

OECD Skills Studies

Navigating Life with Low Literacy and Numeracy

New Results from the 2023 Survey of Adult Skills



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SKILLS

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Editorial

For much of the twentieth century, the defining challenge for advanced economies was expanding access to education. Today, the challenge is different - and in many ways more difficult. It is what happens to the millions of adults who are left behind as the skill requirements of work, technology and daily life continue to rise.

The latest evidence from the 2023 Survey of Adult Skills delivers a stark message: nearly one in three adults across OECD economies lacks the foundational literacy or numeracy skills needed to adequately participate in modern economies and societies. Tasks that many take for granted - finding a specific piece of information in a written document, following straightforward instructions, completing a form, or carrying out simple calculations with everyday numbers and measurements - can become unsurmountable challenges for them.

These foundational skills are not specialised competencies reserved for high-skilled occupations. They are the skills needed to understand a payslip, complete an online application, follow workplace procedures, compare prices, manage household finances, or access public services. In a world that increasingly assumes a baseline level of literacy and numeracy, adults lacking these skills are not simply at a disadvantage – they are at risk of being excluded from opportunities that others routinely access.

More troubling still, the problem is not receding. Despite decades of investment in adult education and training, the share of adults with low foundational skills has grown over the past decade. At precisely the moment when economies are becoming more knowledge-intensive and technology-driven, a substantial segment of the adult population is falling further behind.

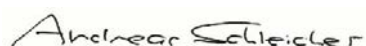
This is not a marginal issue affecting a small group on the fringes of society. It is a structural challenge that sits at the heart of economic performance, social cohesion and democratic resilience. In an era defined by digital transformation, artificial intelligence and rapid labour market change, foundational skills have become the essential infrastructure of opportunity. When large numbers of adults lack them, the consequences extend far beyond individual hardship. Productivity suffers, labour shortages become harder to address, social inequalities deepen, and democratic participation weakens.

This report examines the scale, nature and consequences of low foundational skills across OECD countries. Drawing on the 2023 Survey of Adult Skills, it moves beyond simple counts of who falls below proficiency thresholds to explore the depth and composition of skill deficits. It asks not only how many adults struggle, but how far behind they are, whether their challenges lie primarily in literacy or numeracy, and how these patterns vary across countries and population groups. By identifying distinct profiles among low-skilled adults, the report seeks to provide policymakers with a more precise map of the challenge - and a clearer guide to effective action.

The evidence leaves little doubt about the stakes. Adults with low foundational skills face substantial disadvantages in employment, earnings, health and civic engagement. These are not temporary setbacks that disappear with age; they persist throughout the life course, accumulating into significant economic and social costs. The analysis suggests that helping adults reach at least medium levels of proficiency could generate meaningful gains across all these dimensions.

Yet here lies the central paradox of adult learning policy. The adults who stand to gain the most from improving their skills are often the least likely to participate in education and training. Barriers of confidence, awareness, time, language and access mean that many remain beyond the reach of conventional provision. Left unaddressed, this dynamic creates a self-reinforcing cycle in which skills gaps translate into fewer opportunities to acquire new skills, widening inequalities over time.

The implication is clear: a one-size-fits-all approach will not succeed. Adults with low foundational skills are not a homogeneous population, and policy responses must reflect that reality. Effective strategies need to be differentiated according to the depth of skills deficits, the domains in which they occur, and the role that migration and language background may play. They must also be proactive, bringing learning opportunities into workplaces, communities and everyday settings rather than relying on individuals to seek them out. Above all, they must be sustained. For adults facing significant foundational challenges, lasting progress rarely comes from short courses or isolated interventions. Building foundational skills is not a quick fix; it is a long-term investment in people, productivity and social inclusion.



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Executive Summary

One in three adults has weak foundational skills

Nearly one in three adults across OECD economies has low foundational skills in literacy or numeracy, according to the 2023 Survey of Adult Skills. In 11 of the 27 countries that participated in both Cycle 1 and Cycle 2 of the survey, the share of adults with low skills has increased significantly over the past decade. Only two countries recorded a reduction: Denmark and Finland.

Low foundational skills constrain employment opportunities, earnings, health, and participation in civic life. Adults with low foundational skills are around one-third less likely to be active in the labour market than those with medium proficiency. Among those in work, hourly earnings are around five dollars lower on average, with gaps exceeding ten dollars in Singapore and Switzerland. They report worse health, lower life satisfaction, and weaker trust in others and in institutions.

Adults with low foundational skills are not a homogeneous group

Two in three adults with low foundational skills perform poorly in both literacy and numeracy. However, a significant minority face deficits concentrated in one domain, highlighting the need for differentiated policy responses. In Austria, Czechia, Estonia, Latvia, Lithuania and Singapore, more than one in four adults with low skills are classified as such based on their literacy proficiency alone. In these contexts, low literacy may not reflect generalised cognitive disadvantage but rather be shaped by linguistic factors. In Canada, England (UK), Ireland, New Zealand, Sweden and the United States, the pattern reverses: numeracy deficits are more common than literacy deficits.

Most adults with low foundational skills can understand basic sentences, but what they lack is automaticity. Reading remains effortful rather than fluent, affecting confidence and engagement with written material in daily life and work. Four types of readers – fluent, effortful, surface and struggling – can be distinguished. These profiles are associated with labour market participation: among native-born adults, inactivity is ten percentage points higher among struggling readers than among fluent readers. Migrants are heavily over-represented amongst struggling readers: they account for 38% of struggling readers on average across OECD countries, rising to over 80% in Norway and Sweden.

Adult learning systems fail the people who need them most

The defining challenge of adult learning systems is the Matthew effect. Adults with the lowest skills are the least likely to engage in learning. They are held back by a combination of limited awareness of their own skill gaps, poor prior experiences of formal education, financial pressure, and employment in jobs that offer neither the time nor the encouragement to develop skills. Rates of participation in adult learning among adults with low skills are about half those of the rest of the population.

Passive adult learning provision - making courses available and advertising them - consistently fails this group. Active outreach through trusted intermediaries is the approach that works. Employers, trade unions, community organisations, healthcare providers, and social services are the channels through which hard-to-reach adults can be identified and engaged. Integrating foundational skills support into workplace settings - delivered free, interwoven with job-specific tasks, and at least partially protected from the pressures of foregone income - is among the most promising routes to scale.

Programme design also matters. Contextualised, sufficiently intensive provision consistently outperforms short, abstract instruction for adults with low skills. Sustained engagement over time is the condition for any meaningful progress. Flexible modular pathways and recognition of prior learning can make that investment compatible with the demands of family and working life.

The profile of the low-skilled population matters for policy

The cross-country evidence points to four distinct country profiles, differentiated by the prevalence, depth and nature of low foundational skills, each with its own policy logic. In *near-threshold countries* (Canada, Czechia, Croatia, Estonia, Hungary, Ireland, Italy, Japan, Korea, Lithuania, Poland, Slovak Republic, Spain, Sweden) the population of adults with low foundational skills is clustered just below medium proficiency and relatively homogeneous. The distance to travel is short, and well-targeted short-course upskilling is a viable primary lever. In *deep deficit* countries, the population is, on average, further from medium proficiency and more internally diverse (Chile, Denmark, Finland, the Flemish Region (Belgium), France, Germany, Israel, the Netherlands, Portugal). Chile faces both high prevalence and deep deficits; Finland, paradoxically, belongs to the same group, not because the problem is widespread, but because the small population with low skills faces severe disadvantage. In both cases, provision must be intensive, long-duration, and inseparable from a broader educational equity agenda.

Literacy gap countries - Austria, Latvia, Norway, Singapore and Switzerland - face what is in large part a language integration challenge. Rapid and sustained language acquisition support for newly arrived migrants and language minorities is the highest-return investment available. *Numeracy gap* countries, including England, New Zealand and the United States, face a different kind of challenge, one that appears to originate upstream in the quality and equity of compulsory mathematics education. Remedial adult provision can help at the margins, but no adult learning system can fully compensate for what initial schooling failed to deliver.

Independent of country profile, prevention is key. High-quality early childhood education and care is the highest long-run return investment available to most governments, particularly for children from disadvantaged families. Breaking the intergenerational transmission of low skills requires both reaching adults today and ensuring the next generation enters schooling with the preparation to succeed.

What the evidence requires from policymakers

Three conclusions follow from this evidence. First, the challenge of low foundational skills is large, growing, and consequential. It is a structural feature across modern economies. Second, the challenge differs fundamentally across countries and populations. Similar prevalence rates can mask entirely different problems, and generic policy responses are ill-equipped to address any of them well. Third, the principal failure of existing adult learning systems is the inability to reach those who would benefit most. Addressing this failure requires active outreach, provision designed around populations that will not reach the system on their own, and intensity matched to the scale of the deficit.

1 How many adults have low skills, and why does it matter?

This chapter documents the prevalence of adults with low foundational skills. It examines how the share of adults with low skills has changed over the past decade, and to what extent increases in this share reflect genuine skill deterioration. To evaluate how low skills affect individuals' lives, the chapter then looks at how these adults fare in terms of labour market participation, wages, self-reported health, life satisfaction, trust and civic engagement.

In Brief

How many adults have low foundational skills, and why does it matter?

- Across the 31 OECD countries and economies that participated in the 2023 Survey of Adult Skills, almost one in three adults displayed low foundational skills, scoring at or below Level 1 in either the literacy or the numeracy assessment. This share ranges from fewer than one in five adults in Finland, Japan, the Netherlands, Norway and Sweden to over three in five adults in Chile.
- In 11 of the 27 countries that participated in both Cycle 1 and Cycle 2 of PIAAC, the share of adults with low skills has increased significantly over the past decade (Austria, Czechia, Estonia, Hungary, Israel, Korea, Lithuania, New Zealand, Poland, the Slovak Republic and the United States). In most others, there has been no significant change. Only Denmark and Finland recorded a significant reduction in the share of adults with low foundational skills.
- This is partly due to underlying changes in the characteristics of the adult population: accounting for population ageing and the increase in the number of foreign-born adults, seven countries - Canada, Chile, Denmark, England (UK), Finland, Norway and Sweden - show underlying reductions in the share of adults with low skills.
- Three in ten adults with low foundational skills do not participate in the labour market, while this is the case for two in ten among adults with intermediate levels of skills (Level 2 and 3 on the PIAAC scale). When they participate in the labour market, adults with low foundational skills earn lower wages than those with medium proficiency (USD 5 less per hour on average). These gaps persist after accounting for age, gender and migration background. The adjusted wage gap is largest in Singapore and Switzerland: USD 10 or more.
- Adults with low foundational skills are markedly less likely to report good health or high life satisfaction. They also consistently report lower levels of interpersonal trust, and they are less likely to participate in volunteer activities.
- When it comes to political efficacy – the belief in one’s ability to influence political processes - the picture is less clear. On average, differences are modest - 16% of adults with low skills report high political efficacy, compared to 18% of those with medium skills. While in 11 countries adults with low skills are less likely to report high political efficacy than those with medium skills, the reverse is true in Israel and Poland.
- The evidence points to an opportunity: there are large returns to foundational skills at the transition from low to medium proficiency. Bringing adults across that threshold represents a point at which investment in foundational skills can yield substantial and wide-ranging individual and societal gains.

How are foundational skills assessed?

Through the Survey of Adult Skills, the OECD Programme for the International Assessment of Adult Competencies (PIAAC) conducts the only internationally comparable assessment of adults' proficiency in key information-processing skills that underpin effective participation in work, education, and society. The survey is conducted every ten years. Cycle 1 of the survey took place between 2011 and 2018, with 39 countries and economies participating over three rounds of data collection. Cycle 2 has undergone one round of data collection to date, in 2022-23 (hereafter referred to as the "2023 Survey of Adult Skills"), with the participation of 31 countries and economies. These data offer an empirical basis for comparing countries' human capital, monitoring changes over time and assessing the extent to which education and training systems equip adults with the skills required in increasingly complex and digitalised environments.

A core motivation of PIAAC has been to quantify the share of adults lacking the foundational skills needed for full participation in economic and social life. This remains a key policy concern across countries, given the strong links between weak foundational skills and poorer labour-market, learning, health, and civic outcomes, as well as heightened vulnerability to economic and technological change (OECD, 2024^[1]; Nedelkoska and Quintini, 2018^[2]). Reflecting this priority, a central use of PIAAC data has been to identify, support and raise the skill levels of adults with low foundational skills (OECD, 2025^[3]).

Assessing foundational skills

The 2023 Survey of Adult Skills assesses adults' proficiency in three core areas: literacy, numeracy, and adaptive problem solving (Table 1.1). Proficiency in each domain is reported on a continuous scale of score points. The scales have been divided into "proficiency levels" separated by score-point thresholds. Six proficiency levels are defined for literacy and numeracy (below Level 1 and Levels 1 to 5) and five for adaptive problem solving (below Level 1 and Levels 1 to 4). These reflect the ability to handle increasingly complex asks, moving from basic, familiar operations (below Level 1) to integrating and evaluating information from multiple sources (at Level 4 and 5).

Table 1.1. Foundational skill domains assessed in the 2023 Survey of Adult Skills

Domain	Definition
Literacy	Literacy is accessing, understanding, evaluating and reflecting on written texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society.
Numeracy	Numeracy is accessing, using and reasoning critically with mathematical content, information and ideas represented in multiple ways in order to engage in and manage the mathematical demands of a range of situations in adult life.
Adaptive problem solving (APS)	Adaptive problem solving involves the capacity to achieve one's goals in a dynamic situation, in which a method for reaching a solution is not immediately available. It requires engaging in cognitive and metacognitive processes to define the problem, search for information, and apply a solution in a variety of information environments and contexts.

Source: OECD (2024^[4]), Survey of Adult Skills – Reader's Companion: 2023, OECD Skills Studies, OECD Publishing, Paris

The Survey of Adult Skills is designed to assess the proficiency of all adults, including those with very low skill levels. Cycle 2 of the survey strengthened the measurement at this lower end of the proficiency distribution by expanding the use of component tasks. These tasks target adults with very weak foundational skills and assess the basic cognitive operations that underlie literacy and numeracy. In literacy, reading components capture essential decoding skills through sentence and passage comprehension tasks. Although reading components existed in Cycle 1, Cycle 2 integrated their results into the main literacy scale for the first time, thereby improving the precision of estimates at lower levels. A major innovation in Cycle 2 was the introduction of numeracy components. These tasks assess number sense, such as recognising quantities or identifying the largest number, and feed directly into the numeracy

proficiency scale. This allows very low numeracy levels to be measured more accurately. Data from the reading components are used in Chapter 2.

Together, these improvements provide a clearer picture of what adults with very low foundational skills can do and help identify profiles at the lower end of the skill distribution. As these components are now integrated into the main proficiency scales, estimates for adults who only completed components are based on more information than in Cycle 1, when results for a comparable group relied only on individual characteristics reported in the background questionnaire. However, this methodological change warrants caution when analysing trends over time for groups in which such adults are overrepresented. For more detail on comparability between cycles see also Chapter 6 in OECD (2024^[4]) and Chapter 3 in OECD (2024^[1]).

Defining adults with low skills

One of the core objectives of this report is to study adults with low foundational skills and explore how having low foundational skills affects their work and social lives. The foundational skills assessed in the Survey of Adults Skills are measured on a continuous scale. For the purposes of this report, the criterion adopted to identify and define adults with low skills is performance at or below Level 1 in either literacy or numeracy, as in Grotlüschen et al. (2016^[5]).¹ Adults performing at these levels typically struggle with tasks such as locating a single piece of explicitly stated information in short texts, understanding simple instructions, filling out basic forms, and carrying out calculations involving whole numbers and common measures. These are the kinds of skills that underpin routine workplace tasks, access to services and independent functioning in modern societies. This definition reflects the fact that both literacy and numeracy are essential for effective participation in the economy and society. Focusing only on adults who are weak in both domains would understate the size of the population facing meaningful barriers.

In this chapter, adults performing at Levels 2 or 3 in both literacy and numeracy (also referred to as adults with medium levels of skills) are used as the main comparison group. Adults with medium skills can understand, interpret, and use information from moderately complex texts, including multi-page documents, digital content, and simple tables or diagrams, often making inferences and disregarding irrelevant details. In numeracy, they can perform multi-step calculations, apply proportional reasoning, interpret graphs and tables, and evaluate quantitative claims in real-world contexts. These skills allow adults to function independently in work, training, and daily life, representing the threshold at which foundational skills support meaningful participation in society and the economy. Medium skills also represent a realistic and policy-relevant target. There are substantial returns to the transition from low to medium proficiency, and bringing adults to this level is a more achievable objective for adult learning systems than aiming for higher proficiency levels.

Table 1.2. How low and medium skills are defined in this report

Domain	Definition
Low skills	Performing at or below Level 1 in either literacy or numeracy
Medium skills	Performing at Level 2 or 3 in both literacy and numeracy

Objectives of this chapter

This chapter first asks how many adults have low foundational skills, whether the prevalence of low foundational skills has increased over time, and to what extent observed changes in the share of low-skilled adults are driven by demographic change. Second, it documents the economic penalties associated with low skills, particularly in terms of labour market attachment and wages, as well as social penalties, including on health, well-being, and civic participation.

How many adults have low foundational skills?

On average, almost one in three (31%) adults in OECD countries had low foundational skills in 2023. There is substantial variation even among countries with similar levels of development, with some having been more successful in ensuring that adults reach basic levels of literacy and numeracy (Table 1.3). In five countries – Finland, Japan, Norway, Sweden and the Netherlands – fewer than 20% of adults had low literacy or numeracy skills. At the other end of the spectrum, close to 50% or more of all adults had low foundational skills in Chile, Poland and Portugal. This highlights the severity of the challenges faced by some countries, as well as the potential to learn from the policies of countries where low skills are less prevalent.

Table 1.3. One in three adults has low foundational skills

Percentage of adults scoring at or below Level 1 in literacy or numeracy, by country, 2023

Share of adults with low skills (%)	Comparison country/economy	Countries/economies where the share of adults with low skills is not statistically significantly different from the comparison country/economy
13	Japan	
15	Finland	Sweden
15	Sweden	Finland, Norway
17	Norway	Netherlands, Sweden
19	Netherlands	Denmark, Norway
20	Denmark	Flemish Region (Belgium), Netherlands
22	Flemish Region (Belgium)	Denmark, England (UK), Estonia
23	Estonia	Flemish Region (BE), England (UK)
24	England (UK)	Flemish Region (BE), Canada, Switzerland, Germany, Estonia
24	Canada	Switzerland, Germany, England (UK)
25	Switzerland	Canada, Germany, England (UK)
26	Germany	Canada, Switzerland, England (UK)
29	Slovak Republic	Czechia, Ireland
29	Czechia	Ireland, Slovak Republic
29	Ireland	Austria, Czechia, New Zealand, Slovak Republic
31	OECD average	Austria, Croatia, Ireland, New Zealand, Singapore, Slovak Republic
32	Austria	France, Croatia, Ireland, New Zealand, Singapore
32	Singapore	Austria, France, Croatia, New Zealand
33	New Zealand	Austria, France, Croatia, Ireland, Singapore
33	France	Austria, Croatia, New Zealand, Singapore
33	Croatia	Austria, France, Korea, Latvia, New Zealand, Singapore, United States
37	Latvia	Spain, Croatia, Hungary, Korea, United States
37	Korea	Spain, Croatia, Hungary, Latvia, United States
37	United States	Spain, Croatia, Hungary, Korea, Latvia
37	Hungary	Spain, Korea, Latvia, United States
37	Spain	Hungary, Korea, Latvia, United States
42	Italy	Israel, Lithuania
43	Israel	Italy, Lithuania
44	Lithuania	Israel, Italy
48	Poland	Portugal
48	Portugal	Poland
61	Chile	

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.1

How do doorstep respondents affect the share of adults with low skills?

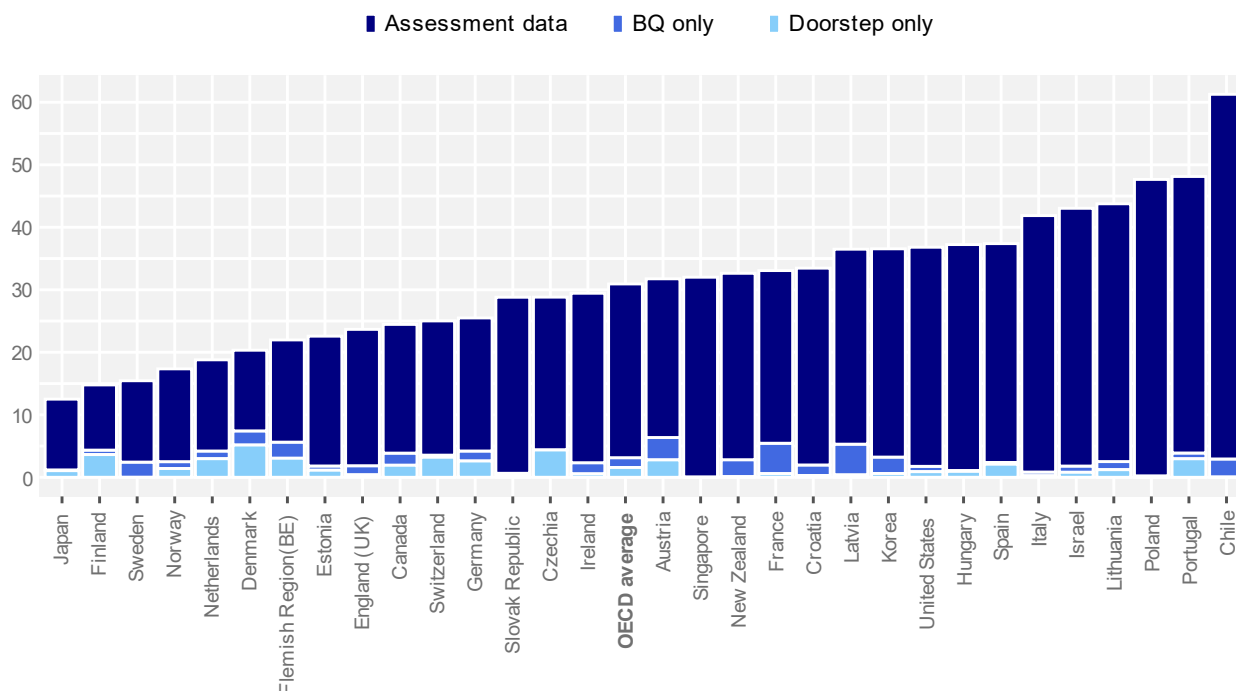
In Cycle 1, adults who were unable to complete the background questionnaire due to language barriers were designated as literacy-related non-respondents, received no proficiency estimates, and were effectively excluded from the sample. In most countries, this group was small, but in several it exceeded 5% of respondents (OECD, 2019^[6]). Their systematic exclusion in Cycle 1 meant that proficiency estimates understated the share of adults at the very bottom of the skills distribution in countries with significant language-minority or recently arrived migrant populations.

A key change in Cycle 2 was the introduction of a doorstep interview: a short tablet-based questionnaire available in 43 languages, designed to capture basic demographic and socio-economic information from adults who could not engage with the full assessment (Box 1.1, see also OECD (2024^[4])).² Proficiency estimates were then generated for these respondents based on their background characteristics, allowing them to be placed on the PIAAC scale.³

The inclusion of these respondents in Cycle 2 has direct implications for the measurement of low skills. Since doorstep respondents are almost all located at the bottom of the proficiency distribution, their addition to the sample increases the measured share of adults with low skills. On average across OECD countries, doorstep respondents account for 1.6 percentage points of the 31% low-skill prevalence rate. A separate group - adults who completed the background questionnaire but not the cognitive assessment - accounts for a further 1.6 percentage points.⁴ Together, these two groups contribute 3.1 percentage points to the OECD average low-skill prevalence rate, with the remaining 27.8 percentage points coming from adults who completed the assessment (Figure 1.1).

Figure 1.1. Most low-skill prevalence is driven by adults who completed the full assessment

Percentage of adults scoring at or below Level 1 in literacy or numeracy, by assessment participation mode, 2023



Note: All respondents, including participants taking the doorstep interview only; the background questionnaire (BQ) only and those taking the full assessment

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.3

The contribution of doorstep respondents to low-skill prevalence varies considerably across countries. In most countries, it is below 2 percentage points. It is largest in Denmark (5.2 percentage points), Czechia (4.4 points) and Finland (3.6 points). In Chile, Poland, Sweden and Singapore it is zero or close to zero. Background-questionnaire-only respondents add most to measured prevalence in France (4.9 percentage points), Latvia (4.9 points) and Austria (3.6 points), reflecting country-specific patterns in assessment non-completion.

Box 1.1. The doorstep interview in the 2023 Survey of Adult Skills

Across participating countries, 1.7% of respondents completed the doorstep interview. No doorstep interviews were conducted in Sweden, where the systematic use of interpreters enabled full participation in the background questionnaire, and in Singapore. The highest shares of doorstep respondents were observed in Denmark (5.3%), Czechia (4.5%) and Finland (3.7%).

Doorstep respondents are a distinct group within the surveyed population. 91% were born outside the country where the survey was conducted, compared with 15% of adults who completed the regular background questionnaire - a contrast that reflects the central role of language barriers in limiting participation. The share born abroad varies across countries but is high throughout, ranging from 100% in Hungary and Norway to 65% in Korea. Recent arrival is another defining feature: among migrant doorstep respondents, only 49% had lived in the host country for more than five years, compared with 80% of migrants who completed the full assessment.

Educational profiles are more varied than might be expected: a higher-than-average share has very low formal education, but 31% have attained ISCED Level 4 or above. More than 50% hold a qualification at ISCED Level 4 or above – meaning at least a post-secondary qualification – in Estonia, Finland, Hungary, the Flemish Region of Belgium and the Netherlands, but only 2% do in Italy. This indicates that exclusion from the full assessment reflects language barriers rather than educational disadvantages in many contexts.

Labour market disadvantage is more consistent: doorstep respondents are less likely to be in full-time employment (48% versus 57%) and twice as likely to be unemployed (12% versus 6%), patterns that hold across all participating countries.

In sum, the doorstep instrument disproportionately captures adults in the early stages of arrival, for whom language acquisition and labour market integration are still in progress.

Source: Annex Tables A.1.2 and A.1.4.

Are there more adults with low skills than a decade ago?

In 11 of the 27 countries that participated in both Cycle 1 and Cycle 2 of the Survey of Adult Skills, the share of adults with low skills has increased significantly over the past decade. In most of the remaining countries, there has been no significant change, while two recorded a significant decline. To ensure comparability across cycles, this analysis excludes adults who completed only the doorstep interview, as no equivalent group exists in Cycle 1 data.⁵

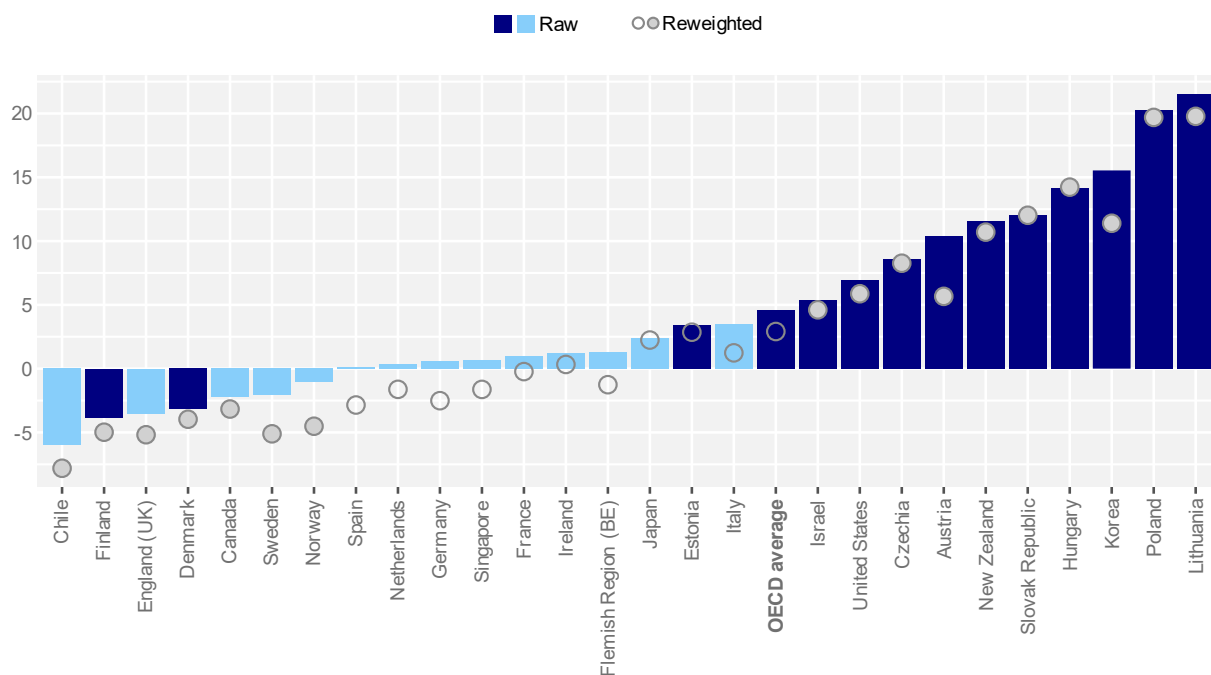
From a policy perspective, the key question is whether this trend reflects a deterioration in adults' skills or is primarily driven by changes in the demographic composition of the adult population. A simple comparison of the share of adults with low skills in Cycle 1 and Cycle 2 shows that only two countries – Denmark and Finland - have experienced a statistically significant reduction over the decade (Figure 1.2). At the other

end of the spectrum, statistically significant increases were observed in Austria, Czechia, Estonia, Hungary, Israel, Korea, Lithuania, New Zealand, Poland, the Slovak Republic and the United States. Among these, Austria, Hungary, Korea, Lithuania, New Zealand, Poland and the Slovak Republic saw the largest increases with over 10 percentage points. In the remaining countries, changes in either direction are not statistically significant. Taken at face value, these results suggest broad-based weakening of skills in many countries, but these raw figures do not account for the possibility that changes in the age structure and migration background of the adult population between cycles may be driving the observed trend.

