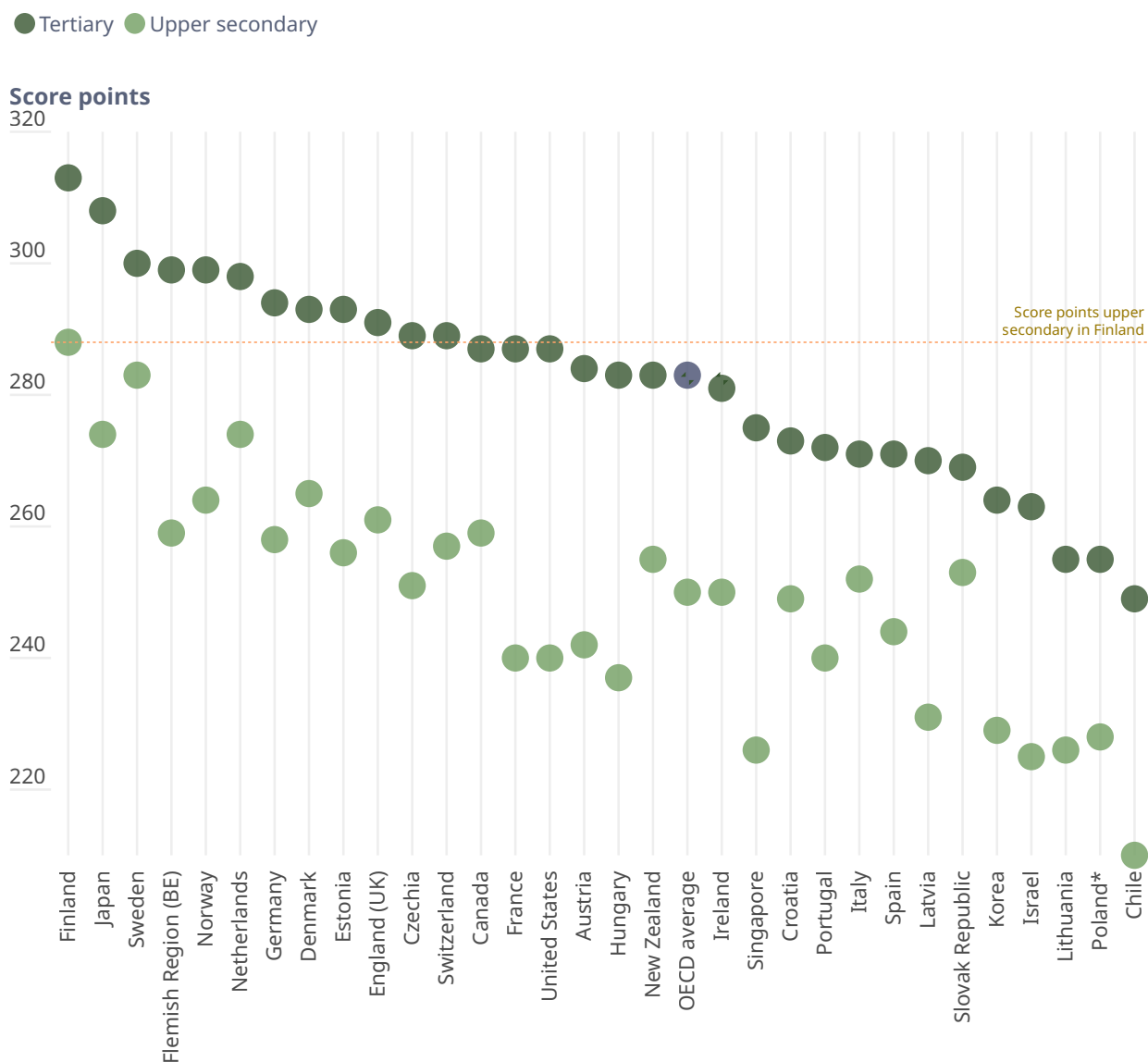
To bridge these gaps, countries with lower-performing educational systems can look to high-performing nations for best practices. Investing in teacher training, updating curricula, and ensuring equitable access to quality education are essential steps. By doing so, we can work towards a future where a university education universally signifies a high level of skill and knowledge, regardless of geographical location.



## Literacy proficiency skills by educational attainment

Higher levels of education do not always equate to better skills and knowledge

25-65 year-olds



**Notes:** Adults aged 25-65. Educational attainment is based on the International Standard Classification of Education (ISCED) 2011, see Note to Fig. 2.8 in OECD (2024). \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024).

**Source:** OECD (2024), Table A.2.5 (L) in Annex A.

# Did you know...

... in numeracy, across all age groups, the top 25% of high school graduates score higher than the bottom 25% of tertiary graduates in all countries



# Are qualifications over-valued by employers?

In recent years, there has been growing concern that education and training institutions are producing graduates with qualifications that may not be directly useful in the labour market. This issue raises important questions about the alignment between degree programmes and the needs of employers. A well-functioning, productive economy requires a good match between workers' skills and qualifications, and those required by their jobs.

Data from the Survey of Adult Skills show that about one-third of workers across OECD countries are mismatched to their jobs. This has significant economic and social costs for individuals and economies, particularly if adults are over-qualified. For example, adults who work in jobs that do not require their level of education receive 12% lower wages compared to peers who are in well-matched jobs. They are also four percentage points less likely to report high life satisfaction. This suggests that people in roles that do not use their qualifications can often believe their potential is wasted.

In some countries, the “wage penalty” is especially high. In Chile, Singapore and the United States, over-qualified adults receive some 20% lower wages than peers in well-matched jobs. This lack of alignment – between workers' skills and jobs – can impact productivity and the benefits of investing in literacy and numeracy skills.

In terms of skill mismatches, data show that over-skilling is a more serious problem than under-skilling in most countries. Across all countries, 26% of employees consider themselves to be over-skilled for their jobs, while 10% consider themselves to be under-skilled. Only in Estonia, Finland, Japan and Norway do a higher proportion of workers consider themselves to be under-skilled than over-skilled.

Why is this happening on such a large scale? One of the primary criticisms of education and training systems is the perceived disconnect between academic curricula and the practical skills required in the workforce. Many degree programmes focus heavily on theoretical knowledge, which, while important, may not always translate into practical skills that employers are looking for. Training programmes can also be slow to update their curricula in the face of rapidly changing skill needs. This gap can leave graduates underprepared for the realities of their chosen careers. Additionally, many workers do not engage in reskilling and upskilling as adults, rendering them underprepared for changes in the world of work.