The interpretation of trends changes markedly once differences in population structure across cycles are considered. When Cycle 2 data are reweighted to reflect the demographic composition of Cycle 1, seven countries – Canada, Chile, Denmark, England (UK), Finland, Norway and Sweden – show statistically significant declines in the prevalence of low skills. In several of these cases, unadjusted estimates pointed to stagnation or modest deterioration. However, the reweighted results suggest that improvements in foundational skills were occurring within comparable population groups, but that these gains were offset by shifts in age distribution and migration patterns at the aggregate level. For instance, older adults, who generally have lower skill levels, may have represented a larger proportion of the population in Cycle 2. If one holds this proportion constant, it becomes apparent that skill levels within age groups were indeed improving.

Figure 1.2. The share of adults with low foundational skills has increased in many countries

Percentage-point change in the share of adults scoring at or below 1 in literacy or numeracy, raw and reweighted, Cycle 1 to Cycle 2



Note: Low literacy and numeracy skills are defined as at or below Level 1; Cycle 2 data is reweighted to match the distribution of Cycle 1 with regards to age, gender and migration background; excludes doorstep respondents

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.5

This highlights the importance of accounting for demographic change when assessing skill trends over time. In Austria, for example, a raw increase of around ten percentage points is reduced to approximately

six percentage points once demographic change is accounted for. In Norway and Sweden, where raw changes are not statistically significant, reweighting reduces the share of adults with low skills by around five percentage points. However, for Czechia, Hungary, and the Slovak Republic, reweighting makes little difference to the estimated increase, indicating that demographic change explains almost none of the deterioration observed and that these countries have experienced a genuine, broad-based weakening of foundational skills between Cycle 1 and Cycle 2 of the Survey of Adult Skills.

The aggregate picture is therefore shaped as much by who is in the population as by how skills within groups are changing. Interpreting national skill profiles without accounting for demographic context risks conflating population composition with education and training system performance.

Box 1.2 Comparability between Cycle 1 and Cycle 2 of PIAAC

Cycle 1 was conducted in three rounds between 2011 and 2018 across 39 countries, with around 245 000 adults interviewed, representing approximately 1.15 billion people. Cycle 2 has so far been implemented in 31 countries and economies, with the first round of data collection carried out in 2022-23, representing approximately 673 million adults worldwide.

In designing Cycle 2, substantial efforts were made to preserve comparability with Cycle 1. Survey operations, sampling strategies and field procedures remained largely unchanged, and the background questionnaire and core literacy and numeracy assessments retained many items from Cycle 1. These shared “trend items” provide the psychometric basis for placing results from both cycles on a common scale, with uncertainty from changes in the assessment explicitly accounted for through a linking error.

At the same time, several methodological innovations were introduced to improve the relevance, coverage and inclusiveness of the assessment. The literacy and numeracy frameworks were updated to better reflect the increased role of digital information and tasks in everyday life, resulting in assessments that are comparable but not identical across cycles. Cycle 2 also incorporated results from literacy and numeracy component assessments into proficiency estimates for adults at the very bottom of the skills distribution, improving measurement precision for this group while complicating comparisons for certain subpopulations. In addition, the assessment moved fully to tablet-based delivery, and a new multilingual “doorstep interview” was introduced to reduce literacy-related non-response among adults unable to complete the main survey.

These improvements strengthen the overall quality and coverage of Cycle 2 results, but they also imply that changes over time should be interpreted with care. Comparisons across cycles are most robust when they focus on broad population patterns and account for demographic change, measurement uncertainty and methodological updates, rather than small differences in point estimates or subgroup trends that may be sensitive to these design changes.

Source: OECD (2024^[1]).

What are the economic and non-economic consequences of low skills?

The sections that follow examine how having low foundational skills is associated with a range of economic and non-economic outcomes, comparing adults with low proficiency to those with medium proficiency. This comparison is made as medium proficiency represents a realistic and policy-relevant threshold, reflecting the level at which foundational skills allow for independent functioning in work, learning and daily life. The gap between low and medium proficiency therefore provides an empirical indication of the outcomes associated with crossing that threshold, without implying that higher proficiency carries no further returns.

Economic outcomes of adults with low skills

The labour market consequences of low foundational skills operate through two distinct channels: the likelihood of being employed, and the terms on which employment is obtained. As low skills are closely linked to lower qualifications, the associated economic penalties also partly reflect the lower returns to formal educational attainment.

The analysis that follows examines inactivity, unemployment and wages in turn, drawing on comparisons between adults with low and medium proficiency.

Inactivity and unemployment

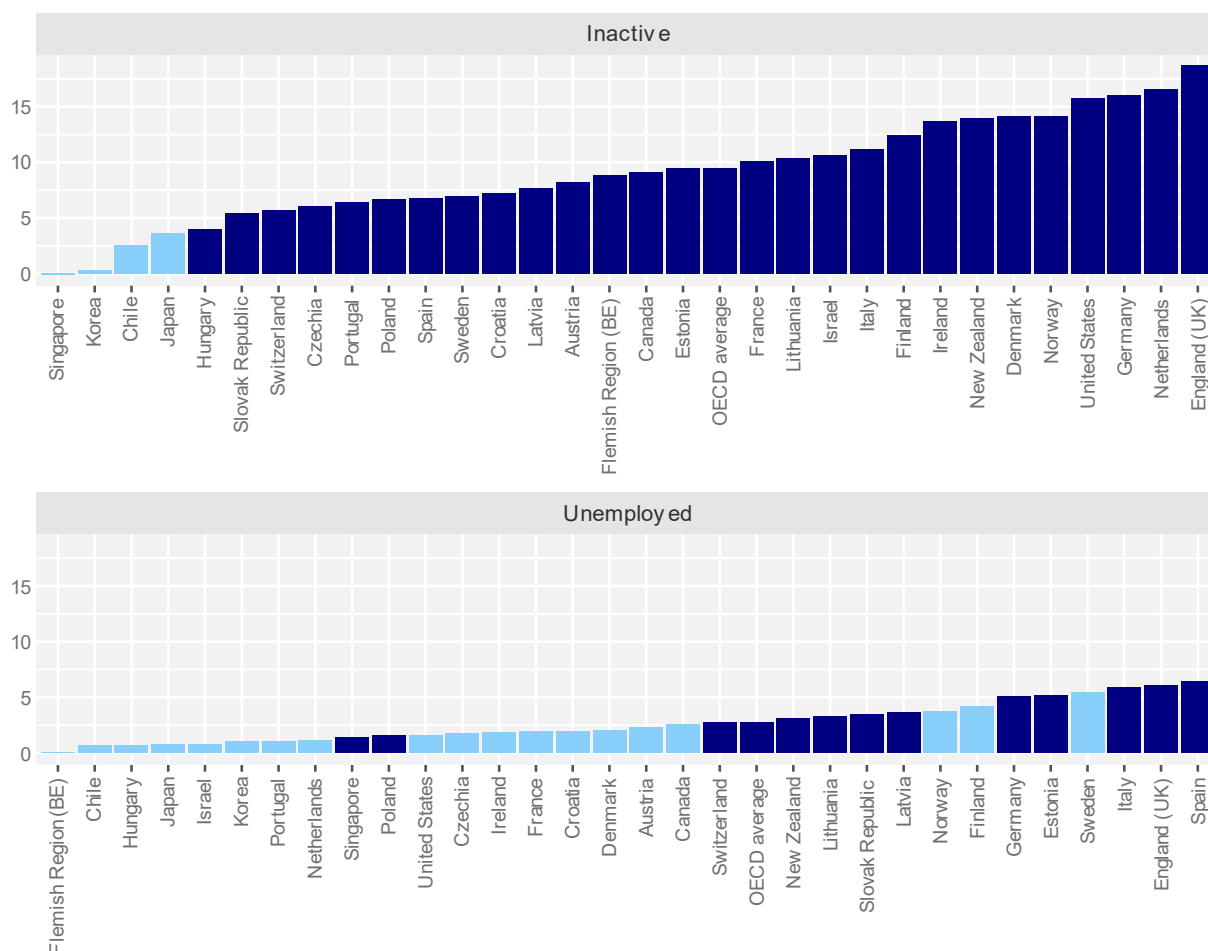
Across OECD countries, adults with low skills are substantially more likely to be inactive than those with medium skills. Inactivity encompasses adults who are neither employed nor actively seeking work. It includes adults who have withdrawn due to discouragement, health limitations, caregiving responsibilities, a lack of skills that employers value or retirement. The relationship between low foundational skills and inactivity is bidirectional: limited skills reduce labour market participation, while a lack of participation hinders skill development. On average, around 30% of adults with low skills are inactive in the labour market, compared to around 19% of those with medium skills.

In 27 out of 31 countries, there is a statistically significant difference in the adjusted inactivity rates⁶ between adults with low skills and adults with medium skills (Figure 1.3). No significant differences are observed in four countries – Chile, Japan, Korea and Singapore. The largest adjusted differences between adults with low and medium skills are observed in England (UK), Germany, the Netherlands and the United States. In these countries, the difference in inactivity rates between the two groups exceeds 15 percentage points, with adults in the medium-skilled category being approximately half as likely to be inactive.

Although skill-related differences in unemployment rates exist, they are less pronounced and less consistently significant than the differences observed for inactivity (Figure 1.3). On average, around 8% of adults with low skills are unemployed, compared to approximately 5% of those with medium skills. However, unemployment gaps are only statistically significant in 12 out of 31 countries. One possible explanation for this is that many countries were experiencing historically tight labour markets with low unemployment rates across all skill groups at the time the data was collected. The largest adjusted differences in unemployment rates between adults with low and medium skills are observed in England (UK), Estonia, Germany, Italy and Spain, where they exceed five percentage points.

Figure 1.3. Adults with low skills are far more likely to be inactive than those with medium skills

Adjusted difference in inactivity and unemployment rates between adults with low and medium foundational skills, percentage points, 2023



Note: Low skills are defined as having at most Level 1 proficiency in literacy or numeracy; medium skills are defined as having Level 2 or Level 3 proficiency in literacy and numeracy; adjustments were made for age, gender and migration background; dark bars indicate differences that are statistically significant at the 5% level

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.6

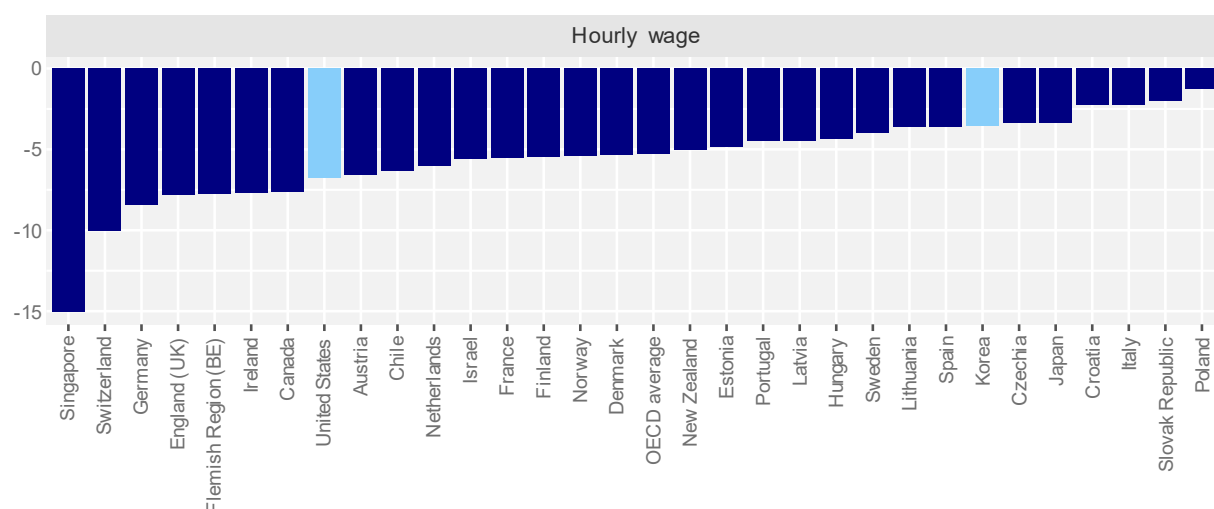
Wages

There are pronounced and consistent wage disparities between low- and medium-skilled adults across countries. On average, adults with low skills earn USD 20.5 per hour, compared to USD 25.5 for those with medium skills (see Annex Table A1.7). While absolute wage levels vary widely - from USD 10 per hour for adults with low skills in Chile to USD 32 in Denmark - adults with medium skills earn more than those with low skills everywhere. The gap between the two groups is particularly large in Chile and Singapore, where those with medium skills earn over 50% more than their peers with low skills. Even in Poland, where the difference between both groups is smallest, adults with medium skills earn 8% more per hour.

The largest adjusted wage difference exceeds USD 10 per hour in Singapore and Switzerland (Figure 1.4). By contrast, the difference is USD 2 or less in Croatia, Italy, Poland, and the Slovak Republic. After adjusting for differences in age, gender and migration background, no significant wage gap between adults with low and medium skills is observed in Korea and the United States. These findings suggest that the extent to which employers reward skills varies considerably across countries. While countries with more dispersed wage distributions often exhibit larger skill-related gaps, this alone cannot explain cross-country variation. For instance, Switzerland has one of the largest adjusted wage differences despite its relatively compressed wage structure. The influence of wage-setting institutions, occupational composition, sectoral specialisation and differences in the demand for skills on the wage returns associated with foundational skills is also likely.

Figure 1.4. The wage penalty for low skills exceeds USD 10 per hour in some countries

Adjusted difference in hourly wages (USD PPP) between adults with low and medium foundational skills, by country, 2023



Note: Low skills are defined as having at most Level 1 proficiency in literacy or numeracy; medium skills are defined as having Level 2 or Level 3 proficiency in literacy and numeracy; adjustments were made for age, gender and migration background; dark bars indicate differences that are statistically significant at the 5% level

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.7

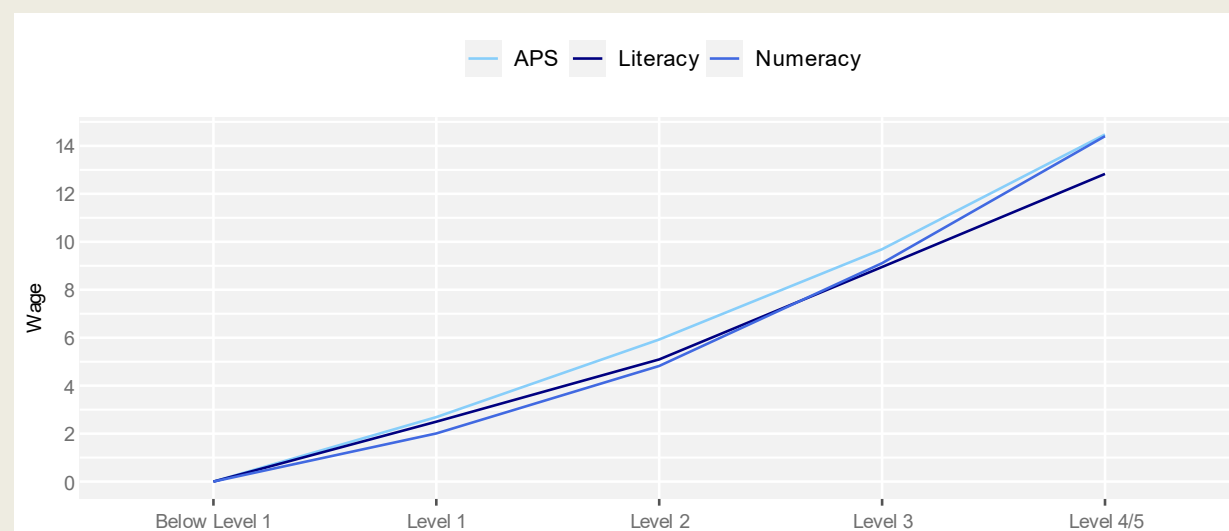
Box 1.3. Wage gradients for proficiency in literacy, numeracy and adaptive problem solving

The wage premium associated with medium proficiency relative to low proficiency represents only part of the return to foundational skills. Examining wage gradients across the full proficiency distribution reveals that returns continue at higher levels, though their structure differs across domains (Figure 1.5). In literacy, the steepest wage increase occurs between Levels 2 and 3, with more moderate gains above that threshold. Numeracy shows a steeper upward gradient, with notably higher returns at the top of the distribution, suggesting that advanced quantitative skills carry a distinct labour market premium. Adaptive problem solving shows the flattest profile, with more gradual wage increases across levels.

In sum, there is a substantial increase in wages when moving from low to medium skills and this increase continues at higher proficiency levels, especially for numeracy.

Figure 1.5. Returns to foundational skills continue beyond medium proficiency

Hourly wage premium (USD PPP) by proficiency level in literacy, numeracy and adaptive problem solving, relative to below Level 1, OECD average, 2023



Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.8

Non-economic outcomes of adults with low skills

The economic penalties associated with low foundational skills are substantial, but they do not capture the full extent of the disadvantage experienced by affected adults. Literacy and numeracy are also closely associated with how adults navigate health systems, engage with public institutions, and participate in community life. This section exploits information collected in the Survey of Adult Skills on two clusters of non-economic outcomes: well-being, comprising life satisfaction and self-reported health, and civic engagement, comprising political efficacy, interpersonal trust, and volunteering.

Box 1.4. Measuring non-economic outcomes in the 2023 Survey of Adult Skills

The 2023 Survey of Adult Skills collected data on five non-economic outcomes: political efficacy, interpersonal trust, volunteering, self-reported health and life satisfaction. Some measures were retained from Cycle 1, while others were introduced or modified:

- **Life satisfaction:** Respondents rated their overall life satisfaction on a scale from 0 (extremely dissatisfied) to 10 (extremely satisfied). For this report, scores of 7 or above are classified as high life satisfaction. On average, 75% of respondents across participating OECD countries and economies fall into this category.
- **Self-reported health:** Respondents assessed their health on a five-point Likert scale (excellent, very good, good, fair or poor). Responses of “very good” or “excellent” are considered a positive health outcome. On average, 41% of adults report such levels of health.
- **Political efficacy:** Respondents indicated, on a scale from 0 to 10, the extent to which they feel that people “like them” have a say in what government does. Scores of 7 or higher are categorised as high political efficacy; on average, 19% of adults fall in this category.
- **Interpersonal trust:** Respondents rated their position on a scale from 0 (“you can’t be too careful”) to 10 (“most people can be trusted”). Scores of 7 or above are classified as high trust. On average, 36% of adults report high levels of trust.
- **Volunteering:** Participation is measured on a five-point frequency scale (never; less than once a month; at least once a month but less than once a week; at least once a week but not daily; every day). For analytical purposes, any reported volunteering activity in the past year is counted towards the outcome. On average, 32% of adults report some level of engagement.

Source: OECD (2024^[1]).

Well-being

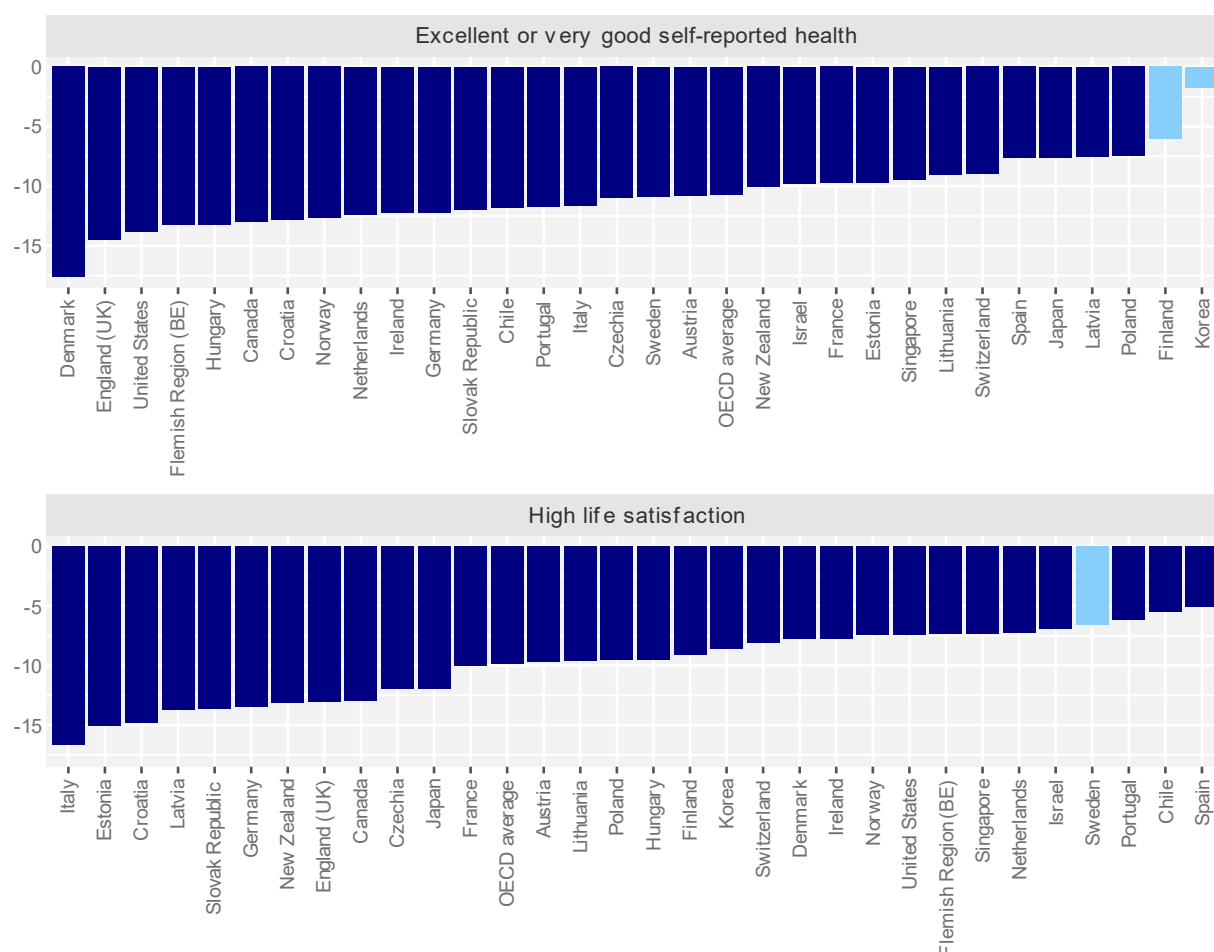
A substantial body of research links higher levels of education and cognitive skills to healthier behaviours, more effective use of healthcare services and longer life expectancy (Carneiro, Crawford and Goodmann, 2007^[7]; Deming, 2009^[8]; Kakarmath et al., 2018^[9]).⁷ However, the relationship between skills and well-being is also influenced by differences in the demographic composition of skill groups. Adults with low foundational skills are disproportionately likely to be older or have a migration background (see also Chapter 3), characteristics that may independently affect health outcomes and well-being. More broadly, well-being is shaped by a wide range of factors beyond skills, including family and household circumstances, social connections, physical and mental health, employment conditions, and financial security. Differences in well-being across skill groups therefore reflect not only disparities in skills themselves, but also the broader economic and social environments in which individuals live.

Across OECD countries, adults with low skills are markedly less likely to report being in very good or excellent health than those with medium proficiency.⁸ On average, 33% of adults with low skills report very good or excellent health, compared to 47% of adults with medium skills. The cross-country variation is substantial. Among adults with low skills, the share ranges from 12% in Latvia to 63% in Israel. Among medium-skilled adults, it ranges from 21% in Korea to 78% in Israel. These differences persist after accounting for age, gender and migration background and are statistically significant in most countries (Figure 1.6). The difference in adjusted self-reported health outcomes is largest in Denmark: 18 percentage points. By contrast, there are not significant differences between groups in Finland and Korea.

A similar pattern emerges for life satisfaction. On average, 67% of adults with low skills report high life satisfaction, compared to 77% of those with medium skills. Cross-country differences are again wide. Among adults with low skills, more than 80% report high life satisfaction in Denmark and Finland, compared with only 38% in Japan. Among medium-skilled adults, shares above 85% are observed in Finland, the Netherlands and Switzerland. Adjusted gaps in life satisfaction also vary between countries (Figure 1.6). Differences exceeding 15 percentage points are observed in Estonia and Italy, whereas no significant differences in life satisfaction between adults with low and medium skills are found in Sweden.

Figure 1.6. Adults with low skills report worse health and lower life satisfaction in most countries

Adjusted differences in shares reporting very good/excellent health and high life satisfaction between adults with low and medium foundational skills; percentage points, 2023



Note: Low skills are defined as having at most Level 1 proficiency in literacy or numeracy; medium skills are defined as having Level 2 or Level 3 proficiency in literacy and numeracy; adjustments were made for age, gender and migration background; dark bars indicate differences that are statistically significant at the 5% level

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.9

Overall, moving beyond the lowest proficiency levels is associated with better self-reported health and higher life satisfaction. In most countries, these associations remain statistically significant after accounting for differences in age, gender and migration background. However, the magnitude of the relationship varies considerably across countries. These cross-country patterns should be interpreted with caution. Smaller

gaps may reflect more equal distributions of well-being across skill groups, but they may also partly result from differences in reporting behaviour. This may be particularly relevant for self-reported health measures in countries such as Korea, where cultural norms can influence response patterns. Taken together, the findings suggest that while skill proficiency is consistently associated with health and well-being outcomes, the strength of this relationship depends on the broader institutional, social and economic context in which individuals live.

Civic engagement

Evidence from Cycle 1 of PIAAC showed that trust is positively associated with educational attainment and literacy proficiency. Subsequent research suggests that education can foster the cognitive and social abilities necessary for establishing and maintaining trust (Borgonovi and Burns, 2015^[10]; Borgonovi and Pokropek, 2022^[11]). Information-processing skills have also been linked to political efficacy, though this appears weaker in contexts characterised by a strong rule of law and low perceived corruption (Borgonovi and Pokropek, 2017^[12]). These findings suggest that foundational skills may be connected not only to economic and personal well-being, but also to civic attitudes and behaviours. At the same time, these outcomes are also shaped by the characteristics of the populations with low skills themselves - including age, migration background, and socio-economic conditions - as discussed in Chapter 3.

This section examines three indicators from the 2023 Survey of Adult Skills: political efficacy, interpersonal trust, and volunteering. As with other self-reported measures, responses may reflect contextual and cultural factors. However, comparisons between adults with low and medium skills within countries provide insight into how foundational skills are associated with civic engagement.

On average across OECD countries, differences in reported political efficacy between adults with low and medium skills are modest. Around 16% of adults with low skills report high political efficacy, compared to 18% of those with medium skills. This small average gap reflects variation between countries. In 11 countries, adults with low foundational skills report significantly lower levels of political efficacy than those with medium skills. The largest gaps observed in the Czechia, Japan and Switzerland (Figure 1.7). In two countries – Israel and Poland – adults with low skills are significantly more likely than those with medium skills to report high political efficacy. This pattern, also observed in previous OECD reports (OECD, 2024^[11]), highlights that the relationship between skills and perceived political influence is not consistently positive. Institutional trust, political culture, and perceptions of fairness may influence how skills translate into feelings of efficacy.

The link between skills and interpersonal trust is clearer. On average, 25% of adults with low skills report high levels of trust, compared to 35% of those with medium skills. Close to one in two adults with low foundational skills reports high levels of trust in Finland, Korea and Norway, whereas in Chile that number is less than one in ten. Amongst adults with medium skills, highest levels of trust are reported in Denmark, Finland and Norway. After adjusting for age, gender and migration background, substantial and significant gaps remain in many countries. The largest adjusted difference, by a vast margin, is observed in Denmark (26 percentage points). No significant differences between adults with low and medium foundational skills are found in Japan, Korea, Poland and the Slovak Republic (Figure 1.7). Overall, trust shows a more consistently linear relationship with skill level than political efficacy. Two mechanisms may contribute to this pattern: adults with low skills may live in social environments where trust is less prevalent, and foundational skills may support the interpersonal capacities – reading social cues, communicating across difference – that sustain trust. The data do not allow these explanations to be distinguished, and both may operate simultaneously.

The level of engagement in voluntary activities also differs according to skill level. On average, 23% of adults with low skills report participating in volunteering activities, compared to 33% of those with medium skills. Among adults with low skills, volunteering rates exceed one in three in Finland, New Zealand, Norway and the United States. The highest participation rates among medium-skilled adults are observed

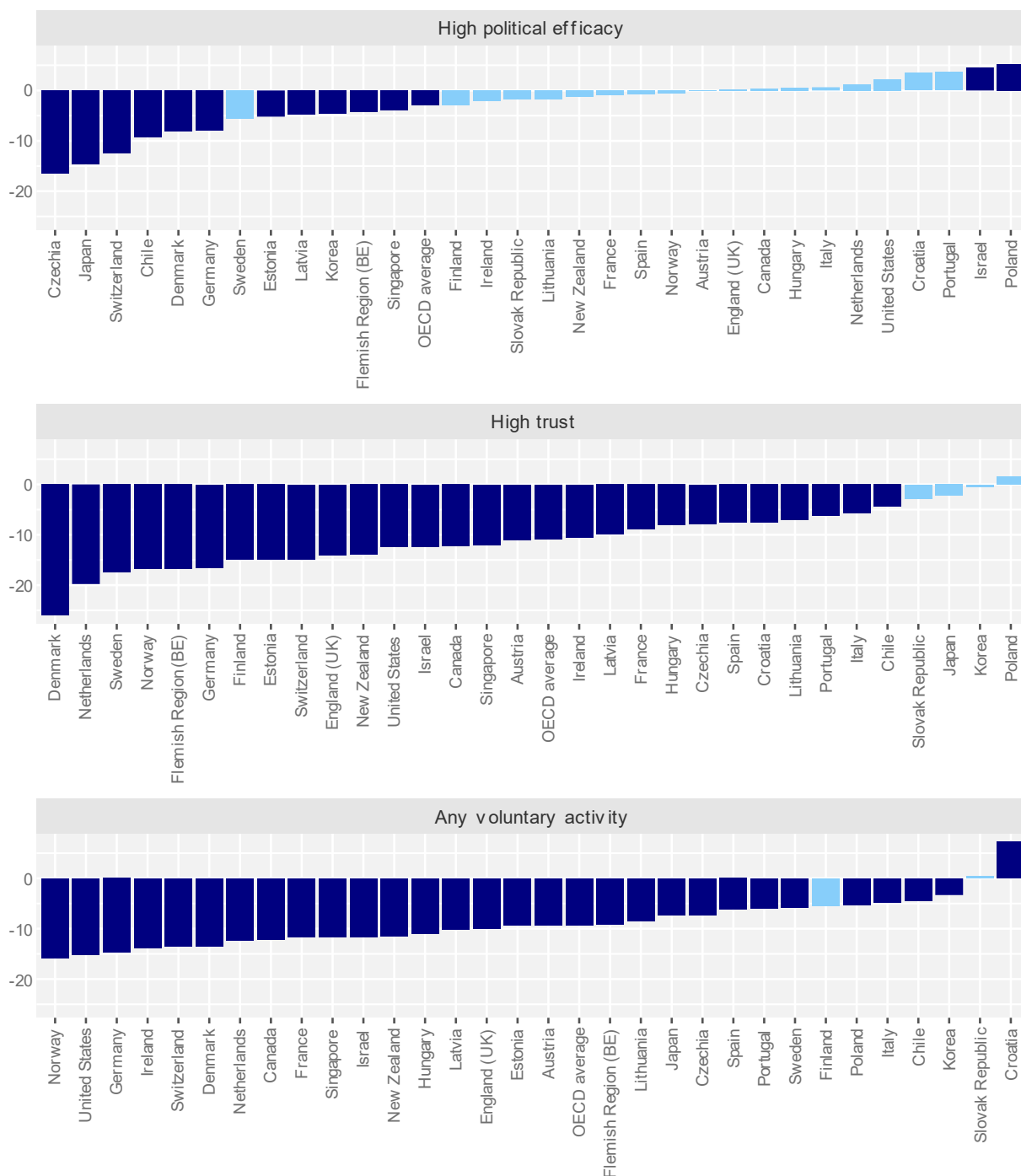
in New Zealand, Norway and the United States. The largest adjusted differences between groups are observed in Germany, Norway and the United States, where adults with medium skills are over 15 percentage points more likely to volunteer than their peers with low skills (Figure 1.7). In contrast, there is no difference in volunteering between skill groups in Finland and the Slovak Republic. Notably, Croatia presents an exception: adults with medium skills are around 7 percentage points less likely to report volunteering than those with low skills.

Taken together, foundational skills are positively associated with interpersonal trust and volunteering across most countries, but the relationship with political efficacy is inverted in several cases. Trust and volunteering are behaviours that tend to be reinforced by social networks, workplace integration and community participation, all of which are more accessible to adults with stronger skills and more stable labour market attachment. This is consistent with a broader literature linking education and literacy to social capital accumulation: stronger skills support the repeated cooperative interactions through which generalised trust develops (Putnam, 2000^[13]) and enable more confident engagement with voluntary associations (Verba, Schlozman and Brady, 1995^[14]). Using PIAAC data from Cycle 1, Borgonovi and Burns (2015^[10]) show directly that literacy strengthens interpersonal trust both through its cognitive effects and indirectly through workplace and social habits.

Political efficacy, by contrast, reflects perceived influence over government, which is shaped as much by institutional design, political culture and perceived fairness as by individual capability. The observed pattern is difficult to interpret. In contexts where political institutions are perceived as responsive, adults across the skills distribution may feel a degree of political influence, which could explain why adults with low skills in some countries report efficacy levels comparable to or exceeding those of medium-skilled peers. An alternative reading is that higher reported efficacy among adults with low skills in certain countries reflects limited capacity to assess the extent to which political processes represent their interests rather than meaningful civic empowerment. The data do not allow these interpretations to be distinguished.

Figure 1.7. Low skills are associated with lower trust and volunteering in most countries, but not always with lower political efficacy

Adjusted difference in shares reporting high interpersonal trust, high political efficacy and any volunteering between adults with low and medium foundational skills, percentage points, 2023



Note: Low skills are defined as having at most Level 1 proficiency in literacy or numeracy; medium skills are defined as having Level 2 or Level 3 proficiency in literacy and numeracy; adjustments were made for age, gender and migration background, dark bars indicate differences that are statistically significant at the 5% level

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.10

Table 1.4. How many adults have low skills, and why does it matter? Chapter 1 Annex tables

Figure	Title
Table A.1.1	Percentage of adults with low foundational skills
Table A.1.2	Percentage of doorstep respondents and distribution of regular respondents into assessment paths
Table A.1.3	Percentage of respondents with low foundational skills across the different assessment paths
Table A.1.4	Socio demographic characteristics of background questionnaire and doorstep respondents
Table A.1.5	Trends in the percentage of adults with low foundational skills
Table A.1.6	Differences in employment and inactivity between low and medium foundational skills
Table A.1.7	Differences in hourly wage between low and medium foundational skills
Table A.1.8	Hourly wage by proficiency levels
Table A.1.9	Differences in life satisfaction and self-reported health between low and medium foundational skills
Table A.1.10	Differences in political efficacy, social trust and volunteering between low and medium foundational skills

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Notes

¹ Alternative definitions used in international and national PIAAC reports include: ‘Low-performing adults’ as those who score at the two lowest levels in all skills domains (OECD, 2024^[1]; Bundesamt für Statistik, 2025^[15]).

² The doorstep interview was available in the official languages of all 31 countries and economies participating in the survey, as well as the languages of the most important linguistic minorities in each country.

³ Doorstep respondents do not pass any cognitive assessment because they do not speak the language of the test well enough. Only background characteristics are collected. Their proficiency is therefore imputed based on these, taking the performance of respondents who only took the components in the direct assessment (path 1) as a reference. This group has overwhelmingly low skills.

⁴ For adults who did not participate in the assessment but completed the background questionnaire, proficiency values were imputed based on a range of background characteristics. The background questionnaire was administered by an interviewer, while the cognitive assessment was self-administered on a tablet in the interviewer’s presence. In most countries, the background questionnaire and assessment were conducted in the same language; exceptions include Sweden, which allowed the use of translators for the background questionnaire, and Norway and the United States, which offered the background

questionnaire in additional languages. There are several reasons why some respondents did not proceed to the assessment, including limited proficiency in the assessment language and insufficient digital skills to complete the tablet-based test.

⁵ It should be noted that Denmark had an exceptionally high number of doorstep interviews in Cycle 2, due to the decision to oversample the immigrant population. These doorstep interviews are excluded from the trend comparison, and the trend comparison is solely based on individuals who completed the background questionnaire and/or the assessment. This should be taken into account when comparing the results of both cycles for Denmark.

⁶ The analysis accounts for differences in age, gender, and migration background between low and medium skills adults.

⁷ The 2023 Survey of Adult Skills includes information on self-reported health and life satisfaction. Because both measures rely on self-assessments, cross-country comparisons should be interpreted with caution, as cultural response patterns may influence how individuals rate their well-being. Differences observed within countries between adults with low and medium skills, however, are less likely to reflect such reporting biases and provide more robust evidence on the association between foundational skills and well-being.

⁸ Job characteristics also shape health outcomes: adults with low foundational skills are more likely to work in higher-risk occupations than those with higher skills.

2 Do countries face different low-skill challenges?

This chapter examines the nature and the depth of skills deficits across the adult population. It characterises what adults with low foundational skills can do, it analyses how skill deficits are distributed across domains, how deep they are within the proficiency distribution, and attempts to identify groups of countries facing different configurations of low-skills challenges.

In Brief

Do countries face different low-skill challenges?

- Adults with low foundational skills do not constitute a uniform group. Two in three perform weakly in both literacy and numeracy, but a significant minority display deficits in a single domain only. In Austria, Czechia, Estonia, Latvia, Lithuania and Singapore around one in four adults with low skills is classified as such based on literacy alone. This pattern can be plausibly linked to language barriers in several of these countries.
- Most adults with low skills can understand basic sentences: they answer most sentence comprehension items correctly. What they lack is not the absence of basic reading competence but its reliability and speed: decoding remains effortful rather than automatic, and this shows up in both slower response times and lower accuracy.
- The depth of the literacy deficit matters: Four types of readers – fluent, effortful, surface and struggling – can be distinguished. These profiles are associated with labour market participation: among native-born adults, inactivity is ten percentage points higher among struggling readers than among fluent readers, suggesting that the pace and reliability of basic reading processing matter for economic participation independently of overall skill level.
- Migrants are over-represented among struggling readers: they constitute 38% of that group on average across OECD countries, rising to over 80% in Norway and Sweden. For these adults, slow and inaccurate responses are likely to reflect a language acquisition barrier.
- A meaningful share of adults with low foundational skills attains Level 2 capabilities outside their primary area of weakness. Around 32% reach Level 2 in adaptive problem solving, 20% of adults with low literacy reach Level 2 in numeracy, and 16% of adults with low numeracy reach Level 2 in literacy. Progression beyond Level 2 is rare across all domains, pointing to a ceiling on cross-domain competence within this population.
- The depth and the breadth of foundational skill deficits are largely independent dimensions: two countries with identical low-skills shares can face fundamentally different challenges in terms of how far their low-skilled populations are from functional competence, how heterogeneous those populations are, and how fluently adults within them process text.
- A typology based on proficiency levels and skill patterns identifies four broad groups of countries, each facing different configurations of low-skills challenges. In one group, adults with low skills tend to cluster close to the Level 2 threshold and have relatively similar proficiency levels (Canada, Czechia, Croatia, Estonia, Hungary, Ireland, Italy, Japan, Korea, Lithuania, Poland, the Slovak Republic, Spain and Sweden). In a second group, adults with low skills are further from the threshold and more heterogeneous, creating deeper and more uneven challenges (Chile, Denmark, Finland, Flemish Region (Belgium), France, Germany, Israel, Netherlands, Portugal). Two additional groups show uneven performance across domains: one where literacy deficits are more pronounced despite relatively stronger numeracy skills (Austria, Latvia, Norway, Singapore and Switzerland), and another where numeracy deficits are more pronounced despite comparatively stronger literacy skills (England (UK), New Zealand and the United States).

Introduction

Chapter 1 established that around one in three adults across OECD countries has low literacy or numeracy skills, and that this share has grown in most countries over the past decade. But knowing how many adults have low skills says little about the depth and nature of the challenge for countries. This chapter asks whether deficits are concentrated in one domain or spread across several, how far adults with low skills are from achieving Level 2 proficiency, and whether distinct profiles of adults can be identified within the broader low-skilled population. It closes by establishing a typology of countries facing similar low-skill challenges.

How broad are foundational skill deficits?

Some adults perform poorly in literacy and numeracy, while others perform poorly in only one of these areas. The balance between joint and domain-specific deficits varies across countries and has implications for policy: A population whose low skills reflect a specific linguistic barrier will benefit from different policy interventions than a population with broad weaknesses in both literacy and numeracy.

Domain-specific versus joint deficits

Across OECD countries, 64% of adults with low foundational skills perform at or below Level 1 in both literacy and numeracy (Figure 2.1). Smaller shares display domain-specific weaknesses: 20% have low literacy but at least medium numeracy (Level 2 or above), while 16% have low numeracy but at least medium literacy (Level 2 or above). The predominance of joint deficits is consistent with patterns of educational disadvantage in which limited schooling and restricted opportunities to practise skills in adult life reinforce one another across domains.

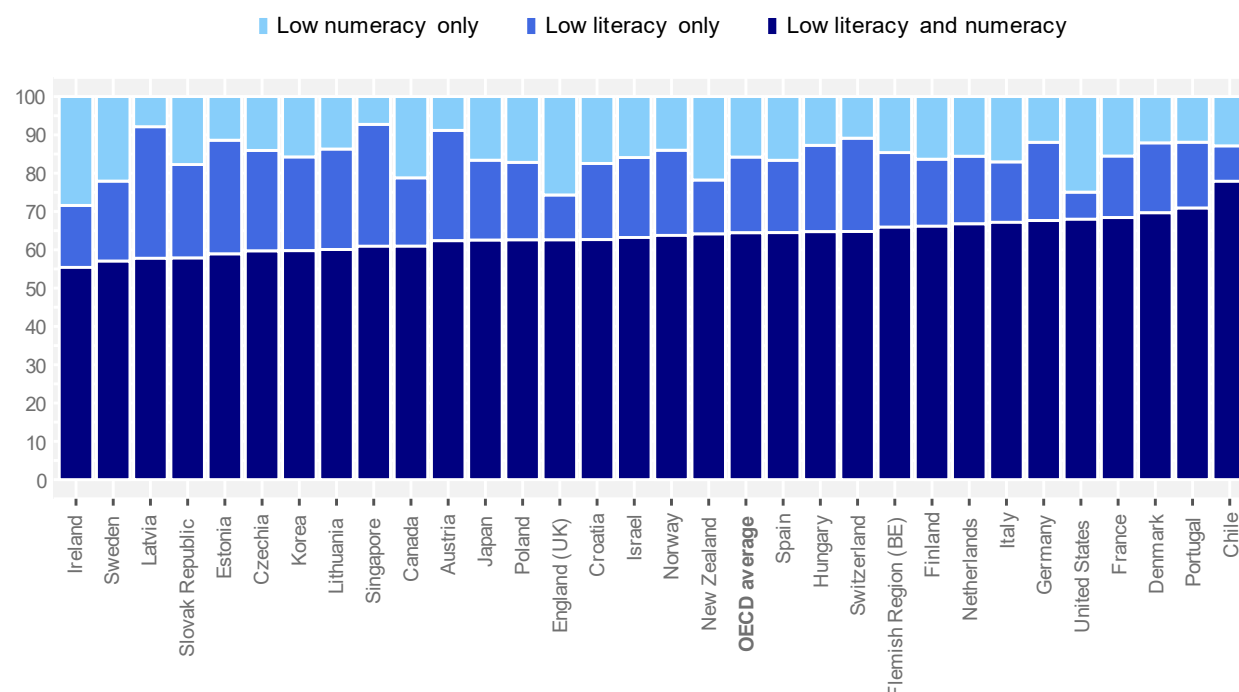
Nevertheless, domain-specific deficits are not negligible. In Austria, Czechia, Estonia, Latvia, Lithuania and Singapore, more than one in four adults with low skills are classified as such based on literacy alone, a comparatively high share compared to the OECD average. In these contexts, low literacy may not reflect generalised cognitive disadvantage; it may instead be shaped by linguistic factors. Several of these countries have relatively large shares of adults with migrant or minority language backgrounds. In Singapore, where the assessment language was English, 54% of adults reported a different first language; in Austria, where it was German, the corresponding figure was 20% (OECD, 2024^[1]). The patterns in Baltic states and Czechia are less easy to explain: shares of adults assessed in a language other than their first are comparatively low, at 2–8%, and Latvia and Estonia offered the assessment in Russian for minority language speakers, which should partially mitigate language-related barriers to literacy performance. In these cases, institutional and educational factors may play a more important role in explaining the concentration of literacy-specific deficits.

The reverse profile – low numeracy combined with medium literacy – is less common overall but represents more than one in five adults with low skills in Canada, England (UK), Ireland, New Zealand, Sweden and the United States. In all these countries (except Sweden), the assessment was available in English. Possibly, the global reach of English helped non-native speakers perform better in literacy than in the numeracy assessments. In Sweden, the systematic use of interpreters for the background questionnaire may have led more people with limited knowledge of the test language to attempt the subsequent assessment.

In sum, cross-country variation in domain-specific deficit profiles reflects linguistic context, migration history and survey design features that shape which deficits the assessment captures.

Figure 2.1. Most adults with low skills are weak in both literacy and numeracy

Share of adults with low foundational skills performing at or below Level 1 in both domains, in literacy only, or in numeracy only, by country, 2023



Note: Ordered by share of adults with low foundational skills with deficits in both domains

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.1

Capabilities outside the primary deficit domain

Adults may perform at different levels across domains, and the previous section established how deficits are distributed between literacy and numeracy among adults with low skills. This section looks beyond the low-skill boundary (Level 1 and below), asking if adults with low literacy or numeracy perform at higher proficiency levels in other domains, including adaptive problem solving.

A substantial minority of adults with low foundational skills attain functional capabilities outside their primary area of weakness, most commonly at Level 2 (Table 2.1). Specifically, 20% of adults with low literacy reach Level 2 in numeracy, 16% of adults with low numeracy reach Level 2 in literacy, and 23% of adults with low literacy or numeracy reach Level 2 in adaptive problem solving. Progression beyond Level 2 is rare in every domain: fewer than 1.5% reach Level 3 outside their primary deficit domain, and virtually none reach higher levels. This pattern is relatively uniform across countries, though there is slightly more cross-country variation in numeracy. In Austria and Latvia, around 3% of adults with low literacy reach Level 3 in numeracy; in Singapore this figure exceeds 5%, suggesting that in certain contexts stronger quantitative reasoning coexists with low literacy (see Annex Table A.2.1).

The sharp drop above Level 2 across all domains means that regardless of which domain defines their classification, adults with low skills rarely progress beyond basic functional competence in other areas. The data also reveal a population with low skills that is internally differentiated. A meaningful share retains Level 2 capabilities in at least one other domain – in some cases plausibly reflecting linguistic rather than generalised cognitive barriers – while others perform weakly across all domains assessed, with little evidence of residual capability at higher levels.¹ Understanding where these residual capabilities lie, and how far they extend, matters for assessing the starting point from which adult learning can build.

Table 2.1. Some adults with low skills reach Level 2 in some domains; few go beyond it

Distribution across proficiency levels in non-deficit domain(s) among adults with low foundational skills, OECD average, 2023

	Below Level 1	Level 1	Level 2	Level 3	Level 4	Level 5
Literacy performance of adults with low numeracy	29%	55%	15%	1%	0	0
Numeracy performance of adults with low literacy	27%	53%	19%	1%	0	0
APS performance of adults with low literacy or numeracy	25%	53%	22%	1%	0	/

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.1

How deep are foundational skill deficits?

Low foundational skills cover a wide range of abilities and learning needs. This section examines the severity of these skill gaps from two complementary perspectives: how far adults with low skills are, on average, from the Level 2 threshold, and how fluently they process written information. Together, these measures provide a clearer picture of the capabilities of adults with low foundational skills in each country and lay the groundwork for the country typology developed later in the chapter.

Literacy proficiency among adults with low skills

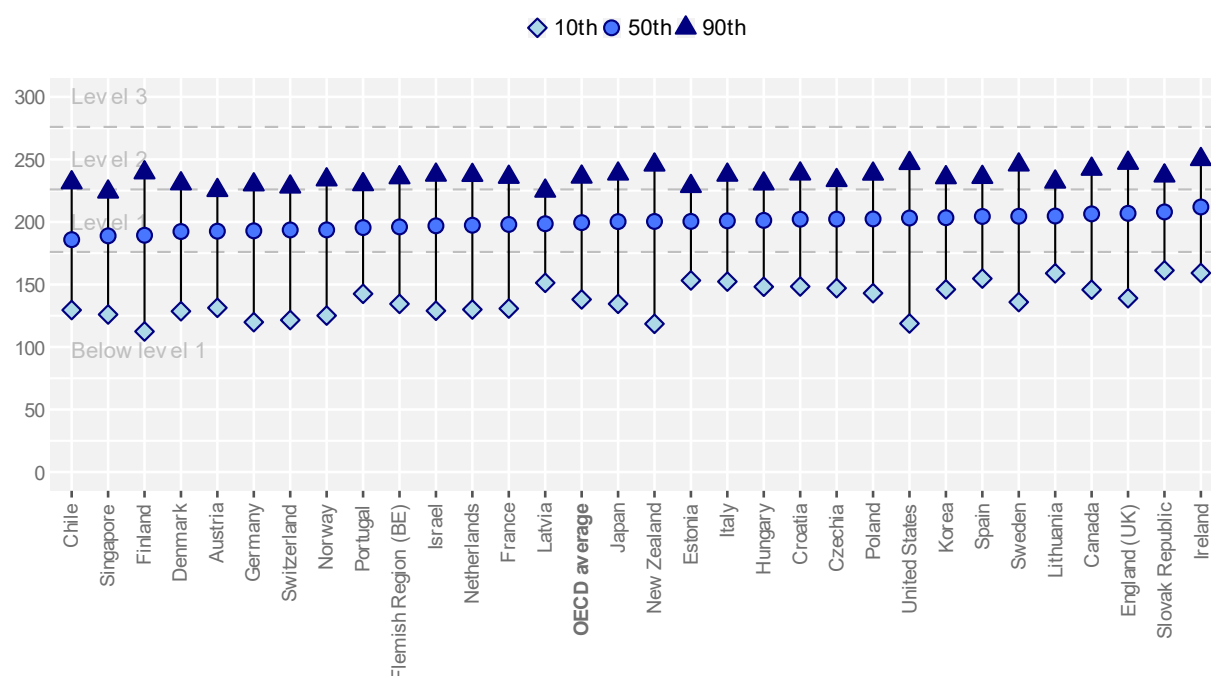
The median literacy score among adults with low skills across the OECD is 199 points, which sits firmly within the Level 1 band of 176 to 226 points. However, country-level medians range from 186 points in Chile to 212 points in Ireland, a difference of 26 points (Figure 2.2). This variation matters: an adult scoring near the Level 2 threshold is close to functional competence, while one near the bottom of Level 1 faces a considerably longer path to get there.²

At the upper end, Ireland (212 points), the Slovak Republic (208 points), England (UK) (207 points) and Canada (206 points) have the highest median literacy scores among their populations with low skills, placing the typical adult with low skills in these countries within short distance of the Level 2 threshold of 226 points (Figure 2.2). At the other end, Chile (186 points), Singapore (189 points) and Finland (189 points) have the lowest median scores, despite having very different rates of adults with low skills: 61%, 32% and 15% respectively. In Chile, a high rate and low median performance are consistent with a large population facing deep and widespread foundational deficits. Finland presents a contrasting profile: its low-skilled population is small but performs poorly compared to adults with low skills in other countries, suggesting a concentrated group facing severe disadvantage.

Beyond median performance, the dispersion of literacy scores within the population of adults with low skills also varies. Finland (127 points), the United States (128 points) and New Zealand (127 points) have by far the widest interdecile ranges, driven by long lower tails. At the other end of the spectrum, Estonia (75 points), Latvia (73 points), Lithuania (73 points) and the Slovak Republic (76 points) exhibit the smallest interdecile ranges. In these countries, the population of adults with low skills is clustered within a narrower section of the literacy proficiency scale and therefore more homogeneous.

Figure 2.2. The typical adult with low skills performs at Level 1 in literacy

10th, 50th and 90th percentiles of literacy scores among adults with low foundational skills, by country, 2023



Note: Ordered by median literacy scores of adults with low foundational skills

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.2

Numeracy proficiency among adults with low skills

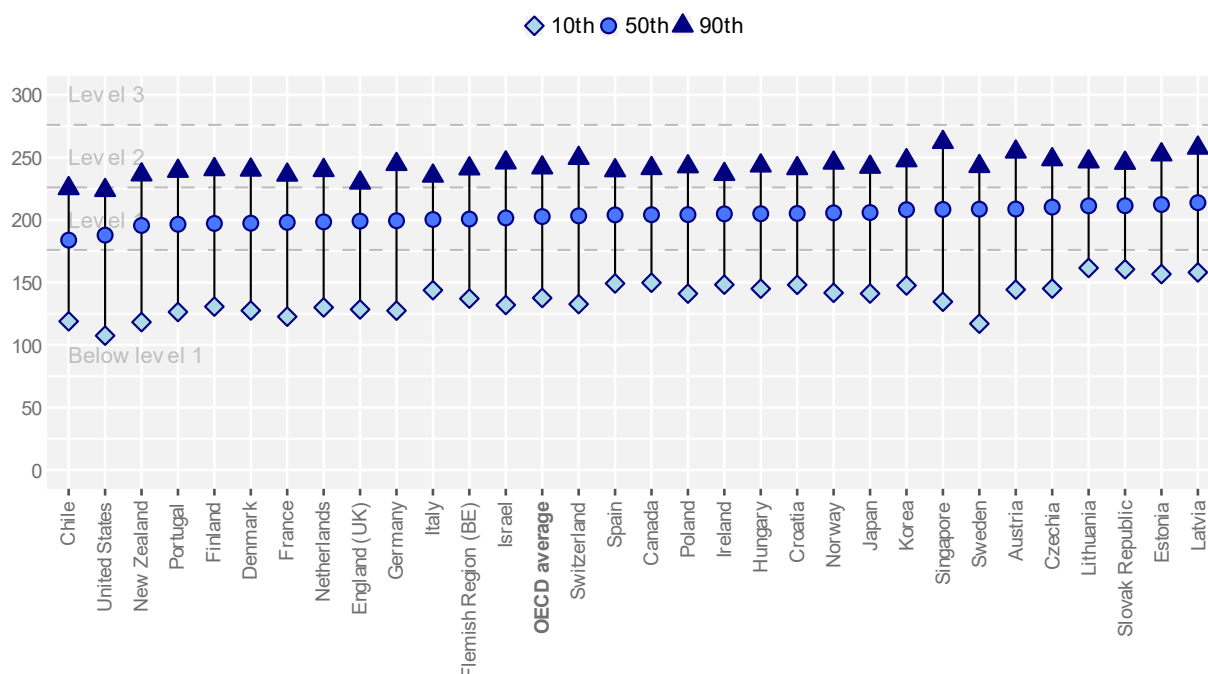
The depth of the numeracy challenge among adults with low foundational skills differs from literacy in several respects. The median numeracy score among adults with low skills in the OECD area is 203 points, four points higher than the literacy median, placing the typical adult with low skills slightly closer to the Level 2 threshold in numeracy than in literacy. The average dispersion is also wider in numeracy than in literacy (104 points interdecile range), indicating greater heterogeneity within the low-skill population in this domain.

The country ranking by average median numeracy among adults with low skills differs substantially from the ranking by literacy (Figure 2.3). Latvia (214 points), Estonia (212 points), Lithuania (211 points) and the Slovak Republic (211 points) have the highest median numeracy scores among adults with low skills. In the literacy domain, Estonia and Latvia sit closer to the middle of the distribution. At the other end, Chile (184 points) and the United States (188 points) have the lowest median numeracy scores among adults with low skills. The United States presents the sharpest contrast with its literacy profile: its literacy median of 203 points is above the OECD average, but its numeracy median of 188 points is among the lowest of any participating country.

The dispersion pattern in numeracy also differs from literacy (Figure 2.3). Singapore (128 points) and Sweden (126 points) have the widest interdecile ranges, neither of which stand out in the literacy dispersion analysis. By contrast, Ireland (88 points), Lithuania (85 points) and the Slovak Republic (85 points) have the narrowest interdecile ranges, alongside relatively high medians.

Figure 2.3. Country rankings by numeracy depth differ markedly from those by literacy

10th, 50th and 90th percentiles of numeracy scores among adults with low foundational skills, by country, 2023



Note: Ordered by median numeracy scores of adults with low foundational skills

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.2

Reading fluency among adults with low skills

Reading fluency – the ability to read both quickly and accurately (Kuhn and Stahl, 2003^[2]) – is closely linked to comprehension capacity. Fluent readers have automatised word recognition and sentence processing to the point where these require little working memory (LaBerge and Samuels, 1974^[3]; Perfetti, 1985^[4]), freeing up cognitive capacity for higher-level processes such as inference and reading strategies (Walczyk et al., 2004^[5]). Adults who have not reached this level must direct more cognitive resources to basic decoding of words and phrases, leaving less cognitive energy available for understanding the underlying meaning and making sense of the words and phrases (García and Cain, 2014^[6]; Klauda and Guthrie, 2008^[7]; Richter et al., 2013^[8]). The same logic extends to numeracy: adults for whom basic quantity recognition remains effortful face similar constraints on higher-order numerical reasoning.

The data collected in the 2023 Survey of Adult Skills allow to separately investigate response time and accuracy and can therefore be used to understand whether adults with low foundational skills have reached a sufficient level of fluency. Together these two dimensions enable the distinction of four profiles of adults with low skills that describe not just what they can do, but how they do it – a distinction with direct implications for where learning and instruction should focus. This section uses response time and accuracy data from the sentence comprehension component to construct these profiles; Box 2.1 describes the component assessment and the population it covers.³

Box 2.1. Components

Reading components measure the basic decoding skills essential for extracting meaning from written texts, capturing variation at the lower end of the literacy proficiency scale that the main assessment cannot reliably distinguish. Two types of component tasks are included in the direct assessment in the 2023 Survey of Adult Skills: sentence comprehension tasks, where the respondents must judge whether a sentence makes sense, and passage comprehension tasks, where the respondents must identify the word that gives meaning to each sentence in a short passage. Timing data are collected alongside accuracy for both task types and provide a measure of reading fluency, though they do not contribute to literacy proficiency scores.

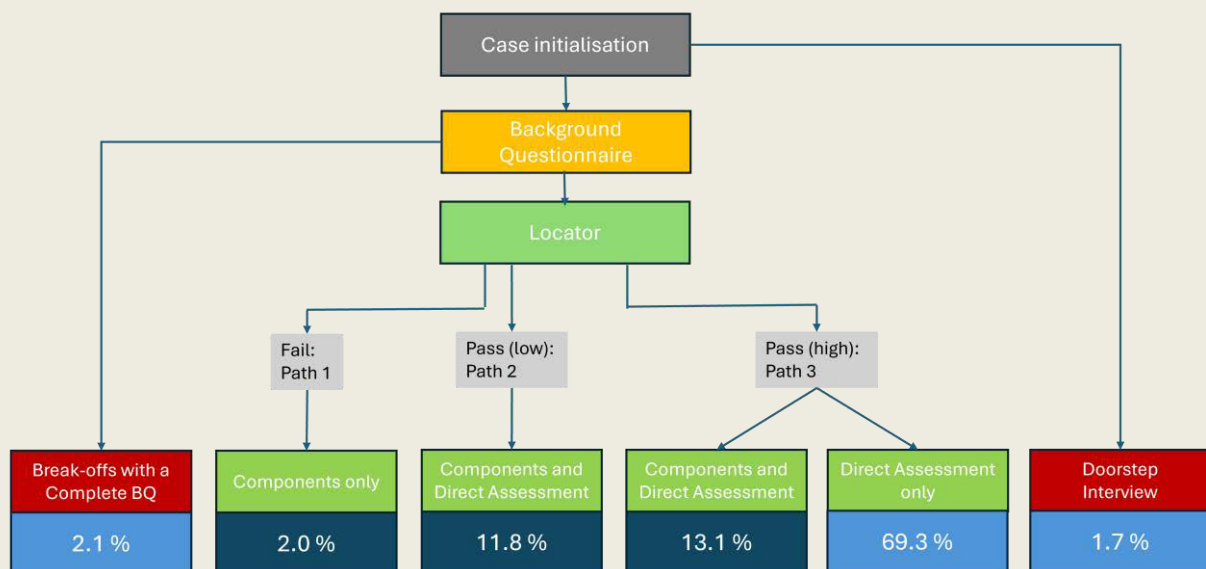
Numeracy components, which are new to the 2023 Survey of Adult Skills, focus on number sense, i.e. the understanding of quantities and how numbers represent them. Two task types are included: how many, in which respondents must count items in an image, and which is biggest, in which respondents must identify the largest of four numbers.