To combat this, policymakers can invest in methods to better recognise, reward and certify skills, and encourage adults to do training. First, governments can fast-track the development of standardised approaches to recognising skills, especially those acquired through non-traditional learning pathways. This will allow employers to more accurately assess candidates' skills during recruitment, helping to build a "skills-first" culture in organisations. This would help ensure workers are in jobs that match their skills better.

Second, policymakers can invest in targeted career guidance for both students and adults. As the concept of a single, lifelong career path becomes increasingly outdated, many people seek to change careers multiple times throughout their lives. Career guidance, with up-to-date information on emerging industries, in-demand skills and potential career paths, is crucial for helping people navigate the changes driven by technological advancements, the green transition and globalisation.

Finally, adults face a range of barriers to participation in training, including the costs and a lack of time due to work and care responsibilities. Training institutions can develop more flexible learning options so workers can study on line, part-time or on the weekend, for instance. Governments can encourage more flexible learning by establishing shorter, more modular learning pathways. Financial and other incentives are also crucial to enable workers to access their desired training opportunities.

One other important point to note: both formal education and skills determine job prospects and wages in many countries. Three extra years of education are associated with 16% higher wages on average. In addition, moving up one skill level in numeracy – for example, from Level 1 to Level 2 – is associated with adding a further 9% increase in wages, on average.

In some places – Croatia, the Flemish Region (Belgium), Finland, Hungary, Israel, Italy, Portugal, Singapore and Spain – wage returns for education are more than double the size of wage returns for numeracy. It is possible that in these countries, formal qualifications provide employers with a simpler benchmark against which to assess the general skills of individuals, particularly at the recruitment stage. Formal education is also perceived as signalling a broader set of skills, including soft skills, discipline and work habits, which are not captured by narrower measures such as literacy and numeracy.

Looking ahead, investing in education and skill development will be crucial for improving individual economic outcomes and overall employability. These policies will not only help to close skills gaps but also develop resilient economies that fully leverage the potential of the workforce.

### **Training systems may not match up to employers' demands for skills**

The most in-demand skills in the workforce are often not the ones developed by current training programmes. Data from the Employer Module of the Survey of Adult Skills<sup>1</sup> show that the three skill areas most in need of improvement, identified by businesses, are technical, problem solving and teamwork skills. There are notable differences in the data, with businesses in the Netherlands and Slovak Republic, for example, rating customer handling among the top three gaps. Businesses in the Netherlands also highlight management skills as among the three main deficiencies.

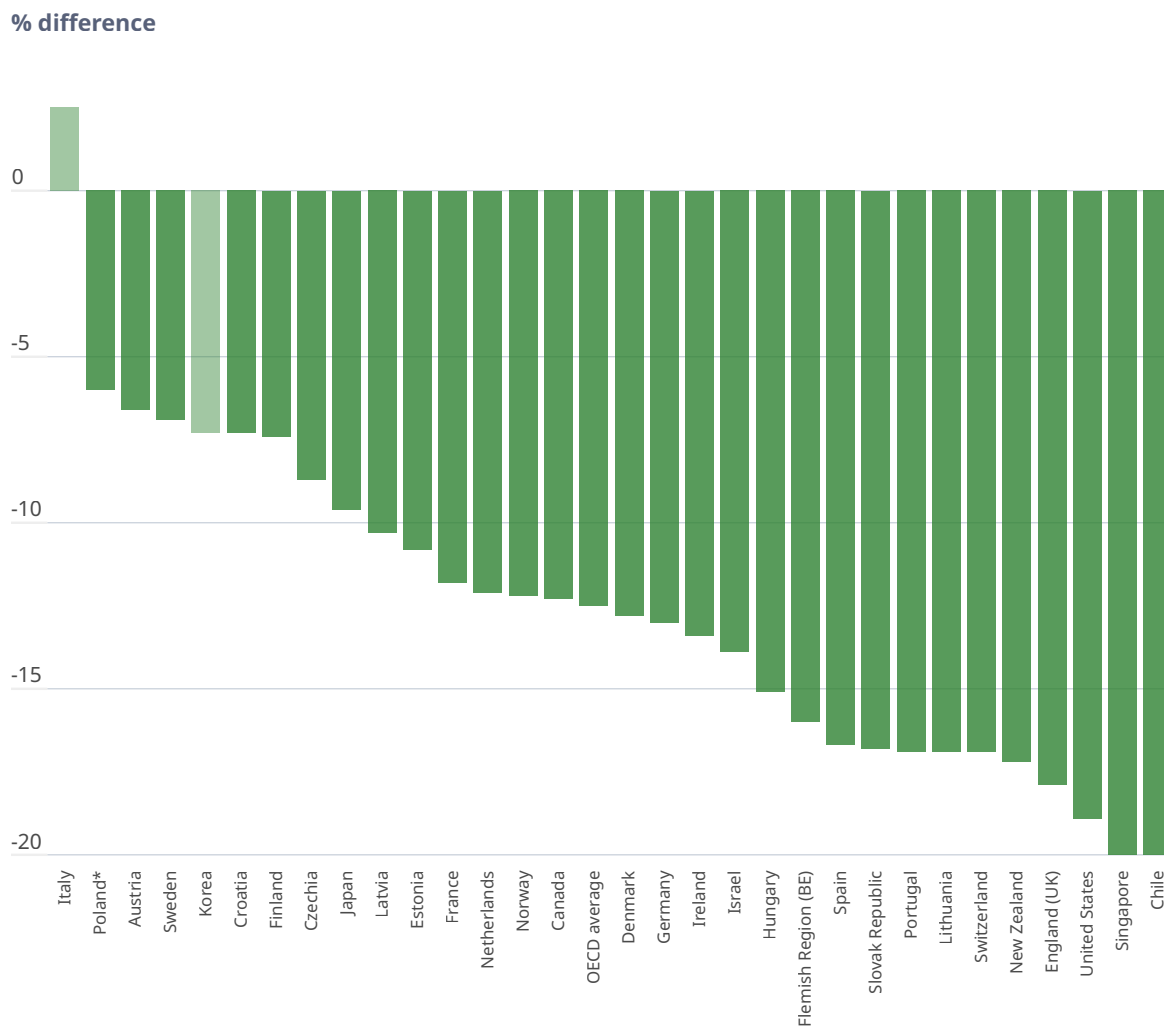
These skills are often not the focus of traditional academic programmes, which can leave graduates lacking in areas that are critical for career success. More work can be done to properly update education and training curricula to reflect employer skill needs.

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<sup>1</sup> OECD (2024), Understanding Skill Gaps in Firms: Results of the PIAAC Employer Module, OECD Skills Studies, OECD Publishing, Paris, <https://doi.org/10.1787/b388d1da-en>

## Change in gross hourly wages associated with overqualification

*Difference in earnings between over-qualified and well-matched workers*



**Note:** Employed adults aged 25-65 who are not self-employed; does not include adults who were only administered the doorstep interview due to a language barrier (OECD, 2024). Mismatch measures are defined in OECD (2024). Estimates account for age, gender, immigrant background, parental education, whether one lives with a partner or has children, work experience, use of numeracy skills at work, industry and occupation. Wages are (log) gross hourly earnings for employed and self-employed individuals, including bonuses, in PPP-adjusted 2022 USD. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide. Darker colours denote differences that are significant at the 5% level.

Countries and economies are ranked in descending order of the effect of mismatches on wages.

**Source:** OECD (2024), Table A.4.16 of Annex A.

# The impact of immigration on proficiency

Many factors shape the composition of a population over time, including demographic and social trends such as changing fertility rates, longevity, migration and educational expansion. Migration, in particular – the movement of people into or out of a population – has attracted significant policy attention due to its potential effects on economic and social outcomes. Over the past decade, refugees and asylum seekers have been the focal point of much discussion, with countries like Germany, Poland\* and Sweden and several countries in Latin America seeing notable inflows. Many of these arrivals have lower levels of education. In the context of the Survey of Adult Skills, a natural question is to ask: how has migration impacted average literacy and numeracy proficiency?

First, let's look at some numbers. Most countries saw an increase in the share of their foreign-born populations over the past decade between surveys. In Norway and Sweden, for example, the proportion of foreign-born adults represented in the survey grew from 12% and 16% in 2012 to 20% and 24% in 2023, respectively. In Italy, the share of the foreign-born population nearly doubled in the same period (12% in 2023), while it grew by two and a half times in Chile between 2015 and 2023 (8% in 2023). In contrast, the share of foreign-born adults decreased in Estonia and Israel. In Czechia, Japan, Korea, Lithuania and the Slovak Republic, foreign-born populations do not exceed 3% of the adult population.

In nearly all countries, foreign-born adults have lower skills than native-born adults. On average, the difference is 44 points in literacy, 38 points in numeracy and 32 points in adaptive problem solving. However, roughly half of this gap is attributable to language issues, differences in educational attainment, age, gender and parents' educational attainment.

What about migrants' literacy proficiency over the past decade? Between surveys, the literacy proficiency of foreign-born adults declined in eleven countries and improved in three. In contrast, native-born adults recorded more positive (or less negative) trends. These results indicate widened proficiency gaps between foreign-born and native-born adults in eight countries: Austria, Chile, the Flemish Region (Belgium), France, Germany, New Zealand, Norway and Singapore.

In some countries and economies, an increase in the share of foreign-born adults coincided with declining literacy proficiency scores. In particular, after accounting for factors such as age and gender, the survey finds that average literacy scores would have slightly increased in the Flemish Region (Belgium), Norway and Sweden if the demographic profile of the population had remained the same as in the survey. Average literacy scores would also have remained constant in Austria, France and Japan if it hadn't been for immigration. These changes are notable but relatively small percentages and not unexpected. During the refugee crises of the 2010s, many countries, particularly in Europe, opened their doors to large numbers of asylum seekers - often with low-skill levels - many of whom were unfamiliar with the local language.

We can't say for sure, but this influx likely contributed to the widening proficiency gap between immigrants and native-born adults in some nations. For example, Germany saw an overall decline in proficiency among immigrants, while native-born adults without an immigrant background improved.

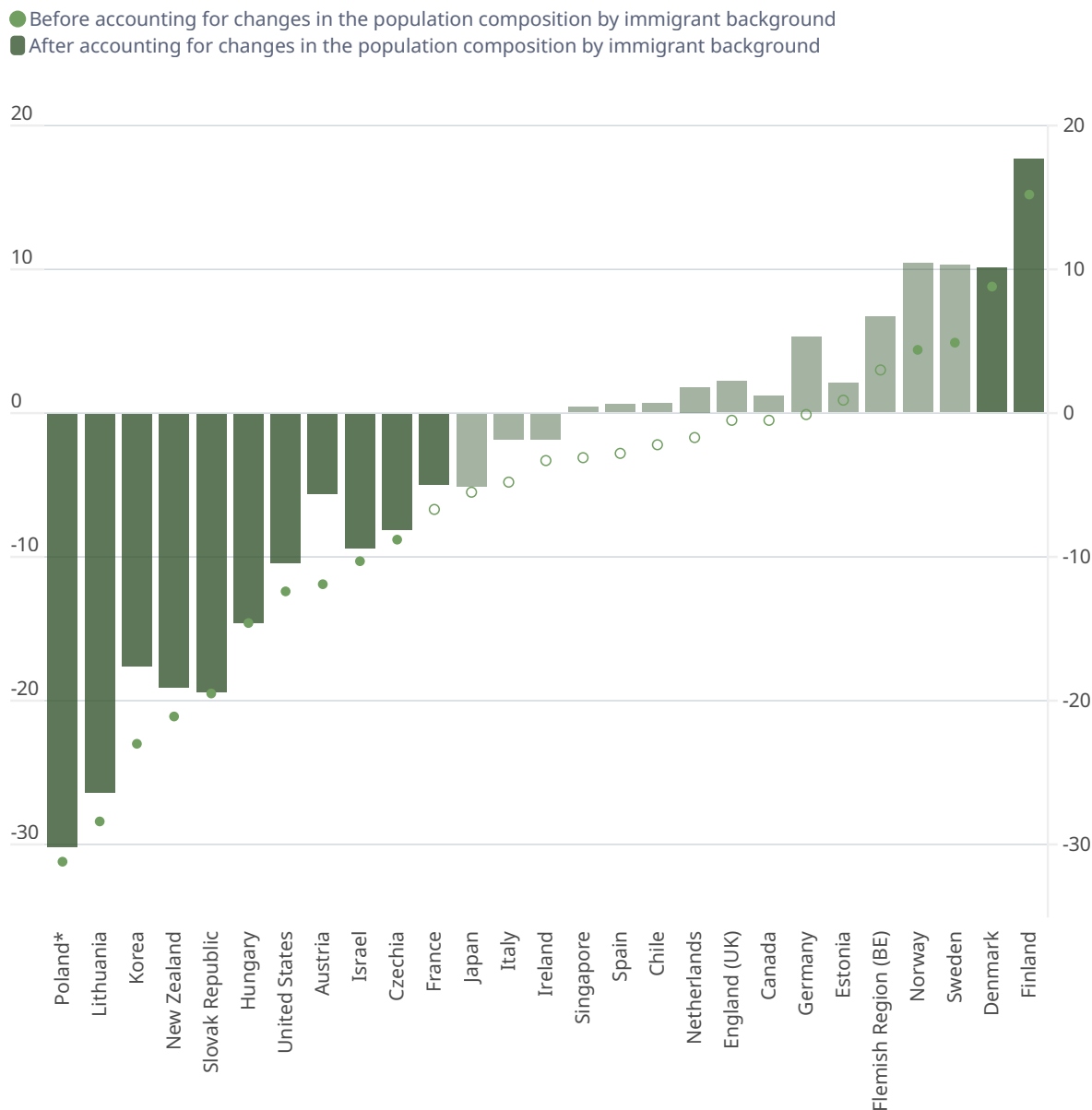
In terms of numeracy, the story is more mixed. Migrants' numeracy skills increased in seven countries (Canada, Denmark, England [United Kingdom], Estonia, Finland, Norway and Sweden) compared to a decade ago. In all of these countries, immigrant scores improved beyond those of the native-born population - narrowing the skills gap.