The analysis that follows focuses on sentence comprehension only. This is because tasks in the passage comprehension components have more variation in length; and response times for numeracy components have low variance across countries and a limited link between response time and proficiency.

The sample covers adults who completed the sentence comprehension component. Background questionnaire and doorstep respondents are not included. Importantly, this implies that the analysis excludes the group of adults with low skills with the most limited knowledge of the assessment language.

Figure 2.4. Assignment to components

Share of respondents by assessment paths



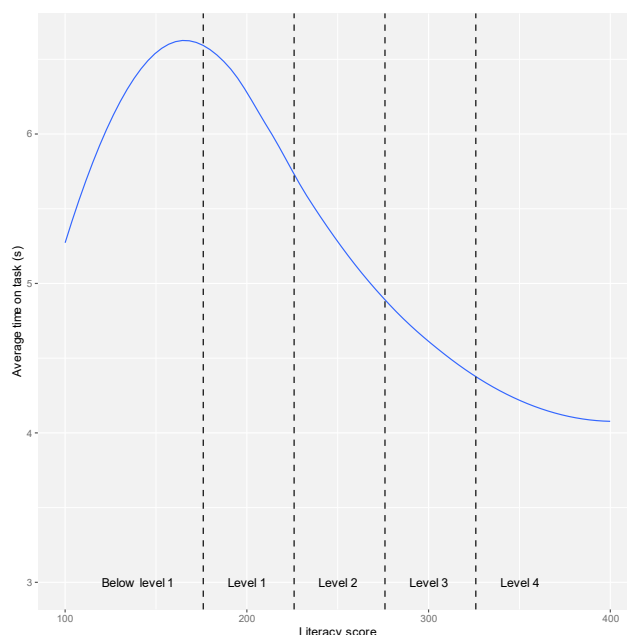
Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.1.2

Reading speed

Reading speed, one of the key aspects of reading fluency, varies systematically with literacy proficiency. From Level 1 upward, response times fall consistently as proficiency rises: adults at Level 1 take around 6 seconds per item, while those at the highest levels complete each item in around 4 seconds – a gap that reflects increasing automatisisation of word recognition and sentence processing (Figure 2.5). Below Level 1, however, the relationship between proficiency and speed is non-linear. Here, response time first increases with proficiency, peaking at a proficiency of 155, after which it declines. Adults on the verge of Level 1 take the longest: they are trying to engage with items they find genuinely difficult. Those at the very bottom respond more quickly despite lower accuracy, a pattern consistent with limited engagement or the quick realisation of engaged test-takers that they will not be able to complete the task.

Figure 2.5. Reading slows before the Level 1 threshold, then speeds up as proficiency rises

Mean response time per item (seconds) on sentence comprehension tasks, by literacy proficiency score, OECD average, 2023



Note: Local polynomial smoothing function applied; includes adults who completed the sentence comprehension component and hence adults routed to the full assessment only; doorstep and background questionnaire respondents are excluded

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>

Within the population of adults with low skills, response times vary considerably across countries, and cross-country differences are most pronounced at the bottom end of the response time distribution (Figure 2.6). The median response time among adults with low skills is 5.8 seconds per item, ranging from below 5 seconds in Croatia and the Slovak Republic to above 6.5 seconds in Austria, Germany, Norway, Portugal, Sweden and Switzerland. The 25th percentile – the fastest quarter of low-skilled readers in each country – is relatively compressed across countries, suggesting that faster readers within the low-skilled population process text at broadly comparable speeds (between 3.5 and 5 seconds). The 75th percentile tells a different story: in Germany, Sweden and Switzerland, response times at the slow end exceed 10 seconds per item.

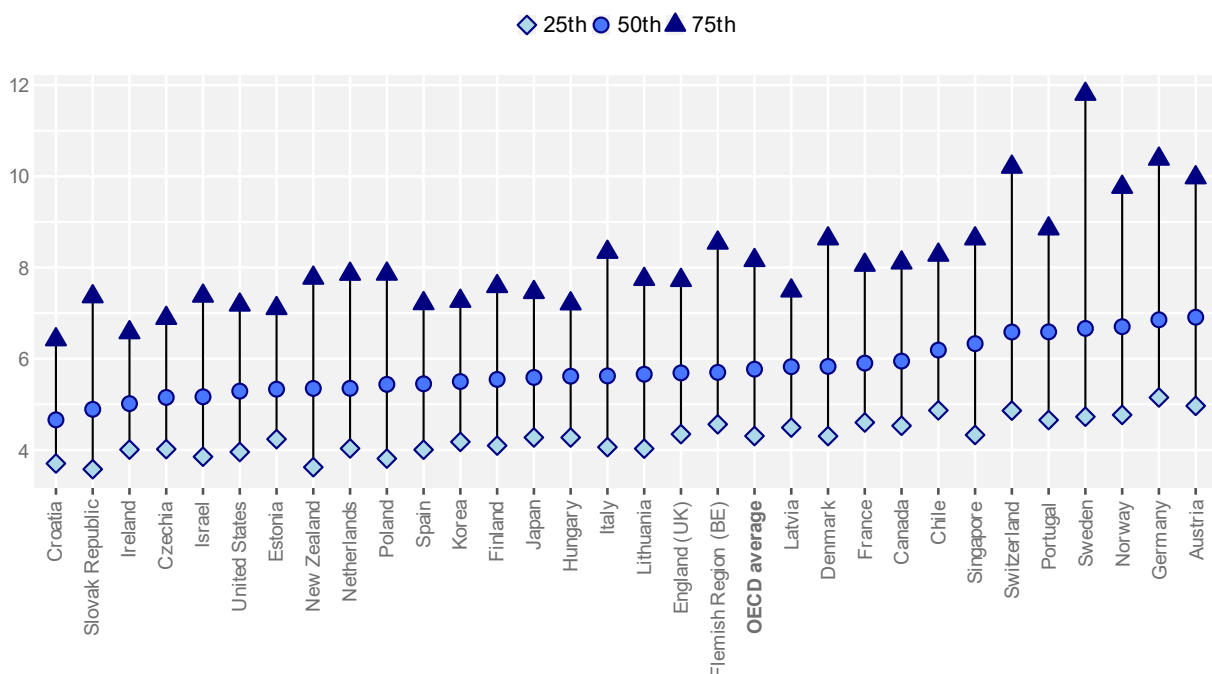
One likely contributor to this pattern is the composition of the population of adults with low skills (see Chapter 3). Non-native speakers with some knowledge of the assessment language may attempt items but process text more slowly than native speakers, stretching the upper tail of the response time distribution. When the analysis is restricted to native speakers with low skills, the median response time falls to 5.4 seconds – a reduction of 0.4 seconds – and the extreme values at the 75th percentile narrow considerably. By contrast, the median response time for non-native speakers is 7.5, although it should be noted that this cross-country average does not include all countries due to small sample sizes. The response time of the 75th percentile of non-native speakers is 10.9 seconds on average across countries and as high as 15.7 seconds in Sweden and over 14 seconds in Austria, Germany and the Flemish Region of Belgium. This is consistent with language barriers slowing text processing among non-native speakers.

Portugal is the country with the slowest readers when the analysis is restricted to native speakers. The median response time is 6.6 seconds, with a wide upper tail. Chile and Germany also have medians above six seconds among non-native speakers with low skills. This pattern is consistent with their deep deficit profile (see the next sub-chapter): in these countries, many adults are genuinely far from being functionally competent readers; they are not only slow due to language barriers.

Detailed country-level data for the full sample, as well as for native-born, foreign-born, native speakers and non-native speakers, are provided in Annex tables A 2.3. Overall, patterns of response times by migration status and language background are broadly aligned. However, notable differences in speed persist in some countries between foreign-born and non-native speakers, highlighting that these groups only partially overlap. Further analysis is warranted, considering country-specific linguistic and migration contexts.

Figure 2.6. Reading speed varies widely among slow readers

25th, 50th and 75th percentile response times per item (seconds) on sentence comprehension tasks among adults with low foundational skills, by country, 2023



Note: Ordered by median response time; includes adults who completed the sentence comprehension component and hence adults routed to the full assessment only; doorstep and background questionnaire respondents are excluded

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.3

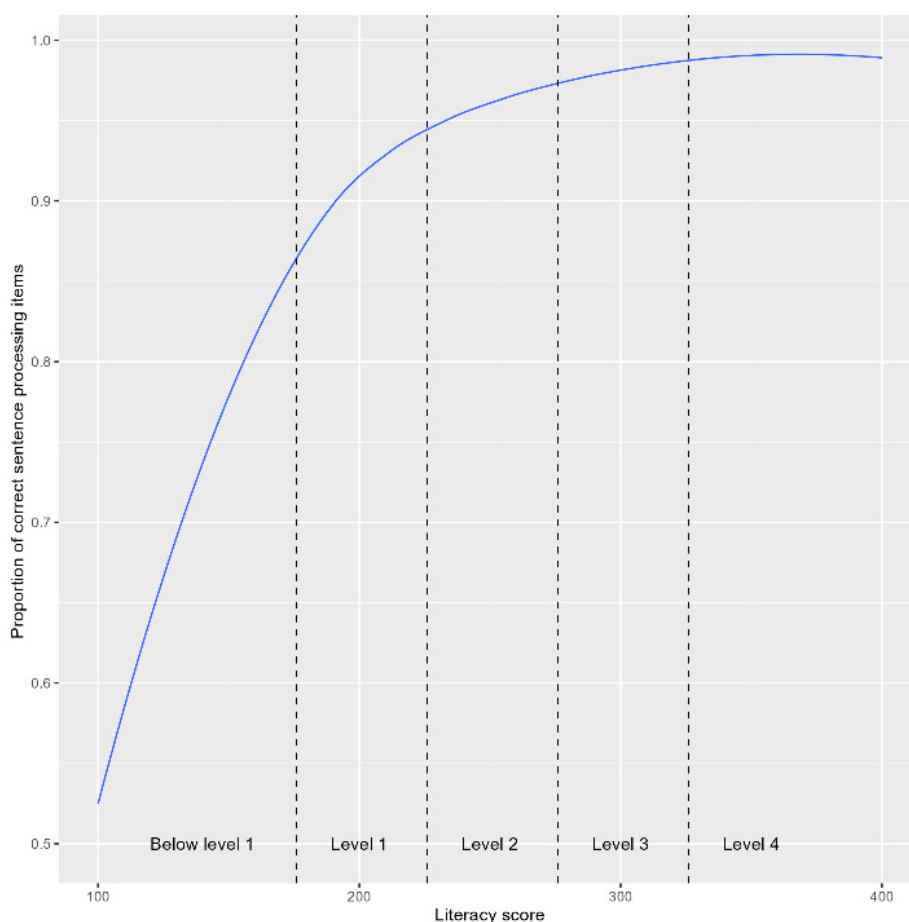
Reading accuracy

Accuracy naturally increases steeply with proficiency, with the sharpest gradient at the lower end of the scale (Figure 2.7). Among the lowest performers, around 55% of items are answered correctly – not much better than chance on a two-option task. Accuracy climbs rapidly through the below Level 1 and Level 1 bands, reaching around 94% at the Level 1 to Level 2 boundary. From Level 2 onward the curve flattens, with further gains in proficiency adding relatively little to accuracy on sentence comprehension tasks. The implication is that, as expected, the component tasks are most sensitive, and most informative, precisely in the range where the low-skilled population sits.

Despite lower accuracy overall, most adults with low skills answer most sentence comprehension items correctly. This means that for many adults with low skills, the foundation for building reading competence is already partially in place. But the range within the group is wide. An adult at the middle of the Level 1 band answers around 9 in 10 items correctly; one at the bottom of the below Level 1 band answers only around half correctly, a performance not different from what they would obtain under random guessing.

Figure 2.7. Most adults with low skills understand most sentences correctly

Mean share of sentence comprehension items answered correctly, by literacy proficiency score, OECD average, 2023



Note: Includes adults who completed the sentence comprehension component and hence adults routed to the full assessment only; doorstep and background questionnaire respondents are excluded

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>

Reading profiles among adults with low skills

The patterns in reading speed and accuracy described above can be combined into a single typology that captures how adults with low skills engage with text (Table 2.2). Two dimensions are used: accuracy, measured as the share of items answered correctly, and speed, measured as median response time per item. For accuracy, a threshold of less than two mistakes classifies adults as accurate readers, acknowledging that any respondent may make an occasional error regardless of underlying ability. For speed, the threshold of 5.5 seconds per item corresponds to the median response time observed among adults with low skills and produces four similarly sized groups with meaningful country-level variation.

Table 2.2. Four reader profiles defined by speed and accuracy

Characteristic	Fast reading speed (<5.5 s)	Slow reading speed (≥5.5 s)
Accurate reading (<2 mistakes)	Fluent readers	Effortful readers
Inaccurate reading (≥2 mistakes)	Surface readers	Struggling readers

Source: See also Schlögl, Mayerl and Kastner (2025^[9])

Across OECD countries, around one in four adults with low skills falls into each of the four reader profiles on average, but this conceals substantial cross-country variation (Figure 2.8).

The share of **fluent readers** – fast and accurate – ranges from around 12% in Singapore to over 40% in Croatia and Czechia. To understand these shares, it is key to remember how common low skills are in each country. Countries with the largest fluent reader shares tend to be those where the low-skilled population is clustered closer to Level 2 and internally more homogeneous, a pattern explored in more depth in the country typology in the remainder of this chapter. Estonia, Finland, Ireland, and the Slovak Republic also have above-average shares of fluent readers (at least 30%).

At the other end, **struggling readers** – slow and inaccurate – account for at least 45% of the low-skilled population in Norway, Singapore and Sweden. As the speed analysis showed, this pattern is partly driven by the composition of the low-skilled population in these countries: adults assessed in a non-native language tend to process text more slowly and less accurately.⁴

Effortful readers – accurate but slow – are most prevalent in Austria, Lithuania and Portugal, where they account for a third or more of adults with low skills. In Austria, both the shares of effortful and struggling readers are above average, with relatively few fluent and surface readers. This pattern points to a low-skilled population where slow processing predominates – with accuracy varying within that slow-processing group.

The **surface reader** profile is most prevalent in Israel, New Zealand, Poland and the United States. The high shares of adults with low skills of this group may capture something distinct from skill level as measured by proficiency scores, whether rapid guessing, limited engagement, or a response style that favours speed over deliberation. The data do not allow these to be distinguished.

Across OECD countries, foreign-born and non-native speaking adults are over-represented among struggling readers and under-represented among fluent readers. On average, 38% of struggling and 22% of effortful readers are foreign-born, compared to around 10% of fluent readers. A similar pattern emerges for language background: 31% of struggling readers and 18% of effortful readers are non-native speakers (Annex Table 2.5). In Norway and Sweden, over 80% of struggling readers are foreign-born. When focusing on language rather than migration status, Norway and Sweden again stand out, but Singapore also enters this group: in all three countries, over 80% of struggling readers are non-native speakers. In Singapore, this reflects the linguistic context, where English is the language of the assessment

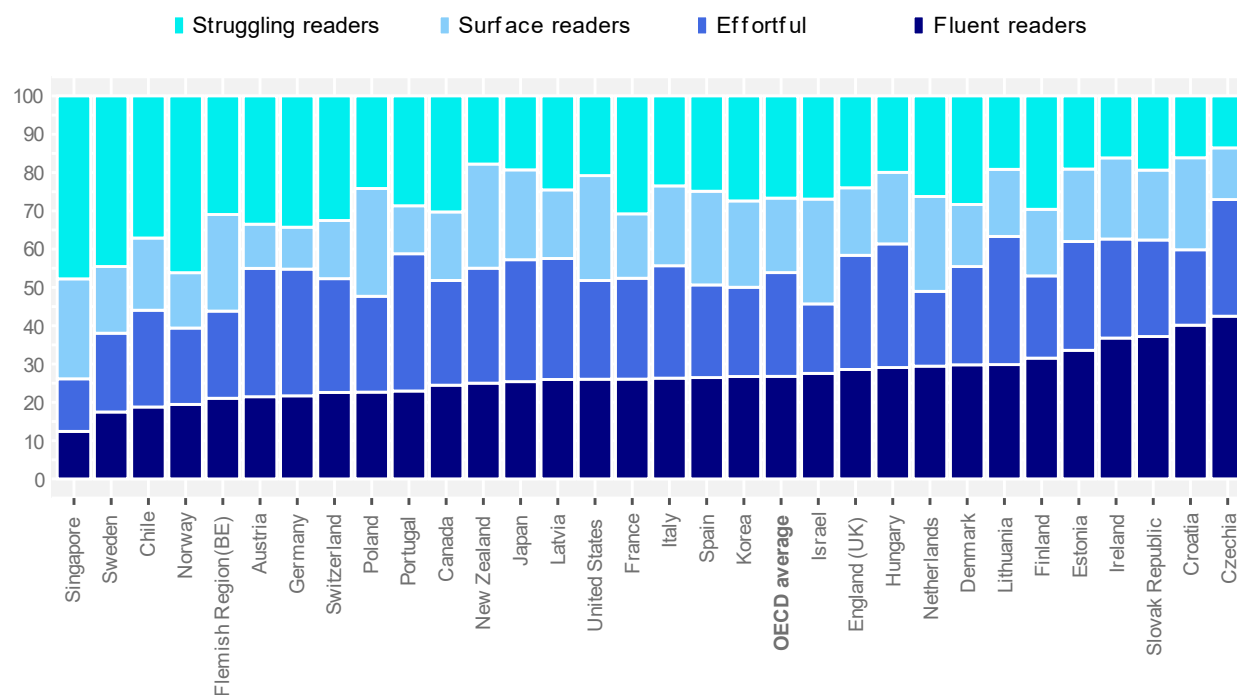
but not necessarily the main language spoken at home for a large share of respondents, rather than migration per se.

The picture shifts considerably when the analysis is restricted to native speakers with low skills (Figure 2.9). The share of struggling readers falls substantially in Norway and Sweden, countries where language barriers drove much of the slow and inaccurate response pattern in the full sample. Yet meaningful variation persists among native speakers. Chile, Korea, Portugal and Singapore have high shares of struggling readers even in the native-speaking sample, pointing to deeper foundational deficits that cannot only be attributed to language barriers.

A natural question is whether the cross-country variation in reader profiles simply mirrors differences in the share of adults with low skills. The data suggest this is not the case. The correlation between a country's share of adults with low skills and its share in any of the four reader profiles is negligible. Among countries with very similar shares of adults with low skills, the dominant reader profile varies considerably: Finland and Sweden both have around 15% of adults with low skills, yet in Finland fluent readers are the largest group (32% of low-skilled adults), while in Sweden struggling readers account for 45% of the low-skilled population. In Japan, with the lowest share of adults with low skills in international comparison (13%), low-skilled adults are primarily effortful readers.

Figure 2.8. Reader profiles among low-skills adults differ sharply across countries

Share of adults with low foundational skills by reader profile, by country, 2023



Note: Ordered by share of fluent readers; for the definition of struggling, surface, effortful and fluent readers see Table 2.2; includes adults who completed the sentence comprehension component and hence adults routed to the full assessment only; doorstep and background questionnaire respondents are excluded

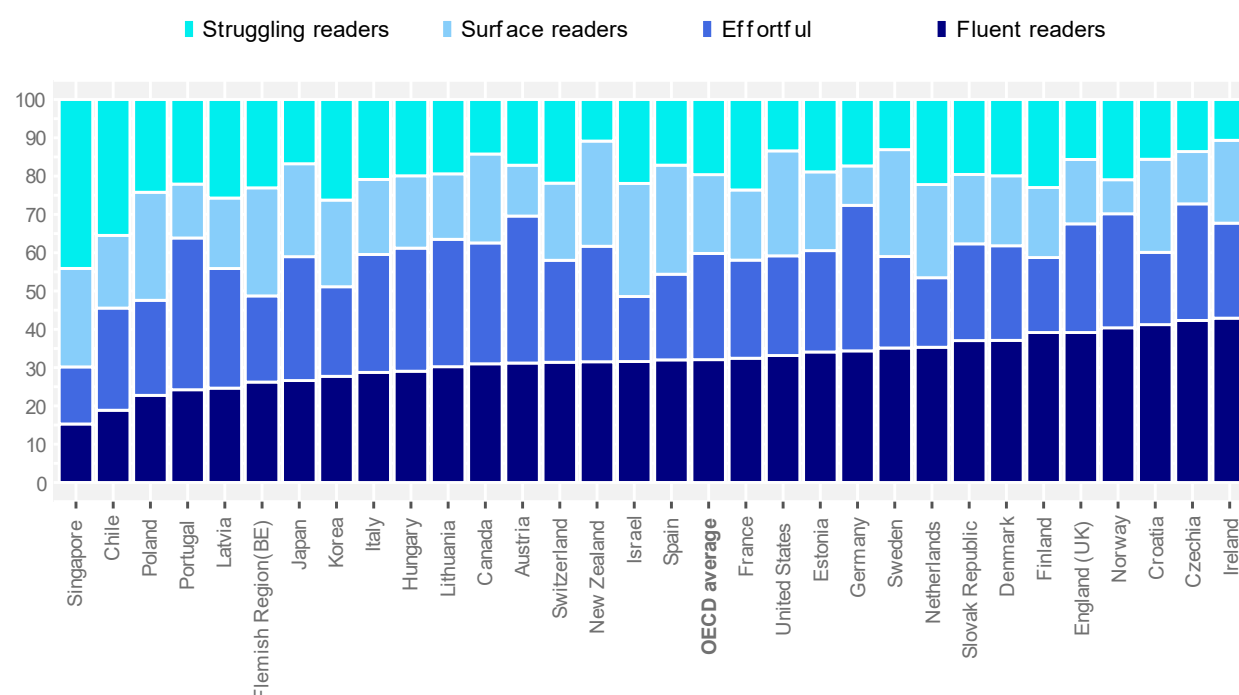
Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.4

The diversity is equally striking at the other end of the distribution. Among the countries where more than 40% of adults have low skills – Chile, Israel, Italy, Lithuania, Poland, Portugal – there is no clear pattern. In Lithuania and Portugal, effortful readers are the most prevalent group; in Israel and Poland, surface readers are prominent. Chile stands apart: with the highest low-skills rate in the sample at 61%, struggling

readers also dominate, highlighting the depth and breadth of its skill challenge. Reader profiles therefore appear to reflect the nature of the skill challenge in each country, which is shaped by factors such as language characteristics, migration and migration history, and education policy, rather than simply the scale of the challenge. For an analysis of the socio-demographic profiles of adults with low skills across countries, see Chapter 3.

Figure 2.9. Restricting to native-born adults reduces cross-country variation in reader profiles

Share of native-born adults with low foundational skills by reader profile, by country, 2023



Note: Ordered by share of fluent readers; for the definition of struggling, surface, effortful and fluent readers see Table 2.2; includes adults who completed the sentence comprehension component and hence adults routed to the full assessment only; doorstep and background questionnaire respondents are excluded

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Table A.2.4

Reader profiles are associated with labour market participation, though differences are modest on average across OECD countries. Among adults with low skills, inactivity ranges from 28% among fluent readers to 33% among struggling readers. This association is more pronounced among native-born adults: inactivity reaches 38% among struggling readers, compared to 28% among fluent readers - a gap of 10 percentage points. A similar, though slightly smaller, gradient is observed among native speakers, with inactivity rising from 28% among fluent readers to 36% among struggling readers. These patterns suggest that, among migrants, factors other than reading processes – such as institutional, educational, language, legal and personal barriers – may play a larger role in shaping labour market outcomes. By contrast, among native-born adults, where these confounding factors are less present, the association between effortful reading and labour market detachment is clearer (Annex Table A.2.6).

The data do not allow conclusions about the direction of causality underlying these patterns. The association between reader profiles and labour market inactivity may reflect several overlapping mechanisms. Lower literacy proficiency may reduce access to employment or make it more difficult to sustain jobs that require regular reading, while periods of inactivity may in turn limit opportunities to maintain or develop reading skills. In addition, other factors - such as socio-economic background, health

conditions, educational pathways and local labour market opportunities - may simultaneously influence both literacy performance and the likelihood of being inactive. These interrelated influences make it difficult to disentangle the extent to which reading difficulties themselves drive labour market detachment.

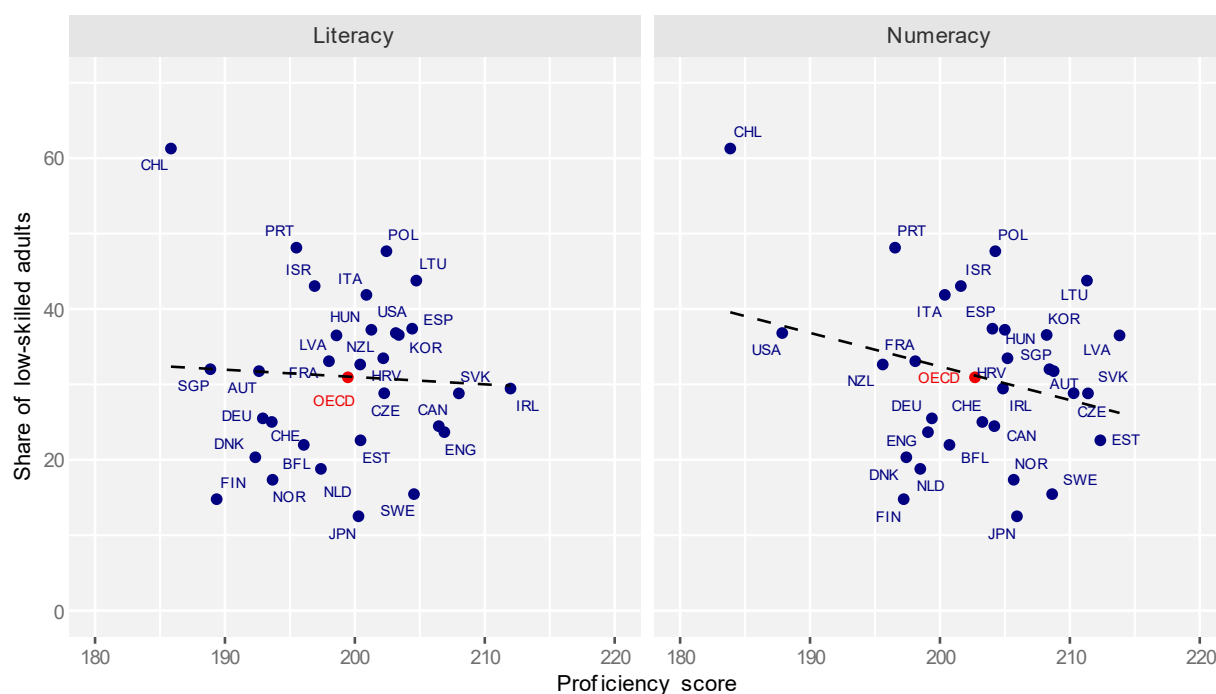
Do countries face fundamentally different challenges?

The share of adults with low foundational skills (Chapter 1) may be the most cited indicator of a country's skills challenge, but it provides an incomplete picture. The relationship between the share of adults with low skills and the depth of deficits within the low-skilled population is weak in literacy and only moderately stronger in numeracy (Figure 2.10). Lithuania combines a high rate (44%) with a relatively high median literacy score among its low-skilled population, meaning many adults fall below the threshold but most are close to it. Finland presents almost the mirror image: low rate (15%) but one of the lowest median scores, indicating a prevalence of severely disadvantaged adults. Japan, with the lowest rate of all (13%), has a median literacy score close to the OECD average for adults with low skills.

These patterns mean that two countries with identical rates can face fundamentally different challenges: in how far their low-skilled populations are from Level 2, in how internally homogeneous those populations are, and in how adults within them process text. The typology below makes these distinctions concrete.

Figure 2.10. Breadth and depth of low foundational skills do not tell a consistent story

Median literacy and numeracy scores among adults with low foundational skills versus share of adults with low foundational skills, by country, 2023



Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>, Annex Tables A.1.1 and A.2.2

A typology of countries by breadth and depth of the skill challenge

Combining the share of adults with low skills, median proficiency and dispersion of skills within the group and reading processing patterns yields four distinct country profiles (Table 2.3). The primary dimensions are the depth of deficits – how far, on average, the low-skilled population sits below the Level 2 threshold – and the internal heterogeneity of that population, measured by the interdecile range of literacy and numeracy scores. A secondary but analytically important distinction is whether deficits are roughly balanced between literacy and numeracy or concentrated strongly in one domain. The share of adults with low skills in the total population is incorporated as a descriptor within each profile rather than as a defining criterion, because it is largely independent of depth and dispersion: each profile spans a wide range of rates, and the same share of adults with low skills can correspond to very different underlying challenges.