Why did some countries see a bigger impact from new arrivals than others? Factors relating to the countries of origin, as well as the host country, are likely at play. Once migrants settle in a host country, various mechanisms typically support their education as well as their integration into the social and labour markets, such as language training and job search assistance. These policies also impact migrants' skill levels. However, their availability and effectiveness can differ widely across countries. For asylum seekers, who often face long waits for their claims to be processed, their access to support and employment opportunities are usually severely limited. In many countries, asylum seekers are not permitted to work while their claims are being processed, which can take months or even years, significantly degrading their skills.

When analysing the literacy proficiency of immigrants, it is important to consider how long they have lived in the host country. Learning a new language and integrating into a new society takes time. So recent arrivals typically have lower literacy proficiency. For example, in Czechia, Finland, Germany, Israel, Sweden, and the United States, the skills of recent migrants in 2023 were more than 30 points lower than those of long-term migrants. In contrast, the skills profile of long-term migrants is more strongly influenced by conditions in the host country - and this offers insights into the effectiveness of integration policies. In Austria, Israel and New Zealand, literacy proficiency declined among both recent and long-term migrants.



## Change in literacy proficiency between surveys, before and after accounting for immigration



**Notes:** Adults aged 16-65; does not include adults who in survey cycle 2 were only administered the doorstep interview due to a language barrier; to maximise the comparability across survey cycles OECD (2024). Unadjusted differences are the differences between the averages in each survey cycle. Adjusted differences are based on a method analogous to post-stratification that reweights the samples in survey cycle 2 so that the composition of these samples by immigrant background matches those of the samples in survey cycle 1 OECD (2024). Adjusted differences represent a hypothetical scenario of how the proficiency of a population with the same share of immigrants as the the population in survey cycle 1 would have changed over time. Darker colours and solid circles denote differences that are statistically significant at the 5% level. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader’s Guide in OECD (2024).

**Source:** OECD (2012; 2015; 2018), Survey of Adult Skills (PIAAC) databases, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> (accessed on 23 September 2024); OECD (2024), Table A.3.1 (L) in Annex A.



The 2023 Survey of Adult Skills collected detailed information on the migration history of adults, including whether they speak the language of the host country, where they obtained their education, their age at arrival and the duration of their stay in the host country.



# Male literacy proficiency has dropped

**T**he Survey of Adult Skills highlights many important issues for policymakers to focus on. Still, one of the most significant is the troubling trend in the decline of literacy proficiency among adult men. A critical aspect of this decline is that people with lower literacy levels are at much greater risk of working in jobs that are increasingly vulnerable to automation. As technology develops, many manual and routine jobs that have traditionally employed people with lower literacy are being replaced or significantly altered by automated systems. This shift not only threatens job stability and security but also limits the ability to adapt to new, more technology-driven roles. As a result, many men may find themselves excluded from better paying and more secure jobs. This can lead to a cycle of economic disadvantage and societal marginalisation.

How bad is the situation? In the past decade, literacy proficiency has declined more strongly among men than women. In eight countries where men used to have higher literacy scores than women, those gaps have now disappeared. In six countries where men and women did not differ in literacy in the past, there is now a female advantage (Estonia, Finland, France, Hungary, Israel, New Zealand). This trend isn't because women have suddenly become more literate, at least in most places. It is very much due to the decline in the overall skills of men (in contrast, male and female numeracy skills have developed in parallel in most countries, so numeracy gender gaps have remained stable). Norway is the only country where literacy proficiency improved significantly among women but not men.

Only in Singapore did men achieve significantly higher average literacy proficiency than women in 2023. But even there, men saw a larger decline in literacy proficiency than women, and the gap has now almost halved, from 7 to 4 points.

The overall decline in male adult literacy proficiency requires immediate attention. By understanding the factors contributing to this trend and implementing targeted interventions, policymakers can help ensure that all individuals have the literacy skills they need to thrive.

One other important factor for policymakers to consider is that while women's literacy skills are now equivalent to or better than men's, they do not necessarily see the financial returns. The relationship between wages, education and skills reveals a significant gender disparity. Women often find their wages more closely tied to education (especially in Canada, Croatia and Finland). In contrast, men's wages are more influenced by skills (especially in Czechia, Germany and Portugal). This may be because women tend to be concentrated in some sectors like healthcare and education, where formal qualifications are essential for career progression. At the same time, men are more concentrated in technology, construction and manufacturing roles, where skills may be highly valued. These sectors also tend to pay higher wages to begin with.

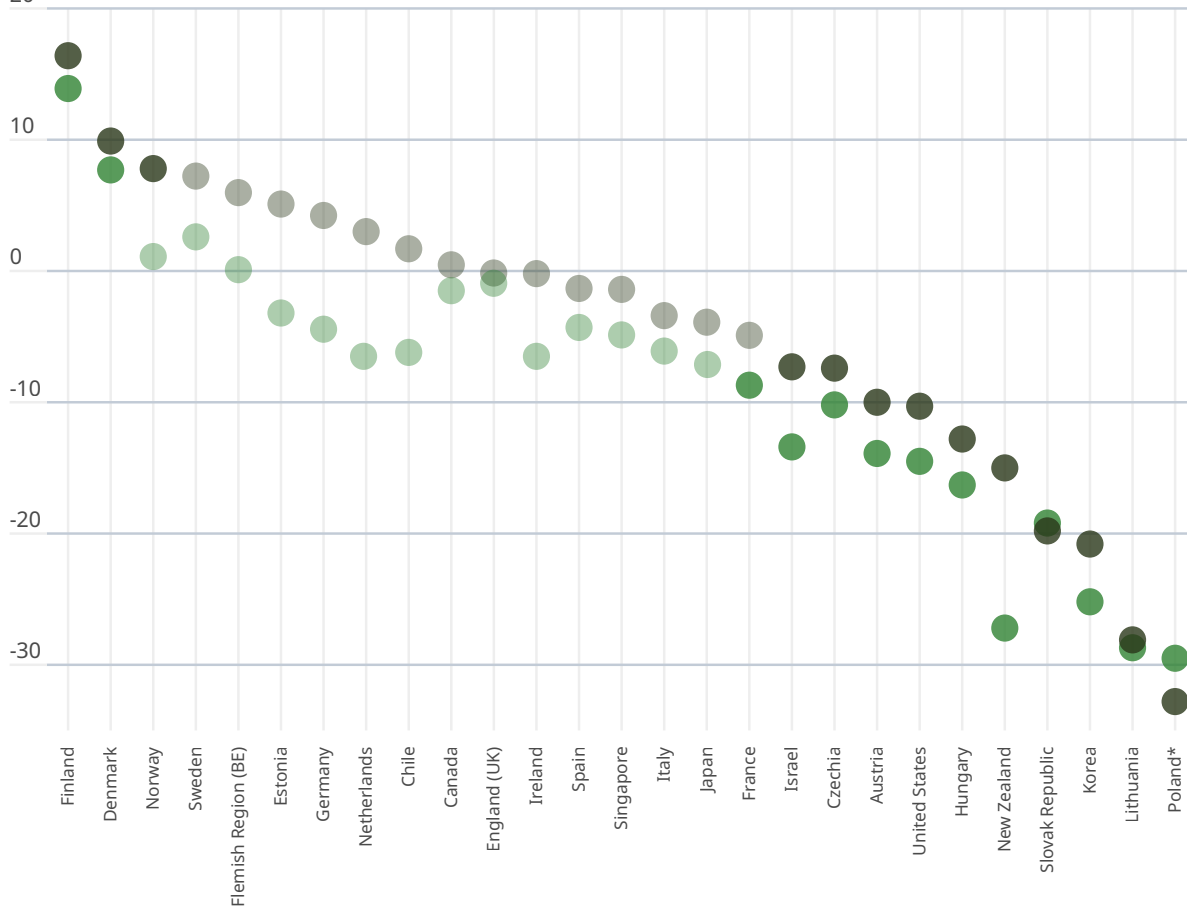
This pay disparity can also be due to the greater barriers women face in having their skills recognised and rewarded. This includes implicit biases, workplace cultures that undervalue women's contributions, and structural barriers that limit women's access to roles where skills are more directly rewarded. Addressing this issue requires valuing skills equally with education, encouraging diverse career paths for women, challenging biases, and implementing policy interventions to promote equal pay and support skill development programmes.

# Literacy proficiency has fallen more for men than women, narrowing existing gender gaps

*Change in average proficiency scores since last survey, by gender*

● Women ● Men

Score-point change



**Notes:** Adults aged 16-65; does not include adults who in survey cycle 2 were only administered the doorstep interview due to a language barrier, to maximise the comparability across cycles (OECD, 2024). Darker colours denote differences that are statistically significant at the 5% level. Differences are unadjusted. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024).

**Source:** OECD (2012; 2015; 2018), Survey of Adult Skills (PIAAC) databases, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> (accessed on 23 September 2024); OECD (2024), Table A.3.4 (L) in Annex A.

# Did you know...

... across all countries, 26% of employees consider themselves to be over-skilled for their jobs, while 10% consider themselves to be under-skilled.





# The parental education effect

**A** key goal of education and skills policymakers is to create more equitable, fair education systems. But how do you ensure that everyone has the same chance of achieving high qualifications and skills, irrespective of their parent's education level, socio-economic status and resources?

In 2023, adults with highly educated parents outscored those with low-educated parents by 50 points in literacy, 49 points in numeracy and 42 points in adaptive problem solving, on average. This is roughly the difference of one proficiency level on the Survey's proficiency scales. However, only about half of the score gaps can be directly attributed to parental education levels.

In some countries, the gaps were especially large. For example, in Germany and Switzerland, the differences are particularly pronounced, with gaps in literacy scores of around 70 score points. In contrast, in Sweden, the Slovak Republic and Spain the difference is below 35 points.

Why are some countries seeing starker differences than others? Parental advantage manifests in various ways, from access to better schools and extracurricular activities to the ability to provide academic support and resources at home. Children from more socially advantaged families often benefit from private tutoring, advanced learning materials, and a conducive learning environment. These advantages can lead to disparities in academic performance and long-term educational outcomes, perpetuating cycles of inequality. Once young adults enter the labour market, family background can also help by giving them access to better networks.

Since the last survey, in half the countries and economies, adults with low-educated parents have also seen greater declines in literacy proficiency, which widens the socio-economic skills gap. This gap is concerning as it can limit opportunities and perpetuate cycles of disadvantage. Policymakers in some countries will want to review why adults with low-educated parents fare particularly badly in international comparisons.