Table 2.3. Four country profiles capture fundamentally different foundational skills challenges

Country classification by share of adults with low foundational skills, median literacy and numeracy scores, interdecile range, and dominant reader profile among adults with low skills, 2023

Profile	Prevalence	Literacy median	Numeracy median	Dispersion	Typical reader profile	Countries
Near threshold, concentrated	Wide range (13%–48%)	High	High	Narrow	Fluent readers prevalent in higher-prevalence countries; effortful/struggling more common at lower prevalence	Canada, Czechia, Croatia, Estonia, Hungary, Ireland*, Italy, Japan**, Korea, Lithuania, Poland, Slovak Republic, Spain, Sweden***
Deep deficit, dispersed	Wide range (15%–61%)	Low	Low	Wide	Heterogeneous	Chile, Denmark, Finland, Flemish Region (Belgium), France, Germany, Israel, Netherlands, Portugal
Literacy gap	Low to moderate (17%–37%)	Low	High	Mixed	Many struggling readers	Austria, Latvia****, Norway, Singapore, Switzerland
Numeracy gap	Moderate (24%–37%)	High	Low	Wide	Few struggling readers	England (UK), New Zealand, United States

Note: * Ireland: the gap between its literacy median (212, the highest in the sample) and numeracy median (205) is the largest negative gap in the near-threshold group; it is retained here because numeracy performance remains above average in absolute terms; ** Japan: the literacy interdecile range is above the OECD average *** Sweden: wide dispersion in both domains and high struggling reader share (45%) distinguish it from most countries in this profile **** Latvia: fluent and effortful are the dominant types of readers

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>

The largest group is the near-threshold, concentrated countries: Canada, Czechia, Croatia, Estonia, Hungary, Ireland, Italy, Japan, Korea, Lithuania, Poland, the Slovak Republic, Spain and Sweden. These countries share high median scores in both literacy and numeracy among their low-skilled populations and relatively narrow internal dispersion, meaning that adults with low skills are clustered relatively close to the Level 2 threshold and broadly similar to one another in proficiency level. This profile spans the widest range of rates of adults with low skills any group, from Japan at 13% to Poland at 48%. In lower-rate countries within this group – Canada, Japan and Sweden – effortful or struggling readers predominate: the low-skilled population is small and, even though it sits close to the threshold in proficiency terms, many of these adults do not process text fluently, suggesting a selected group in which language barriers or other disadvantages are relatively concentrated. In higher-rate countries – Croatia, Czechia, Ireland, and the Slovak Republic – fluent readers are the largest group, accounting for 37–43% of adults with low skills, consistent with a large population whose members are genuinely close to functional competence. Sweden somewhat stands apart from other countries in this group, with wider dispersion and a high struggling reader share, 80% of which are migrants.⁵

The deep deficit, dispersed countries – Chile, Denmark, Finland, France, Germany, Israel, the Netherlands, Portugal and the Flemish Region of Belgium – combine low median scores in both literacy and numeracy with wide dispersion. Their low-skilled populations are further from the Level 2 threshold on average and more internally heterogeneous than in other profiles, spanning a wide range of proficiency within the classified group. This profile also covers a wide range of rates of adults with low skills, from Finland at 15% to Chile at 61%, and the combination of low medians and wide dispersion means the policy challenge is more complex regardless of scale: there is no well-defined target group just below the threshold, but rather a heterogeneous population with varying degrees of foundational difficulty. Reader profiles within this group are correspondingly diverse. Chile, with the highest rate and lowest medians in the sample, has the largest struggling reader share (37%) of any deep deficit country; Germany and France are also struggling-dominated, partly reflecting migrant composition. Portugal leans toward effortful readers (36%), suggesting slower but often accurate processing among a large low-skilled population that is further from the threshold. Finland and the Netherlands, despite low rates, have low-proficient populations with substantial fluent reader shares, consistent with wide dispersion around a low mean – some individuals close to the threshold who process text well, others considerably further below it.

The literacy gap countries – Austria, Latvia, Norway, Singapore and Switzerland – are defined by a pronounced cross-domain imbalance: numeracy medians are substantially above literacy medians in all five, with gaps ranging from around 10 to 20 points. Median literacy among adults with low skills are below the OECD average in all cases. This pattern is consistent with the presence of large shares of adults assessed in a non-native language, for whom literacy performance is depressed by language barriers while numeracy – less language-dependent – remains comparatively strong. The reader profile data reinforce this interpretation: struggling readers account for an average of 37% of the low-skilled population across these countries, the highest of any profile, and in Norway over 80% of struggling readers are migrants. Dispersion varies within the group: Latvia has narrow dispersion in both domains, indicating a more homogeneous low-skilled population, while Norway, Switzerland and Singapore show wider or more mixed dispersion. Rates of adults with low skills range from 17% in Norway to 37% in Latvia, but the depth of literacy-specific deficits, rather than scale, is the defining challenge for all countries in this group.

The numeracy gap countries – England (UK), New Zealand and the United States – present the reverse imbalance: literacy medians are above average and among the highest in the sample, while numeracy medians are below average, with the United States showing the largest numeracy deficit relative to literacy in the entire dataset (15 points). Dispersion is wide in both domains, indicating internally heterogeneous low-skilled populations, but the nature of the challenge is domain-specific: adults in these countries are relatively close to the literacy threshold but considerably further from it in numeracy, with a substantial share scoring well below Level 1 in that domain. Reader profiles reflect the relative literacy strength: effortful and surface readers predominate, and struggling readers are comparatively rare (averaging 21%).

Taken together, these four profiles illustrate that the challenge of low foundational skills takes fundamentally different forms across countries, in scale, depth, domain balance, and in how adults process text. This has implications for policy (Chapter 4). For near-threshold, concentrated countries, the task is primarily one of enabling a relatively well-defined group to cross into medium proficiency, though even here, the reader profile evidence suggests that low-rate members of this group face harder processing challenges than their proficiency medians imply. For deep deficit, dispersed countries, the range of starting points is wider and the distance to functional competence greater for a substantial share of the population, with the policy implications differing sharply between a high-rate country like Chile, where the challenge is both broad and deep, and a low-rate one like Finland, where it is narrow but severe. The domain-divergent profiles – literacy gap and numeracy gap – point to a different kind of challenge altogether: one in which the nature of the deficit varies systematically across domains and in which any single programmatic response is unlikely to serve the full low-skilled population well.

Table 2.4. Do countries face different low-skill challenges? Chapter 2 Annex tables

Figure	Title
Table A.2.1	Proficiency levels of adults with low foundational skills across skill domains
Table A.2.2	Literacy and numeracy scores amongst adults with low foundational skills
Table A.2.3	Response times in the sentence reading component of adults with low foundational skills
Table A.2.4	Accuracy and response times in the sentence reading component of adults with low foundational skills (A)
Table A.2.5	Accuracy and response times in the sentence reading component of adults with low foundational skills (B)
Table A.2.6	Accuracy and response times in the sentence reading component of adults with low foundational skills (C)

StatLink  <https://stat.link/tw0oyz>

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Notes

¹ This is partly explained by the fact that numeracy and adaptive-problem solving tasks require the understanding of written instructions, i.e. a minimum level of literacy proficiency in the language of assessment.

² It should be noted that median literacy scores are calculated for the full low-skilled population, including adults whose classification is based on numeracy performance and who may perform above Level 1 in literacy. Median scores therefore reflect the central tendency of the group as defined throughout this report rather than the depth of literacy deficits specifically.

³ Example test questions of the reading components can be accessed here: <https://www.oecd.org/en/about/programmes/piaac/piaac-released-items.html#readingcomponents> [accessed 5. June 2026]

⁴ For the case of Sweden, the use of interpreters for the Background Questionnaire also plays a role in explaining this pattern. It means that adults with no or limited native language skills were routed to the direct assessment following the questionnaire, while this group would only have been interviewed using the doorstep interview in other countries and not progressed to the assessment.

⁵ See note 4

3

Who are the adults with low foundational skills?

This chapter examines the socio-demographic profiles of adults with low foundational skills, as well as variation in the economic and non-economic outcomes they are able to achieve. It identifies the characteristics most predictive of low skills, and analyses barriers to participation in adult learning activities among adults with low skills.

In Brief

Who are the adults with low foundational skills?

- Own levels of educational attainment and the level of education achieved by parents are the strongest predictors of having low literacy or numeracy skills in most countries. On average, knowing the level of education allows one to correctly identify an adult with low skills with 70% accuracy.
- In Denmark, Norway and Sweden the strongest predictor of low skills is migration background. The predictive power of this trait is, however, weaker than that of education in most other countries.
- Adults with low skills are not a homogeneous group. Looking at the socio-demographic characteristics adults most commonly share, three distinct profiles emerge: old natives from low-education families, migrants with language barriers, and a third group of “unexpected underperformers”, who end up with low skills despite favourable observable background conditions.
- Similarly, not all adults with low skills achieve the same economic and non-economic outcomes. About one-third of them stand out as being detached from the labour market. Another third is employed but in low-quality jobs paying low salaries. The final third is employed, enjoys significantly better working conditions and reports higher life satisfaction and better health than the second group.
- The achievement of better economic and non-economic outcomes for adults with low skills is largely uncorrelated with socio-demographic profiles. Old natives from low-education families are, however, significantly more likely to be out of the labour force.
- Adults with low foundational skills participate less in adult learning than the rest of the population. Structural barriers, as well as a reported lack of desire to participate, contribute to this gap. Among those adults who express unmet demand for adult training, a relative majority report lack of time for work-related reasons as the main barrier that prevents participation in learning activities.

Introduction

The first two chapters focused on the size of the population with low foundational skills and described their performance in the PIAAC literacy and numeracy assessments. This chapter focuses on the socio-demographic and economic characteristics associated with low skills. It also investigates the variation in economic and non-economic outcomes among adults with low skills and attempts to identify adults who beat the odds and enjoy relatively good outcomes. Finally, the chapter examines the barriers adults face in participation in adult education and training.

The chapter is structured in three sections. The first section examines which characteristics are associated with having low literacy or numeracy skills. It first presents descriptive relationships between a range of socio-demographic characteristics and low foundational skills and then uses machine learning methods to identify the most predictive characteristics. This supports policymakers and adult education providers to more effectively identify and target individuals with low foundational skills.

The second section looks more closely at adults with low skills and identifies distinct profiles, or groups, that share similar characteristics. This helps to better understand the diversity within this population. A similar exercise is then used to identify clusters of adults with low skills sharing the same (or similar) economic and non-economic outcomes. Comparing these groups helps identify which adults with low skills achieve better outcomes.

The third section examines participation in adult education and training activities, a key tool for improving skills. It focuses on the barriers that limit participation and highlights ways to increase the attractiveness and take-up of learning opportunities by adults with low skills.

Who has low literacy or numeracy skills?

The likelihood of having low literacy or numeracy skills varies significantly across population groups and is strongly associated with socio-demographic characteristics (Table A.3.1). On average across OECD countries, around 24% of young adults (aged 16-25) have low foundational skills, compared with 43% of older adults (aged 55-65). Educational attainment is also associated with proficiency in literacy and numeracy: 54% of adults who have not completed upper-secondary education (e.g. high-school, A-Levels) have low skills, compared with only 16% of tertiary graduates (e.g. Bachelor's or Master's). There are also differences by migration status: while 27% of native-born adults have low skills, this share rises to 52% among foreign-born adults. Consistent with the lack of large gender differences in average literacy or numeracy skills (OECD, 2024^[1]), men and women are equally likely to have low foundational skills.

Regression analysis estimates the association between socio-demographic characteristics and the probability of having low skills, while accounting for correlations between these characteristics. For instance, older adults tend to have, on average, lower levels of education than younger adults. Similarly, foreign-born adults may differ from native-born adults in both educational attainment and language background. Figure 3.1 presents some results from such regression analysis, focusing on the estimated difference in the likelihood of living with low skills between older (55-65 year-olds) and prime-aged (25-36 year-olds) adults, between foreign-born and native-born adults, and between tertiary educated adults and adults who have not attained upper-secondary education.¹

The relationship between different background characteristics and the probability of low foundational skills varies across countries (Figure 3.1). In terms of age, for instance, there is no statistically significant difference in the probability of low foundational skills between older (aged 56-65) and prime-aged adults (aged 26-35) in New Zealand, the Slovak Republic and Sweden, but this gap exceeds 20 percentage points in Chile, Estonia and Korea.

Compared with tertiary-educated adults, those without upper-secondary education have a much higher predicted probability of having low foundational skills in all countries. This ranges from 32 percentage points in Croatia and Norway to 59 percentage points in Hungary (Table A.3.2). Since this group is relatively small in many countries, it may be more meaningful to examine upper-secondary educated adults. Their estimated probability of low foundational skills is also higher than for tertiary-educated adults, ranging from 9 percentage points in Finland, the Netherlands and Sweden to about 30 percentage points in Chile, France, Hungary, Singapore and the United States.

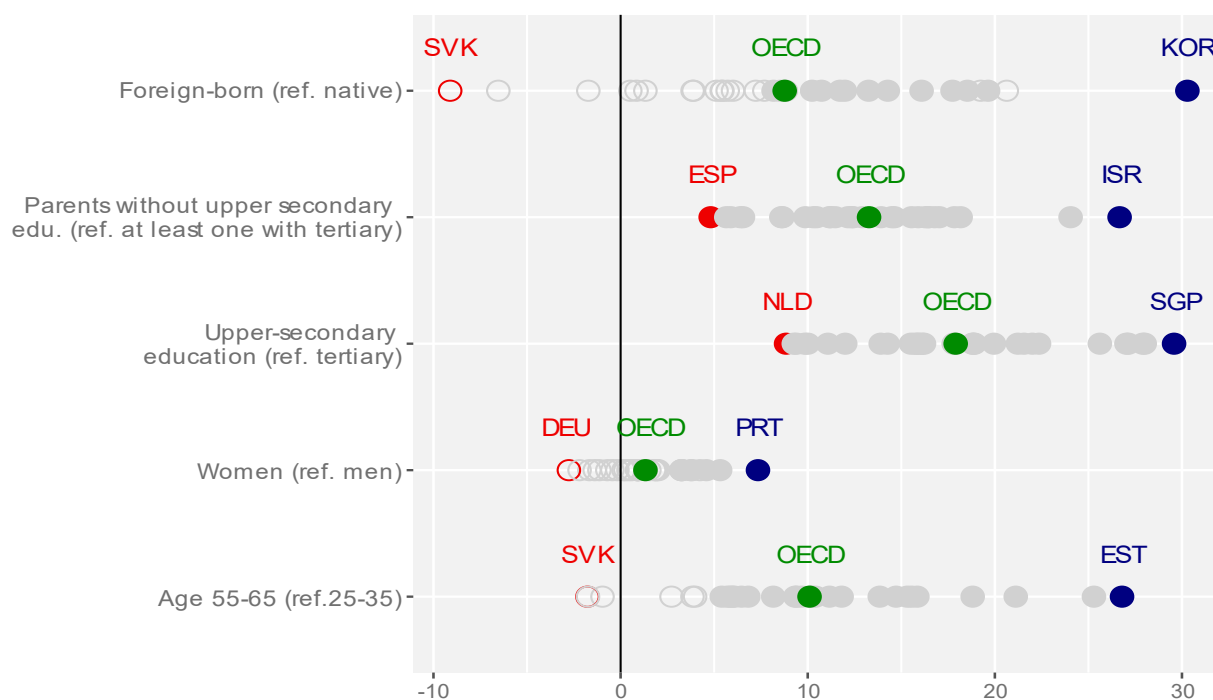
Parental education also matters, as adults with low-educated parents are more likely to have low skills themselves. The difference between those with low-educated parents (no parent with upper-secondary education) and those with at least one parent with a tertiary education is as large as 27 percentage points in Israel and as low as 5 percentage points in Spain.

Foreign-born adults are much more likely than native-born adults to have low foundational skills in Korea (by 30 percentage points) and France (by 20 percentage points). No statistically significant differences are found in many other countries, including Croatia, Ireland, Israel, Hungary, Latvia, the Slovak Republic and

the United States. The results for foreign-born adults illustrate how the analysis changes when accounting for other characteristics.

Figure 3.1. Own and parental education consistently predict low foundational skills

Change in the probability of low foundational skills associated with socio-demographic characteristics, percentage points



Note: The figure displays estimated coefficients from a linear regression of low-skills status on a range of socio-demographic characteristics, including: age, gender, highest level of education, parental education, immigrant status, whether the respondent native language is different from the language of the assessment, whether the respondent speaks at home a language different from the language of the assessment, whether the highest level of education was completed abroad, and whether the respondent dropped out of formal education without completing the programme. Statistically significant coefficients are highlighted with filled circles.

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.2

How can we identify adults with low foundational skills?

The results presented above provide valuable insights into the statistical association between socio-demographic characteristics and the probability of low foundational skills. However, comparing regression coefficients does not allow one to establish which characteristics are “more important” or “matter the most”.

The “importance” of a characteristic can be interpreted in different ways. A variable may be important because it has a large causal impact on an outcome: for example, education may be important if additional years of schooling causally improve skills. Alternatively, it may be important because it explains a large share of the variation in the outcome, or because it helps to predict which individuals are more likely to have low skills.

Establishing causal relationships with cross-sectional survey data like PIAAC is a challenging task. While the regression analysis presented above does not have the ambition to establish a causal link between regressors and the outcome of having low skills, it is (implicitly) designed to serve that objective: it controls for potential confounding factors and excludes variables that are likely to be consequences rather than

determinants of skills. This is why the regression included variables that are likely to influence skills acquisition (and unlikely to be influenced by it), and it excluded labour market outcomes, which are more likely to be a consequence of skills proficiency, rather than a cause of it.²

For policy makers and providers of adult learning programmes, a key objective is to identify adults with low foundational skills on the basis of easily observable characteristics. This allows for better targeting of policies and programmes to individuals who are more likely to benefit. Regression coefficients indicate how the probability of low foundational skills changes with a given characteristic, holding other factors constant. However, they do not measure how important a variable is for predicting whether an adult has low foundational skills. First, coefficients depend on the scale of variables, so it can be challenging to compare the size of the coefficients across characteristics – for example the coefficients associated with education with the one associated with migration status. Secondly, because coefficients do not reflect how much a variable varies in the population. For example, migration status may be strongly associated with low skills, but if most individuals are native-born, it will have limited predictive value in practice.

For these reasons, this subsection relies on two statistical methods (LASSO and Random Forests, briefly illustrated in Box 3.1) to identify which variables carry the strongest predictive signal. In other words, the analysis asks which variables are most useful for correctly identifying individuals with low literacy or numeracy skills. This results in a ranking of variables by predictive importance, complementing the regression analysis presented above, which focuses on the strength of associations with low foundational skills.

For predictive purposes, an “important” characteristic is one that helps distinguish individuals with low and high foundational skills, independently of the direction of the causal link between the variable and low-skills status. An outcome variable like employment status or wages can be useful in this predictive sense, even though one cannot claim that earning a higher or a lower wage causally affects skill proficiency – most likely, the causal link works in the opposite direction, with higher skills being rewarded on the labour market with higher wages.

Box 3.1. LASSO and random forests: two approaches to identify influential variables

LASSO (Least Absolute Shrinkage and Selection Operator) and random forests are two well-established machine learning methods which can be used to identify which variables matter most for predicting an outcome. They do so in fundamentally different ways.

LASSO is a form of linear regression with an added penalty that shrinks coefficients of unimportant variables toward zero. Variables whose contribution is too weak to overcome the penalty have their coefficients set exactly to zero, dropping them from the model. For this reason, LASSO is often used as a variable selection model. LASSO assumes that relationships are essentially linear and that variables combine additively.

Random forests take a very different approach. They build many decision trees, each grown on a random subsample of the data using a random subset of variables and then average their predictions across trees. Because trees split repeatedly on different variables and combine them at each split, random forests automatically capture non-linear patterns and interactions, without the need to specify them in advance. Variable importance is measured by how much predictive accuracy deteriorates when a variable's values are randomly shuffled across observations. Contrary to LASSO – which is a regression model where the sign of the coefficient is informative about the relationship between the regressors and the outcome – the importance metrics of random forests have no sign attached.

Because the two methods rest on different assumptions, they have complementary strengths, hence the interest in using both, at least for robustness purposes. LASSO is a more transparent and easier to interpret model but can miss variables whose influence operates through interactions or non-linearities. Random forests handle complex relationships well but are harder to interpret and provide no directional reading. When both methods agree that a variable matters, the finding is robust to assumptions about functional form. When they disagree, the disagreement is itself informative – often signalling non-linear effects that a linear model cannot detect.

Assessing model performance

Both models are evaluated using out-of-sample predictions – cross-validation for LASSO, out-of-bag predictions for the random forest – so that performance reflects how well each model generalises beyond the data used to fit it. A common summary indicator of the predictive performance of the model is the Area Under the ROC Curve (AUC), which can be interpreted as the probability that the model assigns a higher predicted risk of having low skills to a randomly chosen adult with low skills than to a randomly chosen adult who does not have low skills. An AUC of 0.5 corresponds to random guessing and 1.0 to perfect ranking. The ROC curve (Receiver Operating Characteristic curve) traces the trade-off between correctly identifying adults with low skills (sensitivity) and falsely flagging adults who do not have low foundational skills (false positive rate) as the classification threshold varies; the AUC is the area beneath this curve.

The analysis therefore includes the socio-demographic characteristics already used in the regression analysis presented in Table A.3.2, but also additional outcome variables – in particular labour force status, type of contract and the occupational classification of the respondent's job (based on the job's skill level). These variables are included because they are easily observable by policy makers and training providers, thus making the results of the analysis more directly informative and applicable.

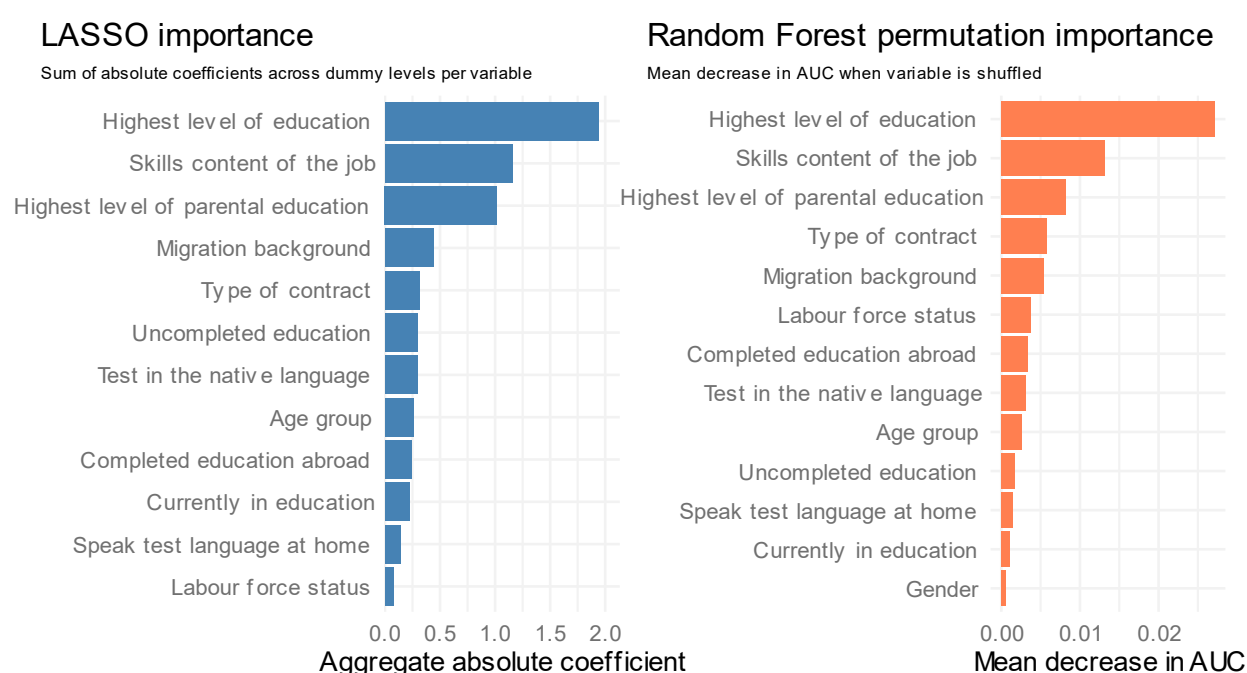
Before moving to the results, it is important to emphasise that the “importance” of any variable included in the analysis should not be interpreted in a causal sense: the analysis does not identify the determinants of low skills; it identifies only which variables are useful for predicting whether an individual has low foundational skills.

How accurately can we predict low foundational skills?

The two models – LASSO and random forests – perform very similarly in terms of predictive performance, as well as in terms of the ranking of variables. When confronted with two randomly chosen individuals, one with low foundational skills and the other without, both models are able to correctly assign a higher probability to the actual individual with low skills 78% of the time.³ This is a noticeable improvement over the baseline probability, which would be simply equal to 50%. Moreover, both models agree on the top three variables in terms of importance, which are education, the occupational classification of the respondent's job, and parental education (Figure 3.2).

Figure 3.2. Education, occupation and social background are the top predictors of low skills

Ranking of variables included in the LASSO and random forests model, by predictive importance



Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.3

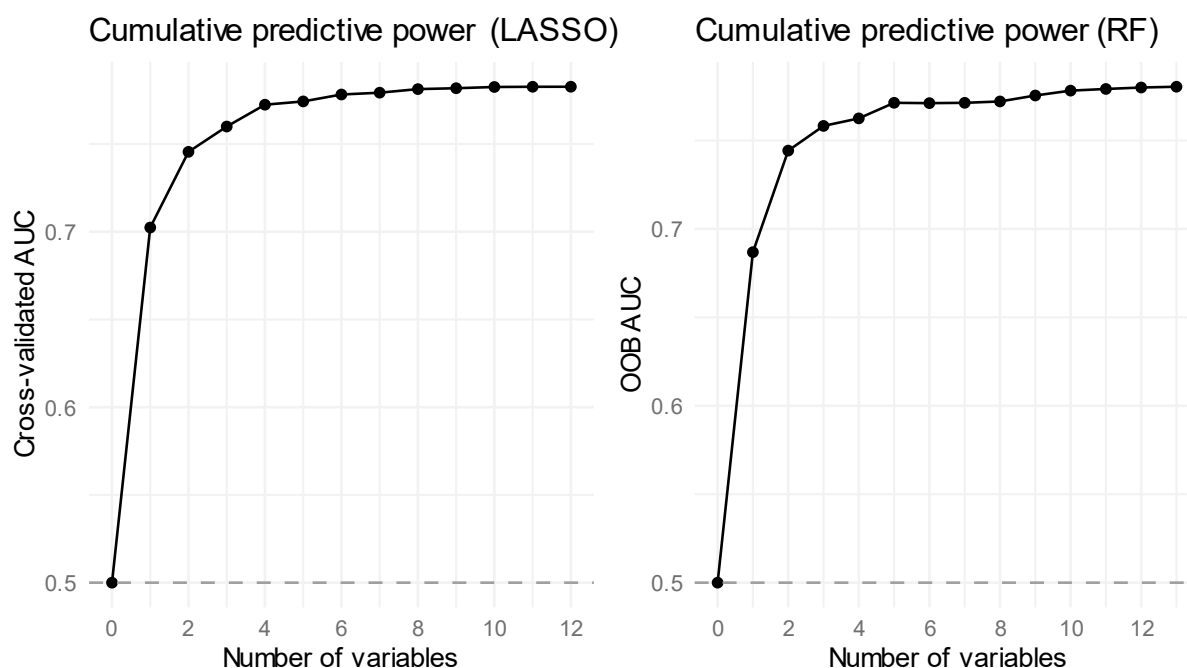
When interpreting the variable ranking, it should be kept in mind that, for both LASSO and random forests, the metric presented in Figure 3.2 report the contribution of each variable conditional on all the other variables included in the model. In the random forest model, for example, when education is shuffled randomly across observations, and all other variables are kept in the model, the predictive power of the model (as measured by the AUC) decreases by about 3 percentage points. The reduction in predictive performance is rather small, because the model includes other variables that are highly correlated with education.

This is clearly seen in Figure 3.3, which shows how the predictive performance of the model increases as variables are progressively added to an empty model. Most of the improvement relative to the baseline comes from the three most important variables. As variables are added in order of importance, education is the first. When doing so, the predictive performance of both models increases by about 20 percentage points, which – for the random forests model – may look like a much larger effect than the 3 percentage points decrease in AUC (presented in Figure 3.2) when the variable is shuffled. The difference lies

precisely in the fact that the importance score is based on shuffling a variable while keeping all other variables in the model, while the cumulative increase in predictive power shows the effect of adding a variable to an empty model. When doing so, the first variable that is added will have mechanically a larger impact than the subsequent variables.

Figure 3.3. Few variables account for most of the predictive power of the models

Increase in the predictive power of LASSO and Random Forest as variables are added to the models



Note: The figure shows how the predictive power of the LASSO and Random Forest model increases with the number of variables added to the model. Variables are added in order of importance, with the most important variable added first.

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/>

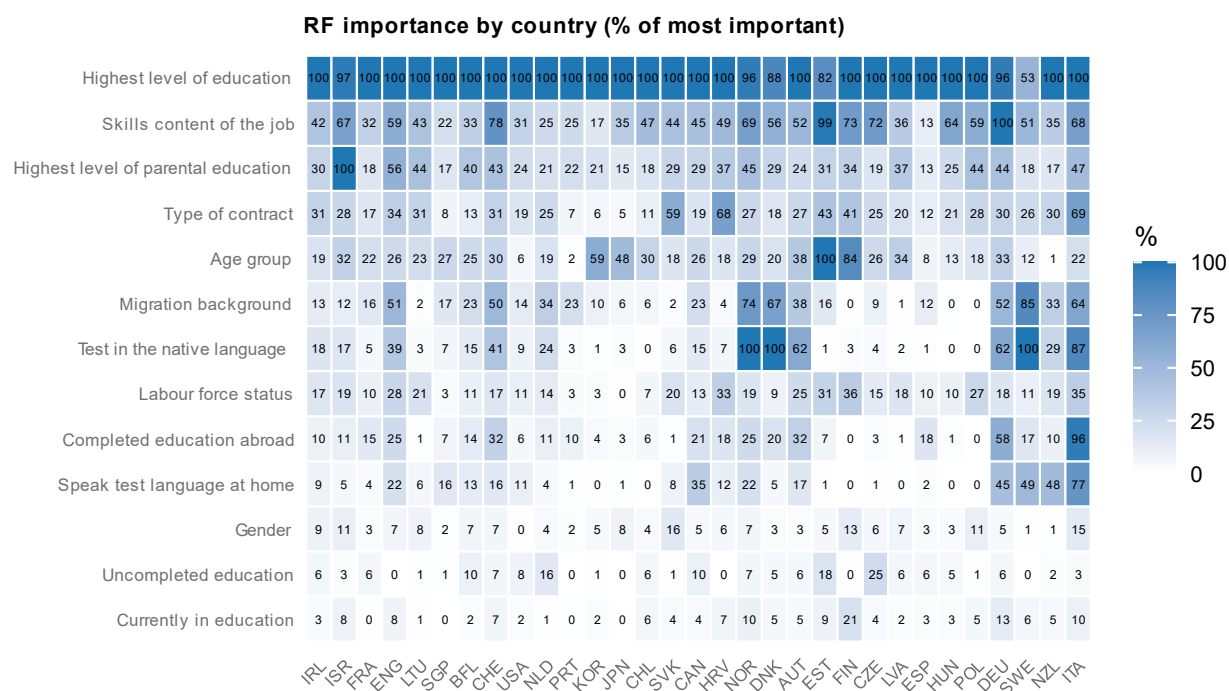
Country-level results

Estimating the models on country-specific samples broadly confirms the findings from the pooled analysis, although with some nuances (Figure 3.4). In 25 out of 31 countries, education is the most important predictor. In most of the remaining countries, it ranks second, with a predictive power above 80 percent of the predictive power of the most important variable. Sweden is the only country where the predictive power of education is substantially lower - only about half of the most important variable (language background) – although it still ranks among the top three variables.