On top of that, the data show that skills-related inequalities have developed differently across different age groups. Canada, Norway and Sweden recorded increases in the socio-economic gap in literacy among 16-24 year-olds. In contrast, socio-economic differences among older adults remained stable or, in the case of Sweden, decreased. This is extremely worrying, particularly given that those education systems have made huge efforts to improve equity but are seeing the opposite in terms of results. In Hungary and New Zealand, the socio-economic gap in literacy also increased for 16-24 and 25-44 year-olds. This will make it harder for young adults from disadvantaged backgrounds to access higher-paying jobs, and can affect social cohesion, overall productivity and economic growth.

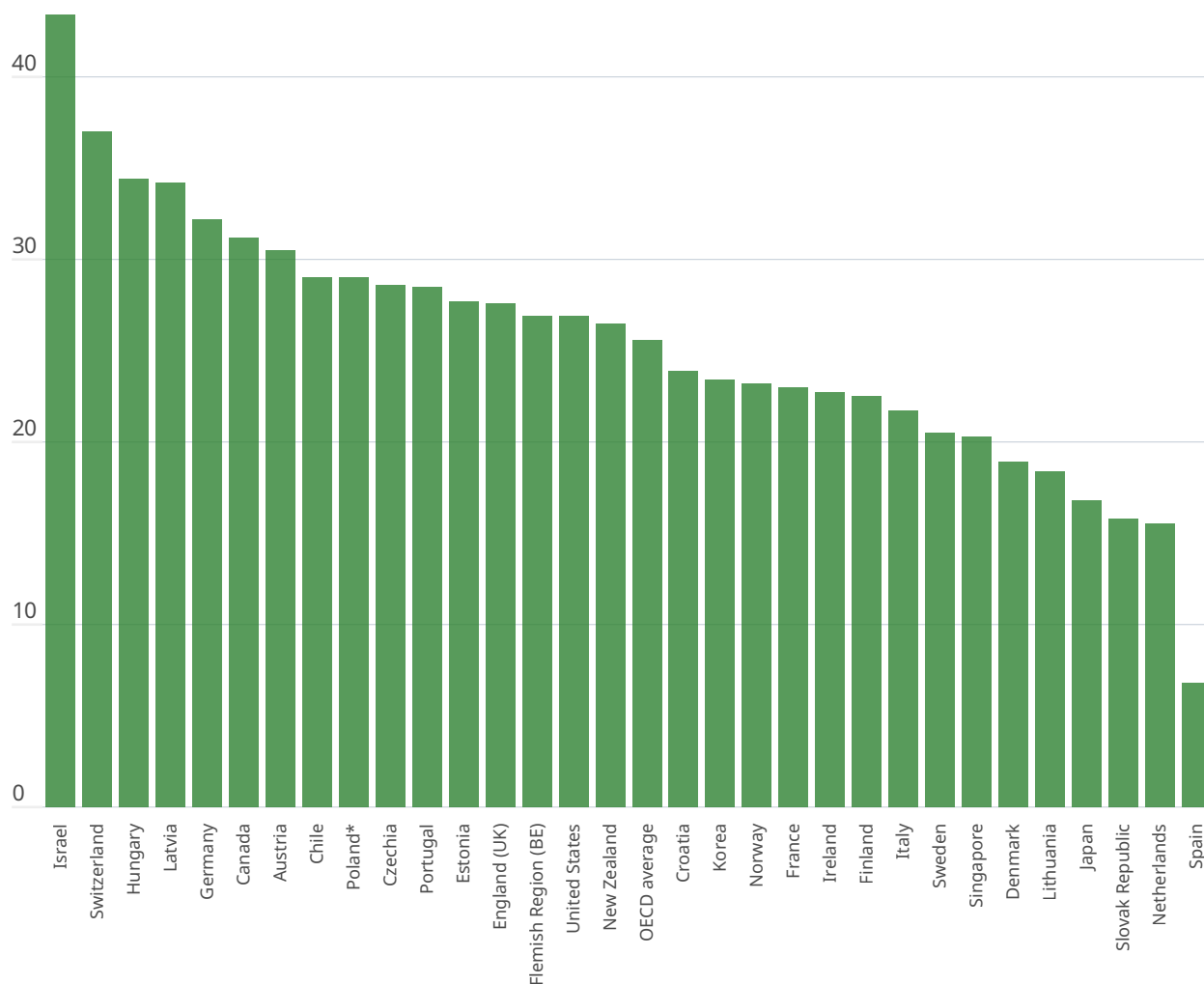
So what can be done? Mitigating parental advantage is a complex but essential task for creating equitable and fair education systems. The first step is ensuring equitable resource allocation. Schools in disadvantaged areas should receive adequate funding and resources, including high-quality teaching materials, modern facilities and access to technology. Investing in early childhood education programmes - accessible to all children regardless of socio-economic background - can help level the playing field before formal schooling begins. Also, attracting and retaining qualified teachers in schools serving disadvantaged communities is essential. Empowering parents and communities to participate in the education process, developing inclusive curricula, and promoting teaching practices responsive to all learners' needs are also vital steps to levelling the playing field. These strategies can help ensure that all people, regardless of their background, have the opportunity to reach their full potential.



## Adults with highly educated parents have better literacy skill levels than those with less educated parents

*Adjusted differences in average scores between adults with highly educated and low-educated parents*

Adjusted score-point difference



**Notes:** Adults aged 16-65. Does not include adults who were only administered the doorstep interview due to a language barrier, as information on parental education was not collected for those respondents (OECD, 2024). Respondents are categorised as having highly educated parents if at least one parent attained tertiary education; as having medium-educated parents if at least one parent attained upper secondary education and none of the parents attained tertiary education; and as having low-educated parents if neither parent attained upper secondary education. Unadjusted differences are the differences between the two averages for each contrast category. Adjusted differences are based on a regression model that takes into account differences associated with gender, age, education, immigrant background and language spoken at home. All differences are statistically significant at the 5% level. \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024).

*Countries and economies are ranked in descending order of the adjusted difference between adults with highly educated and low educated parents.*

**Source:** OECD (2024), Table A.2.12 (L) in Annex A.

# How education and skills relate to political efficacy and trust

**D**eveloping adult skills is not just about supporting careers but also about helping people participate in democratic processes and society more widely. Survey data show that adults with high literacy and numeracy skills are often considerably more likely to feel they can understand and influence political affairs. For example, in Switzerland, 66% of highly proficient adults (Level 4 and above) aged 25-65 feel able to influence political affairs compared to just 33% of adults with low proficiency (Level 1 and below). Czechia, Finland, Japan and Sweden see similar results, with 40% or more of highly proficient adults feeling politically engaged.