In Denmark, Sweden and Norway, the most important predictor of low foundational skills is whether the native language of the respondent is different from the language of the assessment. This likely reflects the fact that the vast majority of adults with low skills in those countries are foreign-born (see the following section). In Israel parental education is the most important predictor, followed by one's own education. In Estonia, the most important predictor is age, followed by the respondent's occupation.

Figure 3.4. In most countries, education is the strongest predictor of having low skills

Relative importance of variables in the random forest models, by country



Note: The figure shows the relative importance of each variable, setting to 100 the most important variable in each country. Countries are ordered by their "agreement with the average" – measured by the correlation of country's ranking with the mean ranking.

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.4

On average across OECD countries, the most important variable achieves almost 80% of the predictive power of the full model (Table A.3.5). In Latvia, Portugal and Spain just knowing the most important variable (education) helps correctly identify most adults with low skills: the predictive power of a model with only education is in fact about 86% of the predictive power achieved by the full model. In Denmark, Norway and Sweden, on the other hand, the most important variable (having a native language different from the language of the assessment) is able to achieve an AUC below 70% of the one achieved by the full model (60 percent in Denmark, 62 percent in Norway and 68 percent in Sweden). This implies that, while language background is the most important predictor, other characteristics also contribute meaningfully to improving the predictive power of the model.

A closer look at the characteristics of adults with low skills and their economic and non-economic outcomes

This section groups the population of adults with low skills according to their socio-demographic characteristics, as well as their main economic and non-economic outcomes.

Socio-demographic characteristics can be understood as antecedents of foundational skills. As argued in the preceding section, they are likely determinants of skills proficiency. At a minimum, one can say that, if a causal link is present, it runs from socio-demographic characteristics to skills proficiency, and not the other way round.⁴ In the case of outcome variables, causality is generally assumed to run from skills to economic and non-economic outcomes, although this often requires stronger assumptions.⁵

The analysis in this section does not seek to establish causal relationships between skills, outcomes and socio-demographic characteristics. The variables used are nonetheless classified as either background characteristics (antecedent to skills) or as outcomes, the latter being normally influenced (at least to some extent) by skills proficiency.

Socio-demographic profiles of adults with low foundational skills

Adults with low foundational skills tend to be relatively old. On average across the OECD countries participating in PIAAC, the majority are aged 45 or older, and about a third are aged 55 or above (Table A.3.6). In Finland, almost 60% of adults with low skills are above 55 years old. This share is more than 40% in Estonia, Japan and Korea. In a number of countries (Austria, Czechia, Estonia, Germany, Italy, Japan, Korea, Singapore and Switzerland), fewer than 10% of adults with low skills are between 16 and 24 years old. Israel, New Zealand, Sweden and the United States stand out as countries where all age groups are more equally represented.⁶

About half of adults with low skills have upper secondary education as their highest level of educational attainment, and about 30% did not complete upper secondary. The share of adults with low skills who do not have an upper secondary qualification is much higher in Italy and Spain (about 55%) and Portugal (66%), and below 20% in Czechia, Korea, England (UK), Poland and Singapore.

A large share of adults with low skills – 42% on average – grew up in families where neither parent completed upper secondary education. This share exceeds 60% in Korea, Spain and Singapore, and is as high as 76% in Italy. It is well below average (20-30%) in Germany, Latvia, Poland, the Slovak Republic and the United States, and below 10 % in Czechia.

Less than a quarter of adults with low skills are foreign-born, on average, though this share varies substantially across countries, partly reflecting the size of the foreign-born population. Fewer than 5% of adults with low skills are foreign-born in Czechia, Japan, Korea, Poland and the Slovak Republic, while in Norway, Sweden and Switzerland a majority of adults with low foundational skills are foreign-born (54%, 60% and 56%, respectively).

What does a typical adult with low foundational skills look like? The statistics above cannot answer this directly: knowing the share of foreign-born adults, or the share aged 55 or older, says nothing about how these characteristics overlap within individuals. Cluster analysis addresses this by identifying groups of adults who share similar combinations of characteristics, yielding a small number of interpretable profiles (Box 3.2).

The clustering analysis reveals three distinct profiles:

- Cluster 1: Older natives from low-education families
- Cluster 2: Migrants with language barriers
- Cluster 3: Unexpected underperformers

Cluster 1 is the largest, accounting for 43% of adults with low skills across OECD countries participating in PIAAC (Table A.3.8). Adults in this group tend to be older (65% are between 55 and 65, with an average age of 54; Table A.3.7). Almost all are native-born and speak the language of the assessment as their native language. About three quarters had parents without upper-secondary education. Only 15 percent have attained tertiary education, and 37 percent did not attain upper secondary. This is the largest share across the three clusters.

Cluster 2, the smallest, accounts for about 20% of adults with low skills (Table A.3.8). It is almost exclusively composed of adults with a migration background: 92% were born abroad, and 88% have a native language different from the assessment language (Table A.3.7). Compared to the first cluster, they are younger (only 20% are above 55). The educational profile of this group is polarised: 30% attained

tertiary education, but 40% did not complete upper secondary. 23% have at least one parent with tertiary education, while 53% have parents who have not completed upper-secondary education.

Box 3.2. K-modes clustering: identifying profiles within the low-skilled population

Cluster analysis groups individuals based on similarity across multiple characteristics, without specifying in advance what those groups should look like. Clustering algorithms aim to form groups as homogeneous as possible, and at the same time as different as possible from other clusters. Where regression-based methods (such as LASSO) ask which variables predict an outcome, clustering asks a different question: do the data fall into distinct profiles, and if so, what do those profiles look like?

K-modes is a clustering algorithm designed for categorical data. The more frequently used k-means algorithm groups observations around averages – but averages are not defined for categorical variables such as level of education, migration background, or employment status. K-modes replaces the average with the mode (the most frequent value taken by a categorical variable) and measures the distance between two individuals as the count of variables on which they differ. The algorithm iteratively reassigns individuals to the cluster whose mode they most resemble, until the assignments stabilise.

The algorithm was applied separately to two sets of variables: socio-demographic characteristics, which can be considered antecedents of skills formation (early-life and structural determinants such as parental education, migration background, and educational attainment) and outcomes, which can be assumed to be at least partly determined by skills proficiency (e.g. current labour market outcomes, health or life satisfaction). This results in two separate profiles, one based on socio-demographic characteristics, and one based on outcomes. Cross-tabulating profiles memberships allows one to ask whether different “origin” profiles map onto different outcome profiles – or, in other words, whether sharing a set of background characteristics is associated to also sharing a set of outcomes.

The clustering analysis is performed on the pooled sample. In this way, it is possible to meaningfully compare the distribution of adults in different profiles across countries. Sampling weights were rescaled so that each country contributes equally irrespective of sample size. The analysis excludes young adults aged 16-24: this helps with the interpretation of the highest level of educational attainment and labour force participation, as many young adults are still in education.

Clustering methods have no built-in test for the “right” number of groups. Analysis of silhouette scores (a measure of how well-separated the clusters are), split-sample stability (whether the same profiles emerge in independent halves of the data), and the substantive interpretability of the resulting groups suggested that three clusters were a reasonable and interpretable way to summarise the data for both clustering exercise.

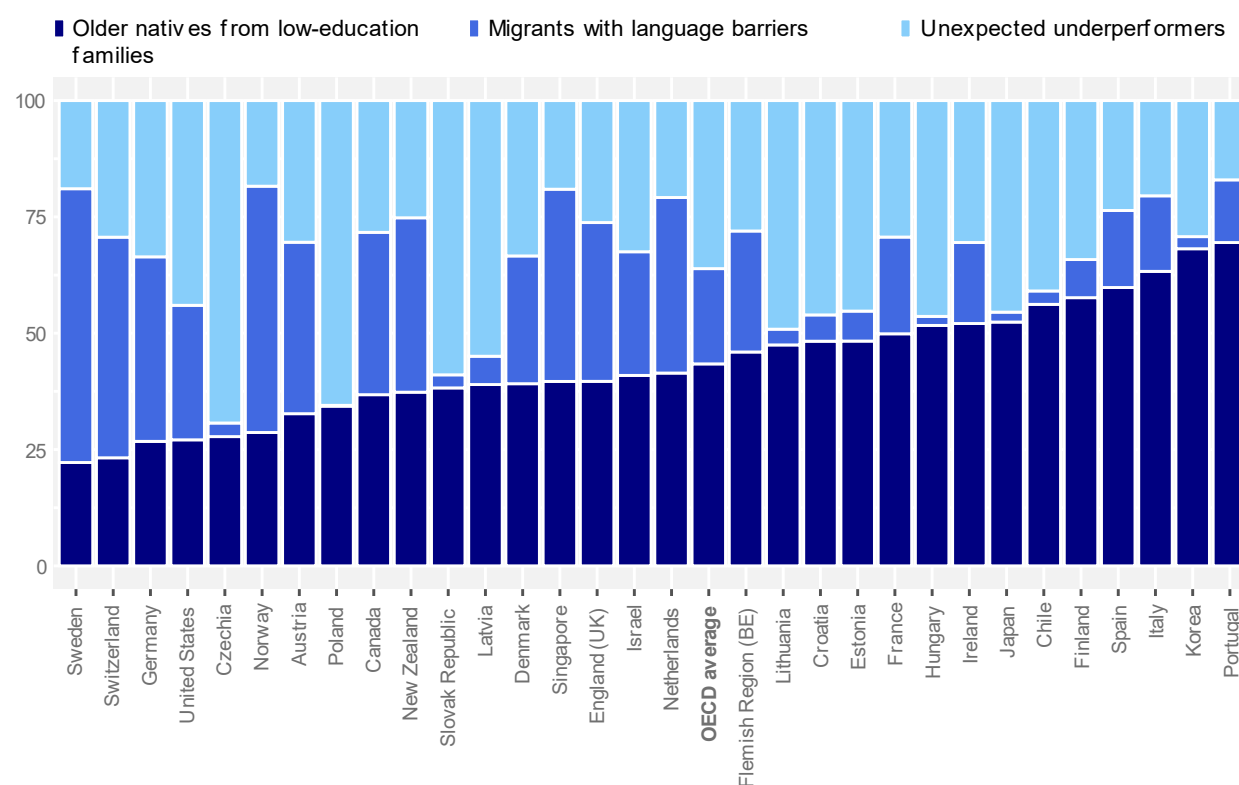
Clustering offers a compact way of summarising the joint distribution of many categorical variables at once. Rather than inspecting correlations between each pair of variables – and then trying to hold several of them in mind simultaneously to identify recurring combinations – clustering surfaces those combinations directly, in the form of a small number of profiles. This however comes at the cost of detail: each profile is represented by its most common values, as if every individual in the cluster shared exactly those characteristics. Individuals within a cluster vary, sometimes substantially, around that central profile. The clusters should therefore be read as stylised summaries of the dominant patterns in the data, more than as homogeneous categories.

Cluster 3 is labelled as “unexpected underperformers” because they present, by and large, a socio-demographic profile which is normally associated with higher proficiency in foundational skills. They are the youngest (22% is between 25 and 36, and only 14% are above 55; Table A.3.7); less than 10% was born abroad, and 95% are native speakers in the assessment language; 22% attained tertiary education,

and only 19% did not complete upper secondary; and only 7% have parents without an upper-secondary qualification. Further analysis would be needed to identify the reason for the underperformance of this group. Possible candidates would be quality of education (not captured by the simple fact of having achieved a degree), or other sources of disadvantage like poor cultural capital which are less easily measurable in a survey like PIAAC.

The distribution across profiles varies substantially across countries (Figure 3.5). In Sweden and Switzerland, less than 25% of adults with low foundational skills belong to the first cluster (older natives from disadvantaged families), while in Italy, Korea and Portugal the share of this cluster exceeds 60%. Cluster 2 (migrants with language barriers) is virtually absent in Hungary, Japan, Korea and Poland; yet the share of adults with low skills belonging to this cluster approaches 40% in Austria, Canada, Germany, the Netherlands, New Zealand and Singapore and exceeds 50% in Norway and Sweden. The share of adults in Cluster 3 (unexpected underperformers) varies less across countries - around 20% in Italy, Norway, the Netherlands, Portugal, Sweden, and Singapore; and exceeding 50% in Czechia, Latvia and Poland.

Figure 3.5. The socio-demographic profiles of adults with low skills vary across countries



Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.8

Economic and non-economic outcomes of adults with low foundational skills

This subsection focuses on the economic and non-economic outcomes of adults with low foundational skills. The economic outcomes included in the analysis are labour force status, position in the national wage distribution, type of occupation (elementary, semi-skilled blue collar, semi-skilled white collar, skilled), type of contract, and whether adults have ever participated in adult education and training. Among non-economic outcomes, the analysis considers health and life satisfaction (both self-reported).

On average across OECD countries, about two in three adults with low skills are employed, and only 5% are unemployed (Table A.3.9). Employment rates range from 52% in Italy to 76% in Singapore. The relatively high share of adults out of the labour force (30%) partly reflects the age distribution: as many adults with low skills are above 55, many are likely already retired.⁷ As the demographic transition pushes many countries to raise retirement ages, this inactivity should not be seen as a “neutral” fact - it is quite possible that some of these adults would have remained in work, had they possessed higher skills and better job opportunities.

Among those in employment, a minority work in elementary occupations (16% on average), while 60% work in semi-skilled occupations (evenly split between blue-collar and white-collar). Adults with low skills are however over-represented at the bottom of the national wage distribution: 31% are in the bottom quintile (ranging from 24% in Korea to 43% in Sweden), and only 9% are among the top wage earners in their country (only 4% in Finland, and up to 17% in Korea).

In terms of non-economic outcomes, 36% report good health, while 25% report poor health (see Chapter 1 for more information on how health and life satisfaction are measured). The share reporting poor self-reported health is highest in Estonia (48%) and lowest in Poland (7%). More than half (55%) report high life satisfaction, with the highest levels reported in Switzerland (71%) and the lowest in Japan (25%).⁸ Fewer than 5% of adults with low foundational skills report low life satisfaction.

Applying the same cluster analysis as before, three profiles emerge, each accounting for roughly one-third of adults with low skills, on average:⁹

- Cluster 1: Employed with relatively good outcomes
- Cluster 2: Employed with relatively worse outcomes
- Cluster 3: Out of work

All adults in the first two clusters are employed; what distinguishes them is the quality of such employment. Almost 40% of adults in the first cluster work in skilled occupations, compared to 13% of adults in the second cluster (Table A.3.10). Twice as many adults in the first cluster earn wages that put them in the top quintile of the national wage distribution (10% and 5%, respectively). Nearly 40% of adults in the second cluster are in the bottom quintile of the wage distributions, compared to only 12% of adults in the first cluster.

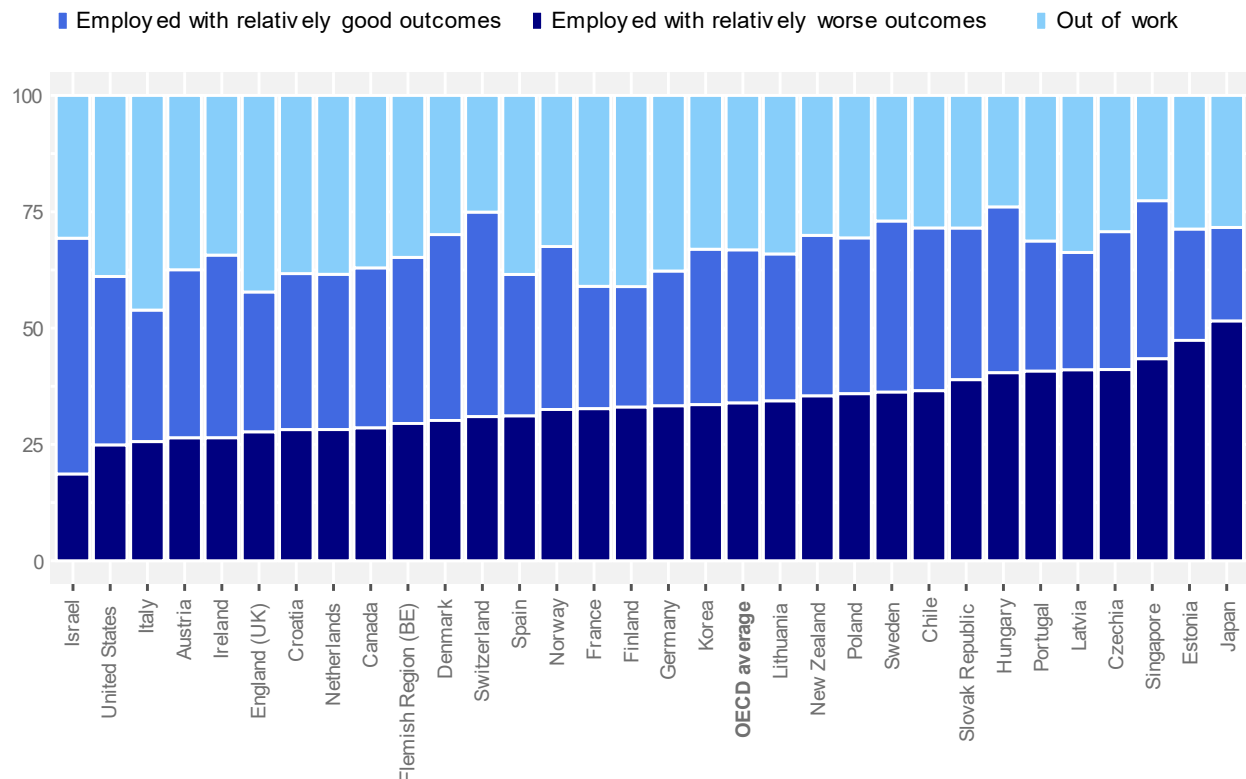
Adults in the first and second clusters also differ in terms of non-economic outcomes. Among “employed with relatively good outcomes” adults, 54% report good health, and 80% report high life satisfaction, compared with 15% and 31%, respectively, among those “employed with relatively worse outcomes” (Table A.3.10).

Adults in cluster three are mainly out of work: 84% are inactive and 13% are unemployed (Table A.3.10). Some of this inactivity may be voluntary and linked to retirement: 45% of adults in the third cluster are above 55 years of age, compared to 30% of those “employed with relatively worse outcomes” and 25 percent of those “employed with relatively good outcomes”. Voluntary inactivity may also explain why self-reported life satisfaction is relatively high (41%), and age may partly explain why 52% of adults in this cluster report poor health (compared 21% in the first cluster and 29% in the second cluster). While the cluster analysis and the characterisation of the different clusters were conducted on the pooled sample and apply therefore on average across all countries, the results replicate well at the country level, indicating that the analysis is able of meaningfully discriminate clusters of adults within each individual country. Annex tables A.3.11-A.3.17 replicate Table A.3.10, showing, for each country, the distribution of economic and non-economic outcomes within each cluster. Across countries, the same pattern emerges that characterise in particular cluster 1 and cluster 2: a higher share of adults reporting high levels of life satisfaction and good health in cluster 1, a relative majority of adults in cluster 2 at the bottom quintile of the wage distribution (while a relative majority of adults in cluster 1 are in the second quintile), and a relative majority of adults in cluster 1 working in skilled occupations.

It is also important to note that, while the size of the low-skilled population varies a lot across countries (with less than 20% of adults having low skills in Finland, Japan, the Netherlands, Norway and Sweden, as opposed to more than 40% in Israel, Italy, Lithuania, Poland and Portugal, and up to 61% in Chile; see Chapter 1), there does not appear to be a correlation between the overall size of the low-skilled population and the distribution of adults with low skills in the different clusters. This is further evidence that the cluster analysis is not picking up any particular country-level features. The statistical separation observed, on average, between adults belonging to different clusters reinforces then the view (already expressed in Chapter 2) that adults with low skills are not a homogeneous group, as they can experience significantly different economic and non-economic outcomes.¹⁰

Moreover, the share of adults with low skills experiencing relatively good or relatively bad outcomes varies across countries, indicating institutional or structural economic differences that affect the relationship between foundational skills and economic and non-economic outcomes. Restricting attention to countries where at least 20% of adults have low foundational skills, to avoid over-interpreting differences among a relatively small group of adults, the share of adults with low skills in cluster 2 (“employed with relatively worse outcomes”) ranges from 19% in Israel to 47% in Estonia, while the share of adults with low skills in cluster 1 (“employed with relatively good outcomes”) ranges from about 25% in Estonia and Latvia to 44% in Switzerland and 51% in Israel (Figure 3.6). Fewer than 25% of adults with low skills fall into cluster 3 (“out of work”) in Hungary and Singapore, while more than 40% do so in France, Italy and England (United Kingdom).

Figure 3.6. Distribution of adults with low skills, by outcomes profiles



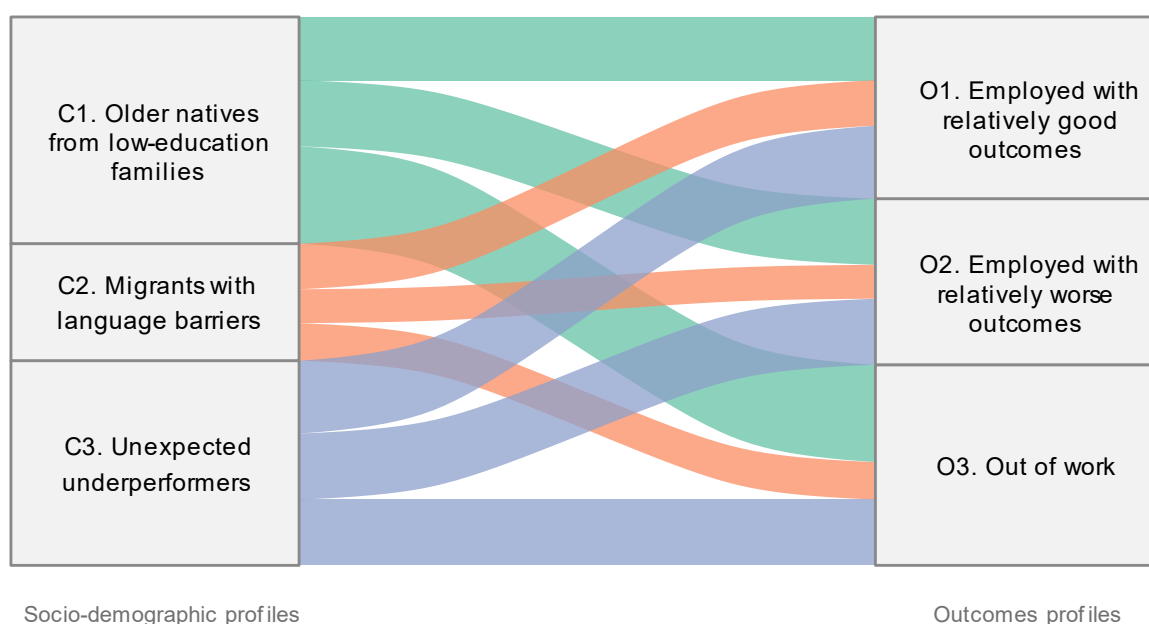
Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.18.

Do socio-demographic profiles predict economic and non-economic outcomes?

The natural concluding question is to what extent socio-demographic profiles map onto outcomes profiles – and thus to what extent characteristics that are largely predetermined for adults shape their economic and non-economic lives.

While it is well established that family background, education and migration history are strongly correlated to economic outcomes, among the population of adults with low skills such link does not seem very strong. Table A.3.19 shows, for each socio-demographic profile, the share of adults that are classified in the three outcome profiles. The mapping can be visualised in Figure 3.7.

Figure 3.7. Socio-demographic profiles do not determine outcomes profiles



Note: The figure shows the mapping between socio-demographic and outcomes profiles. The flows connecting socio-demographic to outcome profiles represents the shares of adults in each socio-demographic profile who are classified in each of the three outcomes profiles.

Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.19.

Adults with low skills and a migrant background (cluster C2) are roughly equally likely to be “employed with relatively good outcomes” (34%), “employed with relatively worse outcomes” (37%), and “out of work” (29%). Similarly, among “unexpected underperformers” (cluster C3), 37% are “employed with relatively good outcomes”, 35% are “employed with relatively worse outcomes”, and 26% are “out of work”. A larger correlation between socio-demographic background and outcomes can be observed for “older natives from low-education families” (cluster C1), where 41% are “out of work” – but this most likely reflects the older age profile of this group.

A more granular picture emerges from examining outcomes directly within each socio-demographic profile, rather than mapping profiles to profiles (which discards within-cluster variation). Table A.3.20 shows that the main difference between socio-demographic profiles lies in the employment rates: about three quarters of adults with low skills in clusters 2 and 3 (those with a migrant background and the “unexpected underperformers”) are employed, compared to 60 percent of adults in cluster 1 (“older natives from low-education families”). Unemployment rates are similarly low across the three clusters, confirming that what

set the three clusters apart is mainly the probability of being out of the labour force, partly driven by age. Life satisfaction varies little across clusters, while health varies more – again, partly because of differences in the age structure (22% of older natives from low-education families report good health, compared to 35% of adults in the two other clusters). Amongst those in employment, job quality does not vary significantly across socio-demographic profiles.

Barriers to participation in adult education and training for adults living with low skills

To conclude the chapter, this last section will look at the participation of adults with low skills in adult education and training activities, which are the main policy tool explicitly targeted to raise adults' skills. A recent OECD report found that, despite growing consensus on the importance of lifelong learning for economic resilience and individual opportunity, participation in adult education is stagnating or even declining in many countries (OECD, 2025^[2]). The report also found persistently low participation rates of adults from disadvantaged backgrounds, including low skills proficiency.

The results presented in Table A.3.21 confirm this finding: on average, only 27% of adults with low foundational skills participated in adult learning in the year preceding the survey, compared to 50% of all other adults.¹¹ Less than one in five adults with low skills participated in adult learning in Korea (12%) Croatia and Italy (14%), Hungary (16%), the Slovak Republic (17%), Austria and Japan (19%). Participation rates of adults with low skills were much higher (although still well below those of other adults) in Sweden (35%), the United States (38%), Ireland and New Zealand (39%) and Norway (44%).

Even more concerning, the low participation rates of adults with low skills does not appear to stem primarily from constraints to participation, but rather from a lack of desire to participate (or lack of any suitable offer). Only 18% of adults with low skills (and 27% of other adults) reported wanting to participate in training activities but were ultimately unable to do so (Table A.3.22). This unmet demand for training is highest in Sweden (reported by 35% of adults with low foundational skills) and lowest in Austria (9%).

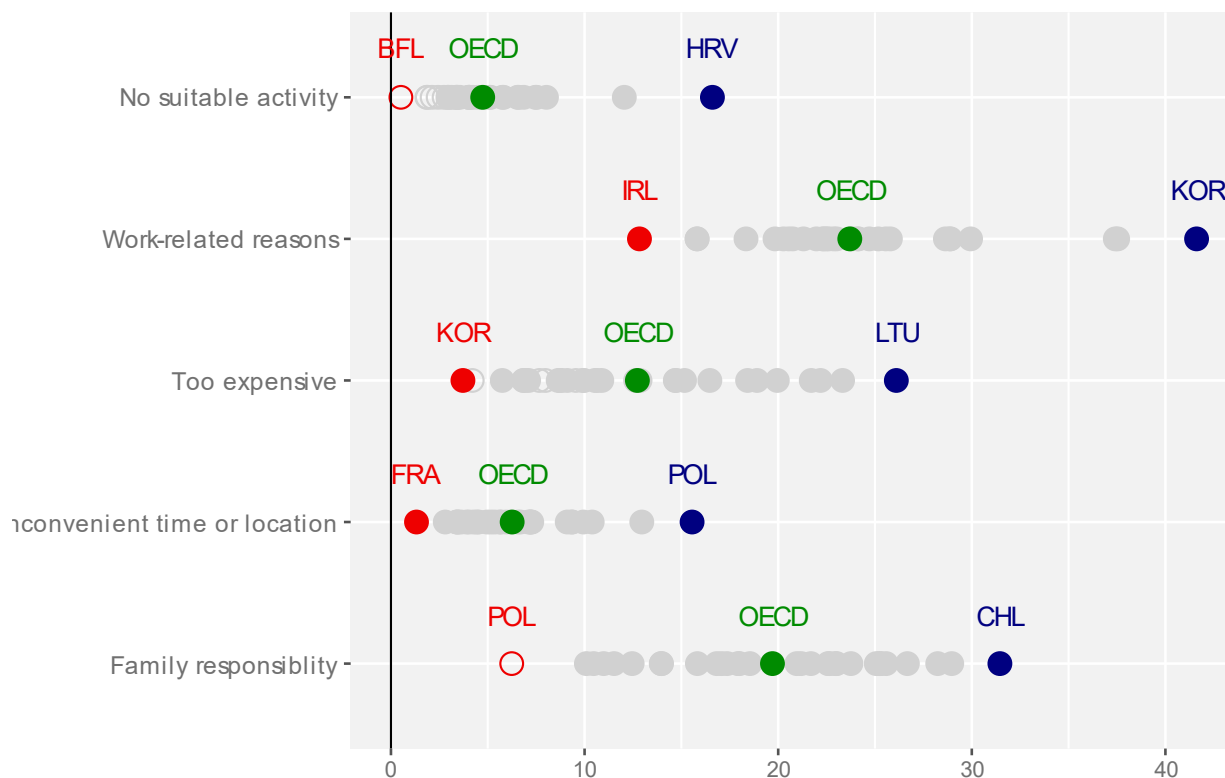
To adults who expressed such an unmet desire to participate in training, the Survey also asked them to name the most important reason that prevented them from attending the training activity. On average, the most common barrier was lack of time due to work-related reasons, reported by about a quarter of respondents with low skills (Table A.3.23 and Figure 3.8). About 40% of respondents reported this barrier in Japan, Korea and Singapore, compared with about 15% of respondents in Canada and Germany and 12% in Ireland.

Lack of time due to family responsibilities was reported by about one in five respondents on average. The share of respondents reporting this barrier approached or exceeded 30% in Chile, Italy and Japan, while it was reported by only about 10% of respondents in Denmark, Estonia and Hungary, and by 6% of respondents in Poland.

Financial barriers (the activity being too expensive) were reported by 13% of respondents on average. However, variation across countries is large in this respect, with the share ranging from 4% in Korea to more than 20% in Canada, Hungary and Israel, exceeding 25% in Lithuania.

Figure 3.8. Work-related reasons are the most common barriers to participation in adult learning

Share of adults with low skills reporting the following as the main reason for not participating in adult learning



Source: OECD (2024), Survey of Adult Skills (PIAAC) database, <http://www.oecd.org/skills/piaac/publicdataandanalysis/> and Table A.3.23.

Table 3.1. Who are the adults with low foundational skills? Chapter 3 Annex tables

Figure	Title
Table A.3.1	Percentage of adults with low foundational skills, by socio-demographic characteristics
Table A.3.2	Relationship between socio-demographic characteristics and the probability of being low-skilled
Table A.3.3	Importance ranking of variables in the LASSO and Random Forest models
Table A.3.4	Relative importance of variables in the Random Forest model, by country
Table A.3.5	Predictive power of the three most important variables in the LASSO and Random Forest models, by country
Table A.3.6	Socio-demographic characteristics of adults with low foundational skills, by country
Table A.3.7	Characterisation of socio-demographic profiles
Table A.3.8	Socio-demographic profile of adults with low foundational skills
Table A.3.9	Economic and non-economic outcomes of adults with low foundational skills
Table A.3.10	Characterisation of outcomes profiles
Table A.3.11	Type of contract, by outcomes profiles
Table A.3.12	Self-reported health, by outcomes profiles
Table A.3.13	Labour force status, by outcomes profiles
Table A.3.14	Self-reported life satisfaction, by outcomes profiles
Table A.3.15	Skills content of the job, by outcomes profiles
Table A.3.16	Participation in adult education and training, by outcomes profiles
Table A.3.17	Position in the national wage distribution, by outcomes profiles
Table A.3.18	Distribution of adults with low foundational skills, by outcomes profiles
Table A.3.19	Distribution of outcome profiles, by socio-demographic profiles
Table A.3.20	Economic and non-economic outcomes, by socio-demographic profiles
Table A.3.21	Participation in adult education and training
Table A.3.22	Unmet demand for training, by skill level
Table A.3.23	Barriers to participation in adult learning for adults with low foundational skills

StatLink  <https://stat.link/suxjay>

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- OECD (2024), *Survey of Adult Skills – Reader’s Companion: 2023*, OECD Skills Studies, OECD Publishing, Paris, <https://doi.org/10.1787/3639d1e2-en>. [3]

Notes

¹ The full results are presented in Table A3.2. In order to get a cleaner estimate of the association between skills and education, young adults aged 16-24 (who are likely to be still in education) are excluded from the analysis. Respondents who only took the Doorstep interview (see Chapter 1 and OECD (2024^[3])) are also excluded from the regression (as well as from most other analysis in this chapter), because the Doorstep interview did not collect much of the information needed for this and subsequent analysis.

² In fact, it is possible that some variables that are here classified as “outcome” do have an influence on skills. Being employed in jobs that require constant use of literacy and numeracy, for example, can plausibly contribute to maintain (or increase) proficiency in literacy and numeracy. At the same time, it is likely that having sufficient levels of literacy and numeracy is a prerequisite for obtaining those jobs. In this example, occupation and proficiency mutually reinforce each other. Cross-sectional data like PIAAC are unfortunately unable to disentangle this complex interrelationship.

³ This comes from an AUC of 0.78 for both models estimated on the pooled sample which includes all countries. Estimation on the pooled sample is more robust because it is based on a larger number of observations. Whenever in this chapter an analysis is performed on the pooled sample, survey weights are rescaled so that each country contributes equally, irrespective of their size.

⁴ The causal link is often not direct, but it is mediated by other channels. For example, immigrant status does not affect skills proficiency directly, but through particular education and life experiences that adults with an immigrant background have gone through (e.g. the native language they learnt in their family, or the type of education they had the opportunity to acquire). The central point here is the exclusion of a causal link going from skills to socio-demographic characteristics.

⁵ For example, as pointed out in endnote 2, it is possible that, while skills skill affect employment, being employed also helps to maintain and develop skills.

⁶ In some cases, the demographic structure of the population of adults with low skills can be traced back to specific country-specific policies or historical experiences. Sweden, for example, is a country with a relatively low share of low-skilled adults in the population (15%), a majority of which have a migrant background. Over several years, a substantial share of migrants who entered Sweden were refugees, a group of migrants spanning a wide age range.

⁷ The analysis presented in Chapter 1 shows that, even after controlling for age, low skills remain statistically associated with lower labour market participation. While Chapter 1 compared labour force status across the skills distribution, the analysis presented here only focuses on the population of adults with low foundational skills.

⁸ Cross-country differences in such self-reported measures may suffer from cultural bias and should therefore be interpreted with caution. More meaningful information can be drawn when comparing how these self-reported indicators are related with skills within each country.

⁹ For this analysis, the sample is again restricted to adults above 25 years of age; when information on economic outcomes like wages, contract or type of jobs is missing by design (i.e., because the individual is not employed) a separate category is included to account for that.

¹⁰ At the same time, it should be stressed that a significant degree of within-cluster heterogeneity is still present and any in-depth analysis of the outcomes experienced by adults with low skills should take that into account.

¹¹ Even controlling for age does not significantly change the picture, as the average adjusted gap remains high at 21 percentage points.

4 What can policy do to support adults with low foundational skills?

This chapter outlines key policy levers to support adults with low foundational skills. Drawing on the evidence presented in previous chapters, it considers how different interventions align with the identified challenges and examines how policy responses can be adapted to different populations and national contexts.

In Brief

What can policy do to support adults with low foundational skills?

- The case for investing in improving foundational skills is strong and cross-national. PIAAC data shows that moving from low to medium proficiency can yield substantial gains in employment, wages, health, life satisfaction and civic participation.
- The Matthew effect is the central policy challenge: Adults with the lowest skills are also the least likely to engage in learning, due to limited motivation and awareness of their own skill gaps, past negative educational experiences, financial and time pressures, and insufficient employer support. Passive awareness campaigns of adult learning opportunities consistently fail to reach this group.
- Active outreach through trusted intermediaries, employers, trade unions, community organisations, healthcare and social services, is the most effective channel for identifying and engaging adults with low foundational skills.
- Programme design must match the deficit. Contextualised, sufficiently intensive provision consistently outperforms short, abstract instruction for this target group. Duration matters: adults with significant foundational deficits require sustained engagement. Flexible modular pathways and recognition of prior learning can enable adults to combine this significant time investment with other life demands.
- Enabling conditions determine who can access the provision. Financial barriers, both direct costs and foregone income, are among the most consistently cited obstacles to participation. Workplaces are key places for skill development. Most adults with low foundational skills are employed, but their jobs often involve low-complexity tasks that erode rather than develop skills. Free foundational skills training in the workplace, interwoven with job-specific tasks, can help overcome participation barriers.
- Prevention is the long-term strategy. High-quality early childhood education and care support foundational skill development, especially for children from disadvantaged families. Reducing intergenerational transmission of low foundational skills also requires ensuring that skills acquired in adulthood are reinforced through regular use in work and everyday life.
- The composition of the population of adults with low foundational skills varies fundamentally across countries, and four distinct profiles - near-threshold, deep-deficit, literacy gap, and numeracy gap - define both the starting points and the logic of intervention. In near-threshold countries, efficient short-course upskilling is the primary lever; in deep-deficit countries, provision must be intensive, differentiated, long-duration, and inseparable from a broader educational equity agenda. Where a literacy gap predominates, rapid language integration of newly arrived migrants is the central preventive priority, while numeracy gap countries point to systematic weaknesses in initial mathematics education. Country typology thus shapes prevention as much as remediation, requiring genuinely differentiated policy responses for each context.

Introduction

Low foundational skills are not inevitable, but neither are they easily reversed. This report aims to equip policymakers with evidence on where investments into increasing foundational skills can have an impact, who is most in need of support, and the conditions under which skills can be developed and sustained over time. The levers available to policymakers go beyond the design of effective learning opportunities; they extend to supporting workplaces, families and communities in reinforcing skills through everyday use. Equally important is recognising and addressing the barriers that hold people back, including limited awareness of skills and opportunities, low confidence, and competing life demands. This chapter sets out the key policy levers for reaching adults with low foundational skills more effectively, supporting their progression, and reducing the emergence of low foundational skills in future generations.

What is the rationale for policy intervention?

Evidence from PIAAC shows that low levels of foundational skills are associated with persistent and multidimensional disadvantages (see Chapter 1). Adults with low proficiency in literacy and numeracy are significantly less likely to participate in the labour market, and more likely to report poorer outcomes across a wide range of well-being and civic engagement indicators, including health, life satisfaction and social trust. These disadvantages often reinforce one another across the life course. The transition from low to medium proficiency represents a critical threshold. Crossing this threshold can yield substantial gains in economic and social outcomes. The persistence of low foundational skills and their far-reaching consequences point to a clear role for public intervention. The following section outlines at least three key reasons why such an intervention is warranted (OECD, 2021^[1]).

Reducing individual barriers to participation

Adults with low foundational skills often do not access learning opportunities, even when these exist – a phenomenon known as the Matthew principle (OECD, 2025^[2]; Blossfeld, Kilpi-Jakonen and de Vilhena, 2020^[3]; Boeren, 2009^[4]). The reasons are well-documented: lack of appropriate provision, limited awareness of what is available, low motivation and confidence rooted in earlier negative experiences of education, lack of belief that training investment will pay off and the practical pressures of work, caring responsibilities and financial insecurity (Cross, 1992^[5]; Pennacchia, Jones and Aldridge, 2018^[6]; Roosmaa and Saar, 2016^[7]). These are not simply personal failings; these are structural obstacles that suppress demand for learning among the very adults who stand to benefit most.

Policy has a role to play in reducing these barriers, whether through outreach and guidance, flexible delivery models that accommodate competing life demands, or financial support that makes participation feasible. Without a deliberate effort to lower the threshold for participation, provision will continue to reach those who are already investing in their skills.

Addressing under-provision by employers

Employers, too, tend to under-invest in the foundational skills of workers with low skills, though the extent of the underinvestment varies with labour market institutions (Acemoglu and Pischke, 1999^[8]). This is partly a matter of information; many firms lack a clear sight of the skills gaps in their workforce and the training options available to address them (OECD, 2024^[9]). It is also a matter of incentives: the returns to foundational skills training are often diffuse and long-term, while the investment costs are immediate and visible for employers. Smaller employers in particular face higher unit costs per worker and are less likely to have the internal capacity – a dedicated HR function, for instance – to organise effective training (OECD, 2021^[1]; EC DG EMPL, CEPS and Panteia, 2020^[10]).

Even where employers and individuals are willing to invest, collective action problems can get in the way. Employers may hesitate to train workers in transferable foundational skills if they fear those workers will be poached by competitors who have not shared the training cost (Becker, 1975^[11]). Individuals may be reluctant to invest time and effort in learning if they are uncertain whether their newly acquired skills will be recognised or rewarded. Governments and social partners have a role in creating frameworks – sectoral training agreements, recognised qualifications, portable credentials – that align incentives and make it rational for employers and individuals alike to invest in skills development (OECD, 2021^[11]; OECD, 2019^[12]).

Unlocking wider economic and social returns

Beyond the direct benefits to individuals and employers, improving foundational skills generates wider returns that neither party fully captures in their own decision-making. These externalities provide a strong rationale for public investment. The economic case is well-established. Economies with large shares of low-proficiency adults risk becoming trapped in low-skill, low-productivity equilibria, in which weak skills discourage innovation and low innovation reduces the returns to skills investment. Breaking this cycle requires public action to internalise the benefits that markets will not price in on their own (Brunello and Wruck, 2020^[13]; OECD, 2021^[11]).

The social case is equally strong. Higher foundational skills are associated with better health outcomes, greater civic participation and higher levels of social trust – returns that extend well beyond the labour market. Equity is also a key concern: adults with low foundational skills are disproportionately from already disadvantaged societal groups. For example, they are likely to be inactive rather than simply unemployed, pointing to a group that conventional labour market policy often fails to reach. Lifting their skill levels requires co-ordinated action that combines skill-building with broader support for labour market re-entry.

How can adults with low foundational skills be reached?

Identifying adults with low foundational skills is only part of the challenge – the harder task is reaching and engaging them in adult learning opportunities. Effective engagement of this target group, therefore, requires both raising awareness and motivation and actively reaching out to where adults already are.

Building awareness and motivation

A frequently overlooked policy challenge is that many adults do not recognise their own skill gaps, underestimate the benefits of improving their skills, or do not see learning as relevant or achievable (Ambos, 2005^[14]). This can be understood as a lack of "skills consciousness", referring to awareness of one's skills, their value, and the possibility of developing them. (Osiander and Stephan, 2018^[15]; Pennacchia, Jones and Aldridge, 2018^[6]).

Low skills consciousness is not randomly distributed: it is most acute among the very adults who stand to gain most from participation. PIAAC data show that a major barrier to participation is the perceived lack of need for further training, not simply reluctance or practical constraints, but a genuine absence of awareness that a skills gap exists or that addressing it is feasible (Windisch, 2015^[16]; Grotlüschen, A. et al., 2016^[17]; OECD, 2025^[2]). Adults with low proficiency who work in low-complexity jobs, and whose daily environments make few literacy or numeracy demands, receive little feedback that their skills are insufficient. Without such feedback, the motivation to engage in learning is difficult to generate.

Crucially, passive approaches such as public awareness campaigns have proven largely ineffective for this target group (OECD, 2019^[18]; OECD, 2019^[12]). Effective outreach is active, targeted and relational. Strengthening skills consciousness requires embedding assessment and feedback into services adults already use – employment services, health settings, community organisations – and linking skills development to tangible outcomes such as improved wages, job performance, career progression and

employment opportunities. The Cantonal Basic Skills programmes in Switzerland illustrate how awareness-raising can be structurally integrated into provision rather than treated as a preparatory activity conducted in isolation. Each cantonal programme is required to address not only learning delivery but also the identification and outreach of potential learners, working through employers, community networks and frontline services to surface adults whose skills needs may not be self-evident (Box 4.1).

Box 4.1. Programmes for Basic Skills in Switzerland

Decentralised delivery with national co-ordination to reach adults with low foundational skills

In Switzerland, support for adult literacy and numeracy is organised through a shared governance model between the Confederation and the cantons, under the Federal Act on Continuing Education and Training (WeBiG). The federal government provides financial support, while cantons are responsible for designing and implementing programmes tailored to their local context.

Each canton develops its own programme to support adults with low basic skills, with a strong emphasis on reaching underserved populations and adapting provision to their needs. Programmes typically combine flexible learning opportunities with targeted outreach strategies. Cantons regularly test and refine approaches to improve engagement, including through partnerships with employers, community organisations and public services.

The programme “Einfach besser! ... am Arbeitsplatz” (“Better Basic Skills in the Workplace”) promotes short, workplace-oriented courses in literacy, numeracy and digital skills that are directly linked to job tasks. Training focuses on practical activities such as understanding instructions for machinery, reading and writing reports, performing basic calculations (e.g. discounts), and using digital tools required for everyday work. Courses are delivered in collaboration with employers and training providers and are funded by the Confederation.

A key feature of the approach is the combination of awareness-raising and provision. Efforts are made not only to offer learning opportunities, but also to increase awareness among the general population, potential learners and frontline actors who are in contact with adults with low foundational skills.

Policy insight

Decentralised systems can help reach adults with low foundational skills, particularly when combined with national funding and a clear legal framework. Integrating awareness-raising with tailored provision can help address both access barriers and low “skills consciousness” among target populations.

Source: Gollob and Barlocher (2025^[19]); Swiss Federation of Adult Learning (2026^[20])

Active outreach strategies

Awareness alone is rarely sufficient to drive participation. Converting a moment of recognition into actual engagement requires structured follow-up: practical tools such as skills assessments help surface unrecognised gaps and shift self-perceptions, but this insight is often short-lived without clear referrals to relevant training, employer-supported pathways, or community-based learning opportunities. Effective outreach therefore combines initial contact with immediate progression options.

Trusted intermediaries, such as employers, trade unions, community organisations, healthcare providers and employment services, are central to this. In Portugal, Qualifica Centres provide a nationwide, free-of-charge guidance offer combining diagnostic assessment and personalised guidance with direct pathways to formal training and recognition of prior learning, supporting tens of thousands of adults annually into education, training or certification (Cedefop, 2023^[21]; OECD, 2021^[22]). In Iceland, Lifelong

Learning Centres prioritise adults with low foundational skills, including workers in SMEs, low-income groups and the long-term unemployed, through qualified counsellors and a geographically accessible network, delivering thousands of counselling sessions each year (OECD, 2021^[22]).

Reaching adults through the workplace is one of the most promising channels, given that most adults with low foundational skills are in employment (Chapter 3), often in small private-sector companies with limited access to employer-sponsored training. Social partners can be trusted brokers in this process, as exemplified by the UK's Unionlearn Programme (Box 4.3). In Germany, the ABAG Cologne project took a similar approach by engaging company supervisors to understand literacy and numeracy challenges workers face on the job, then co-designing flexible, learner-centred workshops accordingly (DIE, n.d.^[23]).

Box 4.2. The Unionlearn programme in the United Kingdom

Using trusted workplace actors to reach adults with low foundational skills

In the United Kingdom, the Unionlearn programme demonstrates how social partners can play a central role in engaging adults with low foundational skills in learning. Led by the Trades Union Congress (TUC), Unionlearn worked through a large network of Union Learning Representatives (ULRs) embedded within workplaces. The programme was underpinned by the Union Learning Fund (ULF), established by the government in 1998, which provided around £12 million annually to support union-led workplace learning activity. Government funding was withdrawn in April 2021, when the ULF was not renewed as part of a broader consolidation of skills investment. Since then, the TUC has continued to maintain the Unionlearn infrastructure – including ULR training, digital tools, and regional networks – without direct government funding.

ULRs are existing employees who receive dedicated training to support learning among their colleagues. They promote the value of learning, carry out skills assessments, help workers identify their training needs, and facilitate access to education and basic skills training. Crucially, ULRs operate as trusted peers, leveraging existing workplace relationships to engage individuals who may be reluctant to participate in formal training or who lack confidence in their own abilities.

The programme has been implemented at scale. To date, more than 40 000 ULRs have been trained, collectively supporting over 250 000 employees to access training each year.

Evaluations of the programme highlight strong outcomes at the individual level and show that the programme is especially effective for workers with low foundational skills, older workers, and learners from minority ethnic groups. Evidence from learner surveys indicates measurable improvements in foundational skills, with 26% of participants reporting gains in literacy and 13% in numeracy. Participation is also associated with increased confidence (reported by 68% of learners), greater enthusiasm for learning (74%), and improved ability to support and mentor others (58%). Around half of learners also report improvements in their quality of life and well-being (46%). Importantly, the programme has demonstrated high value for money, with an estimated return of GBP 12.30 for every pound invested (Dean et al., 2020^[24]; Pennacchia, Jones and Aldridge, 2018^[6]; Stuart et al., 2016^[25]).

Policy insight

Workplace-based outreach that builds on trusted peer networks can be highly effective at engaging adults with low levels of literacy. Partnering with social actors who have established relationships with workers can help overcome barriers related to awareness, motivation and trust.

Source: Dean et al (2020^[24]); Pennacchia, Jones and Aldridge, Stuart et al. (2018^[6]); (2016^[25]).

For adults outside the labour market, embedding outreach in community life and trusted social settings is essential. Mobile services are a well-established model: in Austria, a Mobile Learning Workshop brought ICT and communication training directly to educationally disadvantaged women in rural communities, working with local mayors and community networks to identify participants and gradually build capacity for self-directed learning (DIE, n.d.^[23]). In Finland, the Helsinki Skills Centre's KYKY programme reaches stay-at-home parents with a migrant background through outreach in community spaces and employs counsellors from the communities themselves, recognising that personal contact and word of mouth are essential to engaging this group (OECD, 2020^[26]).

Targeting adults in their role as parents represents a further approach with decades of evidence. Ireland delivers family literacy through Education and Training Boards as part of its core adult literacy provision, with high participation and strong retention among adults with low formal education. Evaluations consistently show gains in confidence, stronger engagement with schools, and progression into further learning. In Canada, family literacy is more strongly anchored in community development traditions; in the Nordic countries, it is typically targeted at adults facing multiple barriers, with intensive, individualised outreach and close integration with language training. (Hanemann, 2024^[27])

Digital tools can extend outreach where face-to-face approaches are constrained by geography or cost. Germany's ABC+ project developed a free online platform to improve work-related reading and writing skills for workers with low foundational skills, accessible via smartphone as audio files, learning games and short videos, disseminated through active engagement with employers and adult education networks rather than passive promotion (DIE, n.d.^[23]).

What are the features of successful policy design?

Effective interventions for adults with low foundational skills draw on a well-established evidence base. Across contexts, programmes are more successful when learning is grounded in real-life situations, when provision is sufficiently intensive and sustained, when progress is continuously assessed and adapted, and when teaching quality is high. These principles do not, however, translate into a single delivery model: effective responses vary in how literacy and numeracy are combined or sequenced, what existing skills can be leveraged, how pathways are organised, and what mechanisms sustain engagement over time.

Contextualised learning

Learning contextualised in situations adults recognise as relevant consistently improves engagement and retention. Contextualisation means embedding literacy and numeracy development within the learning contexts that adults find purposeful – specific job tasks, family responsibilities, financial decisions, civic participation – rather than treating skills as abstract prerequisites (Windisch, 2015^[16]). Workplace-based contextualisation is particularly powerful: when literacy and numeracy are taught through actual tasks workers perform, the connection between learning and daily function is immediate, and delivery does not require participants to enter formal education settings. The Canadian Skills for Success Program (Box 4.3) and Norway's Skills Plus programme (Box 4.7) both illustrate how contextualised delivery can reach adults who would not participate in traditional adult education.

Box 4.3. Skills for Success in Canada

Supporting innovation and measurable outcomes in foundational skills development

In Canada, the Skills for Success (SFS) Program, formerly the Literacy and Essential Skills Program, provides a national framework for developing and delivering foundational and transferable skills. Managed by Employment and Social Development Canada (ESDC), the programme funds projects that design and deliver training, develop assessment tools, and test innovative approaches to skills development, particularly for adults facing barriers in the labour market.

Rather than delivering training directly, the programme operates through partnerships with provinces and territories, employers, and training providers. Funded projects span a range of contexts, including workplace-based training, community programmes, and initiatives targeting underrepresented groups. A central feature of the programme is its focus on integrating foundational skills, such as numeracy, reading, and writing, with broader transferable skills, such as digital, problem solving, and adaptability, often required for employment and everyday life.

Evaluation evidence points to positive outcomes for participants. Learners report high levels of satisfaction with the training and indicate that participation helped them overcome barriers to learning and employment. Reported skills gains extend beyond technical competencies to include social and interpersonal skills (45% of participants), communication skills (40%), and broader people skills (36%). There is also evidence of labour market impacts. Among surveyed participants, 31% reported finding a new job within one year of completing training, while 16% reported securing a better job.

More broadly, the programme plays a system-level role by supporting experimentation, evaluation and knowledge sharing across projects. By funding pilot initiatives and scaling effective approaches, it contributes to growing evidence base on what works in reaching adults with low foundational skills.

Policy insight

Programmes that support partnerships across governments, employers and training providers can help deliver foundational skills training at scale while reaching adults facing barriers to employment. Evidence from Canada suggests that combining foundational skills with broader transferable skills, such as adaptability and communication, can support both employment outcomes and wider improvements in confidence and well-being.

Source: Government of Canada (2026^[28]; 2023^[29]).

Intensity, flexibility and stackable pathways

For adults with significant foundational deficits, programmes of limited duration rarely produce lasting gains. Durable improvements in literacy and numeracy require sustained engagement, yet around 42% of adult learning activities last a day or less, and a further 40% between one day and one week (OECD, 2025^[2]). For adults seeking employment-relevant skills updates, short formats can be appropriate. Those with significant foundational deficits, risk producing minimal learning gains unless designed to accumulate into coherent, progressive learning journeys.

This is the central design tension: intensity is necessary for meaningful skill gains, but time, competing work and family demands, and financial pressures constrain participation. The solution lies in modular provision and stackable qualifications, where each completed module contributes to a recognised credential and provides a clear entry point to the next stage. Several countries have linked micro-

credentials and non-formal short courses to national qualifications frameworks, making the cumulative value of sequential participation visible to both learners and employers (OECD, 2025^[2]; OECD, 2023^[30]). Ireland, for example, has integrated non-formal adult literacy and numeracy provision into its national qualifications framework.

Sequencing matters as much as format. The historically common approach of requiring adults to complete a foundation module before accessing vocational content defers the work-relevant learning that sustains motivation. Adults with foundational deficits learn most durably when skills development is contextualised within purposeful domains from the outset, not reserved as a reward for completing abstract prerequisite stages (Windisch, 2015^[16]; OECD, 2019^[12]).

Recognition of prior learning

Recognition of prior learning (RPL) allows adults to formally validate competences acquired outside formal education – in workplaces, through volunteering, in family roles or through independent learning – shortening the time required to reach qualification thresholds and providing entry points that bypass the need to repeat learning already achieved (OECD, 2023^[31]). For adults in near-threshold countries with comparatively higher proficiency, RPL can be particularly powerful: existing capabilities can be acknowledged and instruction focused on specific remaining gaps.

RPL for foundational and general competences remains less developed than for professional and vocational credentials across most OECD countries. The adults who would benefit most – those without formal qualifications, migrants, long-term inactive adults – are also those least likely to be aware that RPL processes exist and least well served by current assessment frameworks (Meghnagi and Tuccio, 2022^[32]). Extending RPL to foundational skills requires investment in assessors equipped to work with non-traditional evidence of competence, outreach to unfamiliar populations, and quality assurance frameworks that give RPL-based credentials genuine currency with employers and education providers.

Educator quality and professional development

Across all design elements, the quality of adult educators is the factor most consistently identified as the primary determinant of programme outcomes (Windisch, 2015^[16]). Teaching adults with low foundational skills requires distinct competences: formative assessment that identifies where each participant is and adjusts instruction accordingly; understanding of adult motivation and the legacy of prior negative educational experiences; and the capacity to contextualise instruction within the domains that adult learners find meaningful. These competences are not consistently part of initial teacher training in most OECD countries, and professional development for adult literacy and numeracy educators is typically fragmented and inadequately resourced (Mallows, Toia and Troster, 2014^[33]).

Countries that have invested in structured professional frameworks for the adult education workforce show what is possible. Skills Norway coordinates teacher development for adult education in two concrete domains – language instruction for adult immigrants and foundational literacy and numeracy – working in partnership with universities that offer dedicated postgraduate programmes in adult learning and literacy (Eurydice/EACEA, 2023^[34]). This provides a baseline of specialised competence, though coverage remains uneven and adult education principles are not yet a standard element of initial teacher training.

England's Education and Training Foundation (ETF) represents a more systematic approach, combining a national standards framework, a recognised qualification pathway, and structured continuing professional development into a coherent professional infrastructure for the further education and skills workforce (Box 4.4). The ETF model illustrates that sustained investment in educator quality requires not just training provision but institutional architecture. As learning contexts continue to evolve, continuous professional development represents a policy lever with disproportionate returns: investment in educator quality improves learning outcomes across the entire system, not only for individual educators or programmes.

Box 4.4. Building a professional infrastructure for the adult education workforce in England

The Education and Training Foundation (ETF) is the workforce development body for the Further Education and Skills sector in England, established in 2013 with an explicit mandate to drive professionalism and improve teaching and learning across the sector. Its remit covers the full adult education workforce – teachers, trainers, assessors and leaders – including those delivering English, mathematics and ESOL to adults with low foundational skills.

The ETF's approach rests on three interconnected elements. First, it sets and maintains a national framework of Professional Standards for teachers and trainers, most recently updated in 2022, which defines the knowledge, practice and professional behaviours expected across career stages and provides a shared reference point for initial training, appraisal and continuing development. Second, it manages two formal professional qualifications – Qualified Teacher Learning and Skills (QTLS) status and Advanced Teacher Status (ATS) – which provide recognised progression routes and give professional standing comparable to Qualified Teacher Status in schools. Third, it designs and delivers continuing professional development (CPD) across the sector's priority areas, with dedicated provision for English, mathematics and ESOL teachers.

The scale of operation is significant. In 2024–25, 615 practitioners were awarded QTLS and 16 achieved ATS; all recipients of ATS reported a positive impact on their professional practice. CPD programmes consistently report high engagement and self-reported improvements in practice, with participants across programmes reporting strengthened pedagogy and improved learner outcomes.

Policy insight

A distinctive feature of the ETF model is its integration of standards, qualification and development into a single professional ecosystem, rather than treating these as separate policy instruments. This integration addresses a structural weakness in many adult education systems: practitioners may access individual training opportunities without these contributing to a recognised professional identity or cumulative development pathway. National workforce development bodies can play a coordinating role that individual providers or local systems cannot easily replicate.

Source: Education and Training Foundation (ETF) (2022^[35]; 2025^[36]; 2025^[37]).

What enabling conditions support learning success?