Switzerland, though, clearly has by far the largest share of adults who feel they can impact political affairs of any country in the world. On reflection, this result is unsurprising due to its frequent referendums that allow citizens to directly influence legislation and policy. In fact, the Swiss have more opportunities to express their opinions at the ballot box than anyone else. However, significant gaps still exist between those with high and low levels of skills in Switzerland. This shows that even in countries known for their civic efficacy, disparities in skill levels can lead to unequal political participation and decision-making power.

The relationship between skills and political efficacy varies considerably between nations. In some places, the trend is even reversed: the more highly skilled feel less able to influence political processes. In Portugal, Poland\*, Israel, Hungary, Croatia and Spain, lower-skilled adults felt they had greater political agency than highly skilled adults, albeit still at a relatively low share (19% or less).

While adults with greater literacy and numeracy skills are often more confident in their ability to make a difference, in these countries, it appears they feel they exert

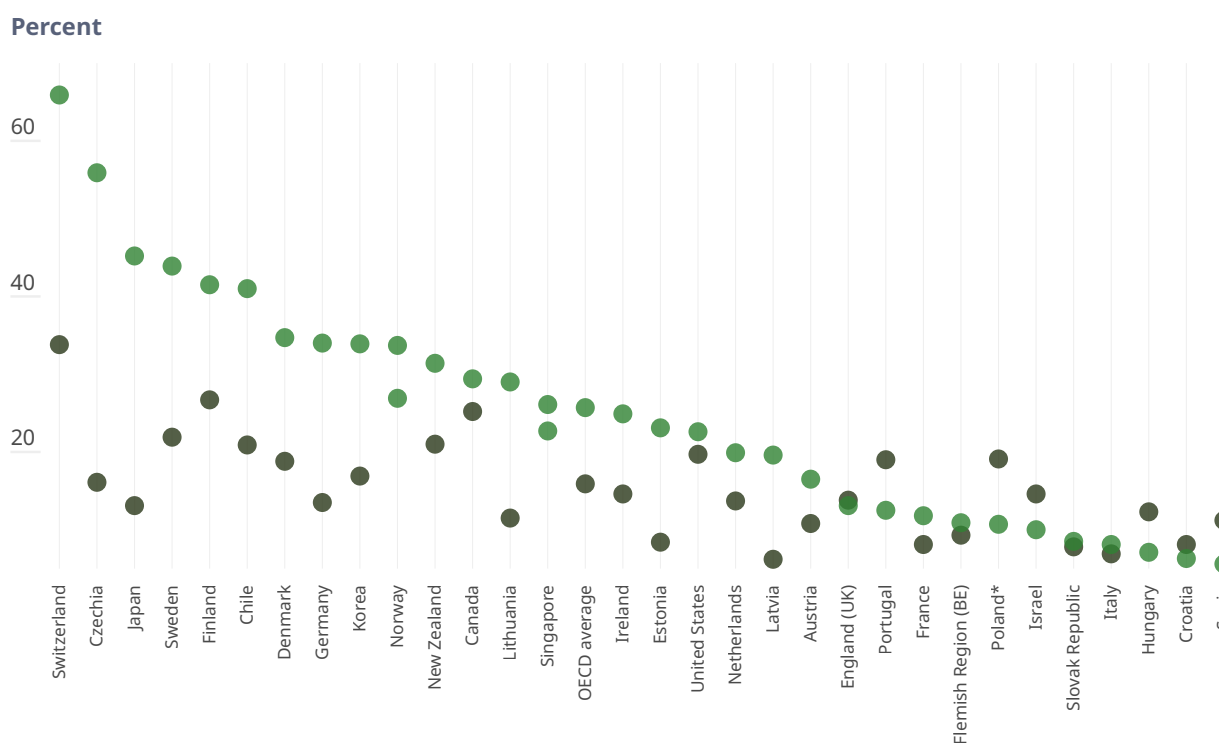
less control over political matters. This could be due to a host of reasons, including disillusionment with the political system – a belief that participation won't make much of a difference due to perceived inefficiencies or even corruption – and the complexity and polarisation of modern politics, with individuals questioning whether their involvement can lead to meaningful change. In this sense, national political contexts and institutions affect not only the degree of political engagement but also how this varies between low and highly skilled adults.

In response, policymakers must work to empower people of all skill levels to participate in civic life. The combination of many adults with low literacy and numeracy skills feeling unable to influence political decisions and lacking the skills to navigate complex digital information landscapes should be a concern for modern democracies.

## Share of adults reporting high political efficacy

### By numeracy proficiency level

Level ● Level 1 and below ● Level 4 and above



**Note:** Adults aged 16-65. Does not include adults who were only administered the doorstep interview due to a language barrier (see Box 1.1 in Chapter 1 and Box 4.1 in OECD (2024)). Figure plots the unadjusted share of respondents reporting a positive outcome (see Box 4.2 in OECD (2024) for definitions). \*Caution is required in interpreting results due to the high share of respondents with unusual response patterns. See the Note for Poland in the Reader's Guide in OECD (2024).

Countries and economies are ranked in descending order of the share of respondents at Level 4 and above reporting positive outcomes.

**Source:** OECD (2024), Table A.4.10 (N) in Annex A.

# Skilled adults say they are healthier and happier

In today's fast-paced world, the advantages of learning new skills go well beyond just boosting your career. The study data suggest that higher numeracy skills are associated with better health and better quality of life overall.

On average, across OECD countries, individuals with high numeracy skills are 11 percentage points more likely to report very good or excellent health than individuals with low numeracy skills. On average, 41% of individuals reported having “very good” or “excellent” health, but some countries saw far more positive scores. Adults in Israel were most likely to report positive health (67%), followed by Ireland (58%) and Croatia (55%). In contrast, adults in Korea (16%), Latvia (18%), Chile (21%) and Japan (23%) were least likely to report positive health.

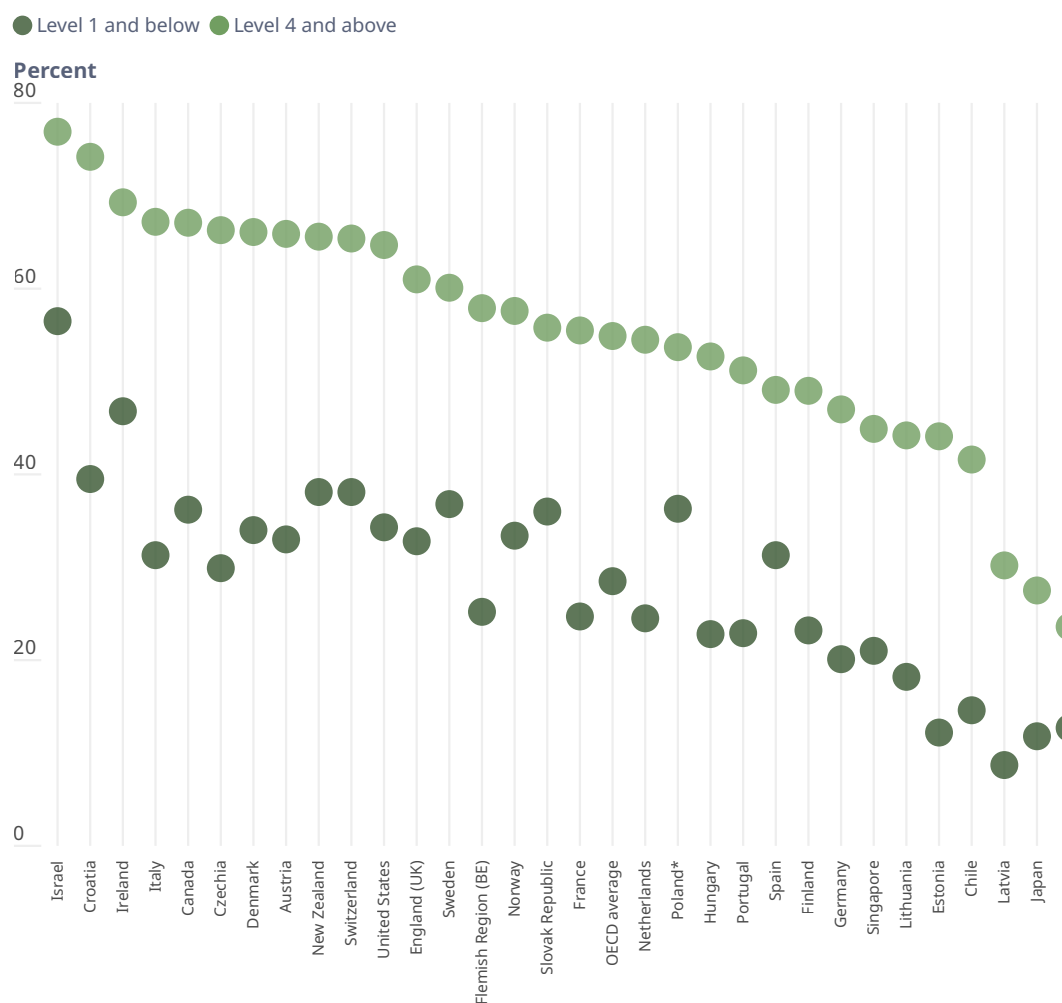
On average, across OECD countries, individuals with high numeracy skills are about 10 percentage points more likely to report high levels of life satisfaction. In some countries, the association is particularly strong. In Croatia, for example, individuals with high numeracy skills are 24 percentage points more likely to report high life satisfaction, a statistically significant estimated effect that is larger than in any other country.

These data are self-reported – identifying how people perceive their life satisfaction and health – but it is still important. What could be behind the positive association between skills and health? The first factor is money. Numerate individuals tend to earn higher wages as they often have access to better job opportunities. This can lead to higher income and job satisfaction, which are key components of overall life satisfaction. By engaging in continuous learning, adults also keep their brains active, which can help prevent cognitive decline. It reduces stress and anxiety by providing a productive outlet for energy and focus.

Mastering new skills also boosts self-esteem. When adults feel competent and capable, they are more likely to take on new challenges, providing a sense of accomplishment. Skills can encourage a more active lifestyle. Activities and hobbies can lead to improved physical health and well-being. Learning new skills often involves social interaction, whether through classes, workshops, or group activities, which help create social connections - crucial for mental and emotional health, reducing feelings of loneliness and isolation.

So numeracy might have some sort of impact on both life satisfaction and health, but there are clearly large discrepancies between countries, which is not a good thing. It would be far better to have a high proportion of adults reporting positive outcomes, irrespective of skill or educational background. In fact, large gaps in health outcomes for adults with different skill levels should prompt policymakers to review the structures that lead to these unequal outcomes.

## Highly skilled adults in numeracy are more likely to report very good or excellent health



**Note:** Individuals self-report “very good” or “excellent” health on a 5-point Likert scale (excellent, very good, good, fair or poor).

Countries and economies are ranked in descending order of the percent of respondents reporting very good or excellent health.

**Source:** OECD (2024), Table A.4.9 (N) in Annex A.



# The technical bit

The Survey of Adult Skills is an international computer-based household survey of adults aged 16-65 years. The first cycle of the survey was carried out over three rounds between 2011 and 2017, while the second survey was conducted in 2022/23.

Twenty-seven countries and economies participated in both surveys. Twenty-one of them participated in Round 1 of the first Survey in 2011/12. Five (Chile, Singapore, Israel, New Zealand and Lithuania) participated in Round 2 of the first Survey in 2014/15. Hungary participated in Round 3 of the first survey in 2017. As a result, the amount of time that elapsed between surveys is not the same for all countries.

Answer to question on page 8: Only **Coverage** and **Quantity** should be selected.



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## READ THE REPORT



OECD (2024), *Do Adults Have the Skills They Need to Thrive in a Changing World?: Survey of Adult Skills 2023*, *OECD Skills Studies*, OECD Publishing, Paris

<https://doi.org/10.1787/b263dc5d-en>



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### **Note regarding Poland's results in the Survey of Adult Skills 2023**

In Poland, there were issues with the data quality for a high share of respondents. Despite efforts to minimise the (negative) impact of data anomalies, results should be interpreted with greater caution than those of other participants. Read more in the Reader's Guide in OECD (2024), *Do adults have the skills they need to thrive in a changing world?: Survey of Adult Skills 2023*.



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