Programme design determines what is offered; the enabling environment determines who can access and sustain it. Employers, families, communities and the practical and financial conditions of adults' daily lives all shape whether participation is possible, regardless of the quality of provision available. Even the most well-designed programme will fail to reach those who most need it if the conditions for participation – financial, logistical, relational – are not addressed. Three enabling dimensions are particularly critical: financial incentives that reduce the cost of participation; workplace cultures and practices that support skill development; and family and community environments that reinforce skills through everyday use.

Financial incentives and the cost of participation

Cost remains one of the most significant structural barriers preventing adults with low foundational skills from engaging in learning. For adults on low incomes, both direct costs (course fees, materials) and indirect costs (foregone earnings during training, transport, childcare) can make participation economically

irrational in the short term, even when the long-term returns are substantial. Around one in four adults across OECD countries reports barriers to participating in adult learning, with time and financial constraints consistently among the most frequently cited (OECD, 2025^[2]; Grotlüschen, A. et al., 2016^[17]).

Public financial incentives – individual learning accounts, training vouchers, targeted subsidies and income replacement during training leave – are the primary policy instruments for addressing these barriers. France's Compte Personnel de Formation (CPF) allows workers to accumulate training entitlements over their careers and redeem them for nationally recognised training, providing a portable instrument that supports autonomous learning choices (Perez and Vourc'h, 2020^[38]). Training leave policies are receiving renewed attention across OECD countries, particularly for workers with low foundational skills; however, uptake among underrepresented groups remains uneven when income replacement rates are insufficient or employer support is weak (OECD, 2025^[2]).

The design of financial incentives matters as much as their existence. Instruments structured around reimbursement after completion do not remove the upfront affordability barrier for those on very low incomes. For adults outside the labour market – a disproportionately large share of the most severely disadvantaged – neither employer co-financing nor training leave entitlements apply directly. Effective financial support combines direct cost coverage with income replacement during learning, supplemented by support for associated costs such as childcare and transport. Germany's approach illustrates this integrated logic (Box 4.5)

Box 4.5. Financial Incentives for Unemployed Adults with Low Foundational Skills in Germany

Germany provides a structured, rights-based system for supporting unemployed adults without a vocational qualification, combining full cost coverage for training with strong Public Employment Service (PES) steering through training vouchers (*Bildungsgutschein*). Low-qualified jobseekers are prioritised for qualification-oriented measures, typically following counselling with PES caseworkers who approve the training objective, duration and provider.

Support is not limited to full retraining but includes modular upskilling, partial qualifications and shorter courses. Foundational skills training (literacy, numeracy and digital skills) can also be funded, particularly where deficits prevent access to vocational training, allowing a stepwise progression from foundational skills to occupational qualifications.

Financial barriers are reduced through full coverage of course costs and related expenses such as transport and childcare, alongside continued payment of unemployment benefits during participation. Participants also receive a monthly training allowance of EUR 150 during eligible qualification-oriented training (up to approximately three years). Completion bonuses of EUR 1,000 for interim examinations and EUR 1,500 for final qualification exams are paid when training leads to recognised vocational certification – structured to reinforce completion rather than just enrolment, which is particularly relevant for low-qualified adults with higher dropout risk.

Policy insight

Germany's approach integrates foundational skills within a single entitlement-based training system rather than treating them separately. By combining sequenced pathways, full cost coverage, income replacement and explicit completion incentives, the system reduces financial barriers to participation for unemployed adults with low foundational skills at multiple stages of engagement.

Source: Arbeitsagentur (n.d.^[39]).

Addressing life barriers to learning

Participation in learning is strongly shaped by adults' broader life circumstances. Financial pressure, caring responsibilities, health issues, housing instability and precarious work reduce both the time available, and the cognitive bandwidth needed to sustain participation. For adults facing multiple disadvantages, fragmented service landscapes can become a barrier in themselves. Evidence points to the value of integrated delivery models – often organised through case management or key-worker approaches – that combine learning guidance, mentoring and practical support into a single relationship, particularly for learners with negative prior experiences of formal institutions (OECD, 2021^[40]; OECD, 2020^[26]).

Digital and flexible delivery can reduce access barriers linked to time and geography, but only under specific conditions. Modular provision and blended learning can help accommodate work and family constraints; however, low literacy and numeracy, limited digital skills, and lack of devices or connectivity can exclude the very groups such delivery is intended to reach. Effective systems pair flexible formats with enabling measures: subsidised devices, public access infrastructure and simplified, low-literacy-friendly design. Germany's ABC+ platform illustrates this approach, offering workplace-relevant literacy support via mobile phone with audio and video formats tailored to workers with low foundational skills. Portugal's Qualifica programme offers a larger-scale example of how guidance, assessment and progression pathways can be integrated into a single system that reduces fragmentation and supports sustained re-engagement (Box 4.6).

Box 4.6. The Qualifica programme in Portugal

Integrating learning with social support to overcome life barriers

In Portugal, the Qualifica programme provides a large-scale example of how adult learning can be embedded within broader support systems to address barriers to participation. Launched in 2016, Qualifica aims to raise qualification levels and employability among adults, particularly those with low levels of education, by combining skills development with personalised guidance and links to employment and social services.

At the centre of the programme are more than 300 Qualifica Centres, which provide a nationwide, free-of-charge guidance offer targeted at less-qualified adults, unemployed individuals and those at risk of labour market detachment. These centres act as one-stop access points, combining information, diagnostic assessment and personalised guidance within a lifelong learning framework. Individuals are supported by dedicated counsellors who assess their skills, identify appropriate pathways, and provide ongoing guidance throughout participation.

A defining feature of Qualifica is the close integration of guidance with immediate progression opportunities. Adults are directed either into formal education and training or into processes for the recognition of prior learning (RPL), allowing them to build on existing competences. This dual approach, assessment combined with clear next steps, has supported large-scale engagement, with tens of thousands of adults guided each year into education, training or certification.

Qualifica is also embedded within a wider system of public services. Centres work closely with employment services, training providers and, in some cases, social support systems, helping to address practical barriers such as financial pressure or unstable employment that can otherwise disrupt participation. By reducing fragmentation and providing continuity of support, the programme is particularly effective in re-engaging adults with weak prior attachment to education.

Policy insight

Addressing life barriers to learning requires more than adapting course provision – it depends on integrating education and training within broader support systems. One-stop models that combine guidance, assessment, validation and progression pathways can reduce fragmentation, strengthen engagement, and enable sustained participation among adults facing multiple barriers.

Source: Cedefop (2023^[21]).

Workplaces as engines of skill development

Workplaces represent a critical enabling environment for skill development, particularly for adults already in employment, the majority of whom have low foundational skills in most countries (Chapter 3). Yet jobs available to workers with low foundational skills are frequently characterised by narrow, repetitive task profiles that offer limited opportunities to practise or extend literacy and numeracy. Improving job design and promoting high-performance work practices (acknowledging that this might be challenging for some employers, especially SMEs), as well as incentivising employer investment in foundational skills training can substantially improve outcomes for workers who would not access formal provision independently.

Effective employer engagement requires more than encouraging firms to train. Employers, particularly smaller ones, may lack a clear picture of their workforce's foundational competence levels, face high unit training costs, and worry about investing in transferable skills if newly trained workers can use these skills to move to another employer, including a competitor. Sectoral training funds, co-financing mechanisms and workplace training programmes can address these market failures, though their design needs to be adapted to national regulatory contexts, including applicable state aid rules. Norway's Skills Plus (*Kompetansepluss*) programme illustrates one possible model, delivering literacy, numeracy and digital skills training directly within workplaces, free of charge to participants, co-organised with employers who identify training needs and facilitate participation during working hours (Box 4.7).

Beyond formal training, the way work is organised shapes skill development and maintenance. Jobs that involve autonomy, problem solving, task variety and the active use of literacy and numeracy maintain and develop skills through use; narrow, routinised jobs erode them. High-performance work practices, including team working, devolved decision-making and regular feedback, are associated with higher skill utilisation and stronger learning climates. Policy can promote these practices through employer recognition schemes, guidance to small employers, and integration of skills use into broader productivity and workforce development frameworks (OECD, 2021^[1]; OECD, 2013^[41]).

Box 4.7. Skills Plus in Norway

Embedding foundational skills development in the workplace

In Norway, the Skills Plus programme (*Kompetansepluss*) provides a long-standing example of how foundational skills development can be embedded directly in the workplace. Launched in 2006, the programme aims to support adults, particularly those with low levels of formal education, in developing basic literacy, numeracy and digital skills through training aligned with job tasks and workplace needs.

The programme is funded by the Norwegian government and delivered in partnership with employers and training providers. It provides grants to enterprises in both the private and public sectors to deliver tailored training that combines basic skills development with work-related learning activities. Employers

play a central role in identifying skills needs and facilitating participation, while training is typically delivered during working hours and free of charge for participants.

Skills Plus has been implemented at scale over an extended period, with more than 100 000 employees having received training since its inception. Available evidence, largely based on programme monitoring and stakeholder reporting, suggests positive outcomes for both employees and employers. Participants report improved confidence in using skills at work and greater readiness to pursue further training or professional certification. Employers report better communication, fewer errors in job tasks, and higher levels of motivation among staff, alongside improvements in workplace processes such as understanding of instructions and routines. However, robust, independent evaluation evidence on learning outcomes and long-term impacts remains limited.

Policy insight

Embedding the development of foundational skills within the workplace can help overcome key barriers to participation among adults with low foundational skills. Tailoring provision to job tasks and delivering training during working hours increase relevance, reduce stigma, and support sustained engagement.

Source: Norwegian Directorate for Higher Education and Skills (2026^[42]); OECD (2025^[2]); Nordic Network for Adult Learning (2019^[43]).

Supporting skills in families and communities

Families and communities are the primary environments in which foundational skills are practised, maintained and transmitted across generations. Everyday activities - such as managing finances, using digital services, supporting children's schooling, and navigating health systems - create regular opportunities to apply literacy and numeracy, or to experience the practical costs of low proficiency. Strengthening the skill-reinforcing properties of these environments complements formal provision and extends its reach into settings where formal learning cannot easily penetrate.

Family literacy programmes are the most developed policy mechanism for this purpose. The evidence base consistently points to strong participation, high retention among adults with low formal education, and gains in confidence, school engagement and progression into further learning, even where short-term proficiency gains are modest (Hanemann, 2024^[27]). Effective provision is local, flexible in format, and works simultaneously on parents' own foundational skills and their capacity to support children's learning. Ireland's family literacy offer – delivered through Education and Training Boards as part of core adult literacy provision – exemplifies a nationally integrated approach; Canada and the Nordic countries offer contrasting models anchored respectively in community development traditions and intensive, individually targeted integration with social services.

Libraries, community centres and other trusted public spaces serve as community learning hubs, providing access to digital infrastructure, informal learning opportunities and low-threshold literacy support (IFLA, 2021^[44]). This is particularly significant for adults who would not enter a dedicated adult education setting. Integrating basic skills support into these settings, including digital literacy, reading and writing support, and information on further learning pathways, creates a non-stigmatising entry point that can reach adults beyond the range of more formal outreach. Australia's Literacy for Life campaign illustrates how community-embedded delivery, built around trusted local facilitators and cultural relevance, can reach populations with very low literacy who are consistently underserved by mainstream provision (Box 4.8)

Box 4.8. Literacy for Life Campaign in Australia

Reaching adults with low foundational skills through community-based delivery in marginalised communities

In Australia, the Literacy for Life Campaign provides a community-led approach to improving adult literacy among Aboriginal and Torres Strait Islander populations, where rates of low literacy are estimated to affect between 40% and 70% of adults, and up to 90% in some remote communities. The programme is supported through funding from government agencies and other partners.

A defining feature of the programme is its locally embedded delivery model. Rather than relying on formal education institutions, Literacy for Life is implemented through locally recruited and trained facilitators, with learning taking place in small, group-based sessions within community settings. This approach is designed to build trust, ensure cultural relevance, and reduce barriers related to stigma and prior negative experiences with formal education. Community leaders play a central role in outreach and delivery, helping to engage adults who are typically underrepresented in adult learning.

Available evidence indicates positive outcomes for participants. The programme has supported more than 500 adults nationwide to become functionally literate. Completion rates are reported at around 59%, which is higher than those typically observed in other mainstream adult literacy provision for Indigenous adults. Participants also report increased confidence, greater willingness to engage in further education and training, and stronger participation in community and civic life.

Policy insight

Community-led and culturally adapted delivery models can be highly effective in reaching adults who are disengaged from formal learning systems. Embedding programmes within local communities and leveraging trusted relationships can increase participation and improve outcomes.

Source: Literacy for Life Foundation (2026^[45]); Testa and Mouter (2025^[46]).

What roles does prevention play in addressing low foundational skills?

Improving foundational skills among adults is necessary but costly and difficult to sustain. The evidence consistently shows that meaningful proficiency gains require sustained engagement, and that gains are vulnerable to fade if not reinforced through regular skills use (Windisch, 2015^[16]; Grotlüschen, A. et al., 2016^[17]). Prevention – reducing the number of children who enter adulthood with low foundational skills and reducing the rate at which adults with adequate skills lose them through disuse – is therefore an indispensable complement to remediation. It operates on two distinct timescales: in the short term, sustaining skills among adults who already have adequate proficiency; in the long term, improving initial education so that fewer children leave compulsory schooling with foundational deficits.

Short-term prevention: maintaining skills through sustained use

For adults with adequate foundational skills, the primary prevention challenge is sustained engagement with literacy and numeracy over the life course. PIAAC data show that proficiency tends to decline with age in many countries, particularly among adults in low-complexity jobs (Grotlüschen, A. et al., 2016^[17]; OECD, 2024^[47]). Workplaces are the most important environment for maintenance: jobs that actively engage literacy and numeracy, such as reading technical documents, communicating in writing, and interpreting data –help sustain skills in ways that routinised jobs do not. This connects prevention directly

to the enabling environment discussion above: improving job design and promoting high-performance work practices are not only strategies for developing skills but for maintaining those already acquired (OECD, 2021^[1]).

Beyond the workplace, digital environments, civic participation and family engagement with children's education all provide contexts in which foundational skills are used and reinforced. Public services designed with low-literacy users in mind, using plain language, visual navigation and accessible formats, reduce the risk that low-complexity environments accelerate skill erosion. Conversely, poorly designed automated tools that entirely substitute for reading, writing or calculation may accelerate rather than prevent skills decline among those with low proficiency.

Long-term prevention: strengthening initial education and early childhood investment

The most durable prevention strategy is improving the quality and equity of foundational learning in early childhood and compulsory schooling. High-quality early childhood education and care (ECEC) is among the most cost-effective investments available to reduce foundational skills inequalities (OECD, 2021^[48]; Heckmann and Masterov, 2007^[49]). The benefits are largest for children from disadvantaged families – precisely those most at risk of low foundational skills in adulthood – and are sustained through primary schooling when early gains are reinforced rather than eroded.

Investment in ECEC alone is insufficient if primary and lower secondary education do not build on early gains. Research consistently identifies teacher subject knowledge, curriculum coherence, early identification of learning difficulties, and effective transition between levels as critical determinants of whether foundational skills are securely established before compulsory education ends (Hanushek and Woessmann, 2015^[50]). The children most at risk of leaving school without functional literacy or numeracy are disproportionately from socio-economically disadvantaged households and under-resourced schools and communities (OECD, 2023^[51]).

Key policy levers include: ensuring all students reach minimum literacy and numeracy standards before leaving compulsory schooling; replacing grade repetition with targeted in-class support (OECD, 2019^[52]); investing in early identification of reading and numeracy difficulties; expanding access to high-quality ECEC for disadvantaged children; and strengthening second-chance pathways, re-entry programmes, flexible qualification routes and bridge programmes, for early school leavers.

Intergenerational transmission and (again) the role of family learning

A distinctive feature of foundational skills deficits is their tendency toward intergenerational transmission: children whose parents have low literacy and numeracy are at substantially elevated risk of entering adulthood with similar deficits. The pathway runs through multiple mechanisms – reduced exposure to rich language environments at home, lower engagement in reading and numeracy activities before school entry, less parental capacity to support homework and school engagement, and the concentration of children with low-educated parents in lower-resource schools and communities. PIAAC data confirm that parental education is among the strongest predictors of adult proficiency, even after controlling for an individual's own educational attainment (OECD, 2024^[47]; Grotlüschen, A. et al., 2016^[17]).

Preventing intergenerational transmission requires interventions that work simultaneously on parents' own skills and on the home learning environment, which is precisely the logic of family literacy programmes discussed in the enabling environment section. It also requires systemic action: ensuring that early years provision actively reaches the families that stand to benefit most, that schools in disadvantaged communities receive resources proportionate to the challenge they face, and that the wider policy environment – housing, health, income support – addresses the family stress that mediates between poverty and poor foundational skills outcomes in children.

How does the nature of the challenge shape the policy response?

Countries with similar rates of adults with low foundational skills can face fundamentally different policy challenges depending on the relative proficiency of their population with low foundational skills, its heterogeneity, and the nature of the deficit, whether in literacy, numeracy or both. The four-profile typology developed in Chapter 2 captures these differences and provides the organising framework for what follows (Table 4.2). All four profiles share certain baseline conditions: adults with low foundational skills are less likely to participate in training, more likely to have limited labour market attachment, and more likely to face compounding disadvantages in health, housing and civic life (see Chapters 1 and 3). The policy challenge is therefore both general and specific. The levers described in this chapter - outreach and engagement, programme design, enabling conditions, and prevention - apply across all contexts, but their relative weight, sequencing and configuration must reflect the profile of each country's population with low foundational skills.

Table 4.2. Each country profile implies a different primary policy challenge

Key characteristics and principal policy challenge for each of the four country profiles, based on the typology developed in Chapter 2

Profile	Key characteristics	Scale of group	Primary policy challenge
Near-threshold, concentrated	High medians in both domains, narrow dispersion, adults close to Level 2	Wide range (13%-48%)	Enabling a well-defined group to progress towards medium skills; scale varies but target group is relatively homogeneous
Deep-deficit, dispersed	Low medians in both domains, wide dispersion, heterogeneous group	Wide range (15-61%)	Differentiating pathways across a heterogeneous population; reaching the severely disadvantaged tail
Literacy gap	Low literacy median; high numeracy median; struggling readers are dominant	Low to moderate (17-37%)	Language acquisition and literacy as the primary entry point; migrant-specific outreach and delivery
Numeracy gap	High literacy median; low numeracy median; wide dispersion; few struggling readers	Moderate (24-37%)	Addressing a domain-specific deficit in a population with literacy strengths; functional numeracy in context

Near-threshold countries

The defining feature of near-threshold countries is proximity to medium proficiency. Adults are close to the Level 1–2 boundary; in higher-prevalence countries - Czechia, Croatia, Ireland, Italy, Lithuania and Poland - a large share already processes text fluently, and the population with low foundational skills is comparatively homogeneous. This proximity is the central policy resource: meaningful gains are achievable with less intensive provision than in other profiles, and the return on employer investment in targeted upskilling is relatively near-term and legible.

The primary design opportunity is efficiency. Programmes pitched at the threshold, rather than at basic decoding, are more appropriate and less likely to generate dropout due to a sense of mismatch. RPL that acknowledges what learners already know, combined with modular, stackable pathways short enough to fit around employment, is the appropriate architecture. For the large, employed majority in higher-prevalence countries, employers and social partners are the most tractable outreach channels: the productivity case for engagement is concrete, and sectoral training funds and employer co-financing can help distribute costs. Financial barriers may be more manageable in this profile than in others, though adequate income replacement remains essential for lower-income participants.

In lower-prevalence near-threshold countries – for example, Canada and Sweden - the residual population with low foundational skills is smaller and more likely to include adults with migrant backgrounds. Outreach

must be more targeted and culturally attuned, and the intermediary role of migration and integration services becomes more important. Greater intensity and individually tailored support are needed for this harder-to-reach subgroup.

Prevention in near-threshold countries is primarily a school equity challenge: ensuring that initial education reliably brings all children to functional competence, not just the majority. In higher-prevalence countries, this requires sustained attention to where children are being left behind, in which schools, regions and social groups, and whether early intervention reaches those most at risk. The adult skills challenge and the school equity challenge are directly connected, and policy co-ordination between education and skills ministries matters for long-run outcomes.

Deep-deficit countries

Deep-deficit countries face the most complex and resource-intensive challenge because disadvantage is both broad and deep: the population with low foundational skills is not only sizeable, but also highly heterogeneous in the level and nature of support required. The wide dispersion of proficiency within the population with low foundational skills means that no single programme or outreach strategy can serve the entire group. This is the central design requirement: rigorous initial skill profiling to identify where in the distribution each learner sits, and provision that spans from genuinely foundational instruction - basic decoding, number sense, oral language - through to near-threshold courses, with clear progression pathways connecting the tiers. Intensity requirements are substantially higher than in other profiles. Adults in the lower tail need sustained engagement over long periods, with content directly relevant to their lives as parents, workers and community members, intermediate recognition of progress, and mentoring relationships that provide continuity across necessarily long learning journeys.

Providing the appropriate enabling environment is equally demanding. The most severely disadvantaged adults are disproportionately outside formal employment, making the employer channel largely unavailable for those who need support most. Community-supported provision, delivered through health centres, family support programmes, libraries and social housing offices, is often the only realistic route to this group. Financial support must extend well beyond course fees to include income replacement, childcare, transport and, in some cases, co-ordinated housing and health interventions.

The challenge is most acute in countries where the population with low foundational skills is large and deeply disadvantaged, as in Chile, or where migrants constitute a substantial share of struggling readers, as in France and Germany. In countries where low foundational skills are less prevalent overall — Finland and the Netherlands – a small but severely disadvantaged group remains. Here, intensive individual case management is likely to be more appropriate than scaled community programmes.

In high-prevalence deep-deficit countries, prevention amounts to a national educational equity agenda. The challenge of adults with low foundational skills is in part the cumulative outcome of decades of educational underinvestment, and addressing it requires sustained investment in high-quality early childhood education and care for disadvantaged children, and in the quality of primary education in under-resourced schools and communities. The compounding disadvantages that drive deep skill deficits begin in early childhood; prevention policy must therefore operate in parallel with remediation rather than being treated as a longer-term complement to it.

Literacy gap countries

In literacy gap countries - Austria, Latvia, Norway, Singapore and Switzerland - the profile of adults with literacy-specific deficits differs across contexts, but in several countries the presence of migrants and adults assessed in a non-native language is an important policy consideration. Outreach challenges may therefore be language-mediated in some contexts, while in others they may relate more strongly to institutional, educational or trust-related barriers.: Standard materials and referral pathways may be

inaccessible or distrusted. Effective engagement may require information in multiple languages where relevant, outreach through community and diaspora networks, and strong co-ordination between migration, integration and adult learning services. A trust deficit can compound this: adults who have had negative encounters with institutions in countries of origin, or who have concerns about the consequences of disclosure, may be particularly resistant to formal referral pathways.

Programme design must centre on language acquisition and literacy but can draw on a comparative asset: adults in this profile typically have stronger numeracy. Framing literacy development in numerically familiar contexts - budgeting, measurement, data interpretation - provides a domain of confidence from which to approach the harder task of host-language literacy. Intensity is especially critical: high-intensity provision in the period immediately following arrival produces substantially better long-run outcomes than deferred or low-intensity alternatives. Employers play a critical but often overlooked enabling role - workplaces where the host language is actively used are among the most powerful literacy-development environments available - yet this resource is easily lost when migrants are concentrated in low-skill, low-communication roles.

Prevention in this profile has a distinctive demographic dimension. A significant share of the population with low foundational skills comprises migrants whose low assessment scores do not necessarily reflect generalised foundational deficits, but rather limited proficiency in the assessment language. The most relevant preventive lever is rapid and effective language integration: ensuring newly arrived migrants access language support before entrenchment in low-skill employment forecloses literacy practice, and that children of migrants receive adequate linguistic support in school. Immigrant integration programmes represent a major – and often underutilised - channel for foundational skills development; strengthening their contribution requires more explicit integration of literacy and numeracy objectives, closer alignment with adult learning systems, and greater attention to programme quality and learner progression (Box 4.9).

Box 4.9. Integration Courses for Migrants in OECD countries

Leveraging integration systems to develop foundational skills among migrants

Across OECD countries, immigrant integration programmes, such as language and orientation courses, represent one of the largest public investments in adult skills development. While their primary objective is to support social and labour market integration, these programmes frequently serve as a de facto entry point for foundational skills development, particularly in literacy.

Integration courses typically focus on host-country language acquisition, often combined with civic orientation and labour market preparation. For example, Germany's integration courses (*Integrationskurse*) include extensive language instruction alongside modules on social and institutional knowledge, while similar programmes exist across countries such as Sweden (*Swedish for Immigrants*), France (*Contrat d'intégration républicaine*) and the Netherlands (*Inburgering*). These programmes are often mandatory or strongly incentivised, resulting in relatively high participation rates among newly arrived migrants.

Although not always explicitly framed as basic skills provision, language training can play a central role in enabling migrants to develop functional literacy in the host-country language, which can be a prerequisite for participation in further education, employment and everyday life. In many cases, migrants enter these programmes with low to limited proficiency, and language training therefore constitutes a form of foundational skills development.

Policy insight

Immigrant integration programmes represent a major, but often underutilised, channel for foundational skills development. Strengthening their contribution may require more explicit integration of literacy and numeracy objectives, closer alignment with adult learning systems, and greater attention to programme quality and learner needs.

Source: OECD (2024^[53]).

Numeracy gap countries

Numeracy gap countries - England (UK), New Zealand and the United States - present a challenge that is both more tractable and more resistant than it appears. The strong literacy capability of the population with low foundational skills population is the primary policy resource. Adults who read adequately can access information independently, navigate support systems, engage with digital and distance learning environments, and sustain more self-directed participation than adults with severe literacy deficits. Technology-mediated delivery is more viable here than in any other profile, and the employer channel is well-suited to this context: numeracy deficits manifest visibly in sectors with high quantitative demands - construction, retail, healthcare, financial services - making the case for employer engagement concrete.

The central challenge is one of self-perception rather than access. Adults who read adequately often do not identify themselves as having a skills problem, even when their numeracy is severely limited. In some contexts, this may be reinforced by the greater social acceptability of low confidence in mathematics or numeracy, with adults more willing to describe themselves as “not a numbers person” than as having weak literacy skills. Conventional outreach framed around learning or skill development tends to fail with this group. Effective engagement requires reframing the offer around functional outcomes in domains adults already care about - financial management, health decisions, digital transactions - and working through trusted intermediaries in high-numeracy-demand sectors. Building confidence before progressing to a formal qualification is more effective than direct enrolment in standalone numeracy courses, which lead to low motivation and high dropout rates among adults who do not self-identify as struggling. The United Kingdom's Multiply programme illustrates this staged approach: its outcomes – including the progression of around 45% of learners into further training within six months – suggest that confidence-led entry routes can unlock sustained engagement where direct enrolment cannot (Box 4.10).

Prevention in numeracy gap countries points most directly to the quality of mathematics teaching in initial schooling. The consistency of numeracy deficits across England (UK), New Zealand and the United States suggests something systematic in how numeracy is taught and reinforced, in curriculum coherence, teacher subject knowledge and the early establishment of number sense, rather than the effects of individual disadvantage alone. Beyond schooling, sustaining numeracy in adult life requires environments that engage and reinforce quantitative reasoning rather than substituting for it. This includes workplaces, financial systems, public services and digital tools. Poorly designed automation that removes the need for calculation can accelerate rather than prevent the erosion of numeracy among those with limited proficiency, and policy design should take this risk seriously.

Box 4.10. Multiply Programme in the United Kingdom

Addressing numeracy deficits through staged and confidence-led provision

In the United Kingdom, the Multiply programme launched in 2022 as a three-year, £559 million initiative. The programme aimed to improve the functional numeracy skills of adults who had not previously attained a Level 2 (or equivalent) mathematics qualification. Multiply was delivered across all four nations of the United Kingdom, with some flexibility in implementation reflecting devolved education systems.

While free qualification-based courses have long been available, Multiply introduced a distinct approach by focusing on confidence-building and engagement prior to formal learning. Recognising that low confidence and negative past experiences with mathematics are major barriers to participation, the programme funded a wide range of short, non-formal and community-based courses aimed at re-engaging learners. Provision was delivered through local authorities, employers and community organisations, allowing for adaptation to local needs and populations.

Evidence points to strong uptake among target groups. In London alone, approximately 59 000 learners participated in Multiply-supported provision. Emerging evaluation evidence from London indicates a range of positive outcomes. Around two-thirds of learners (66%) reported increased confidence, including in their ability to continue in education, navigate everyday life and access work. Participation was also associated with improvements in financial literacy, with some learners reporting changes in spending behaviour and a better understanding of taxes and pensions. Importantly, Multiply appears to have supported progression into further learning: around 45% of learners moved on to additional training within six months, including Level 2 mathematics and other skills courses.

Multiply concluded in March 2025 as planned under its initial funding envelope.

Policy insight

Targeting numeracy deficits may require a staged approach that addresses attitudinal barriers before progression to formal learning. Flexible delivery across national and local systems can help reach diverse populations, including those at risk of labour market detachment.

Source: UK Government (2025^[54]); Institute for Employment Studies (2025^[55]).

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Navigating Life with Low Literacy and Numeracy

New Results from the 2023 Survey of Adult Skills

One in three adults across OECD economies lack the foundational skills to participate effectively in the labour market and society. This share has grown over the past decade, making low foundational skills one of the most persistent structural challenges facing advanced economies. Drawing on the 2023 Survey of Adult Skills (PIAAC), this report examines the scale, nature and consequences of low foundational skills in OECD countries and beyond. It analyses how the depth of skill deficits varies across countries and domains; it pinpoints the strongest predictors of low skills and uncovers distinct profiles among low-skilled populations; it highlights how these findings can inform effective policy responses. The report underscores that adults with low foundational skills are not a homogeneous group: deficits differ in severity, are distributed differently across literacy and numeracy, and reflect varying roles of migration and language background. Adults with low foundational skills face substantial and compounding disadvantages in employment, earnings, health and civic participation. Yet those who would benefit most from adult learning are consistently the least likely to engage in upskilling activities. Closing this gap requires active outreach through trusted intermediaries, provision that is contextualised and sufficiently intensive, and a sustained commitment to reaching adults whom adult learning systems have repeatedly failed to serve.



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