

Chapter 2. Strengths of the skills system in Australia

This chapter focuses on the strengths of the Australian skills system that the country can build on. It focuses on three main findings: strong basic skills in the migrant population, widespread knowledge of ICT in Australian society, and the positive role of workplaces in skills development. The first strength is a large population of relatively skilled and well-educated migrants that bring highly desirable and much-needed skills to the workforce. Second, by international standards, adults in Australia, across all age groups, have strong computer and ICT skills, a point of key importance given concerns that automation and digitalisation might result in a jobless future for those without such skills. Finally, jobs in Australia provide more learning opportunities, including for those with low skills, than jobs in many other countries. The workplace is therefore an important and strong element of the skills system in Australia.

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

Strength 1: Immigrants in Australia are well skilled

The share of migrants in Australia

According to the Survey of Adult Skills (PIAAC), 27% of 16-65 year-olds or over four million people in Australia were born abroad. 11% are second generation immigrants (born in Australia but both parents were born abroad). Australia has, alongside New Zealand, the highest share of migrant population (foreign born) among all participating countries. Most foreign born live in New South Wales and Victoria.

What are the skills of migrants?

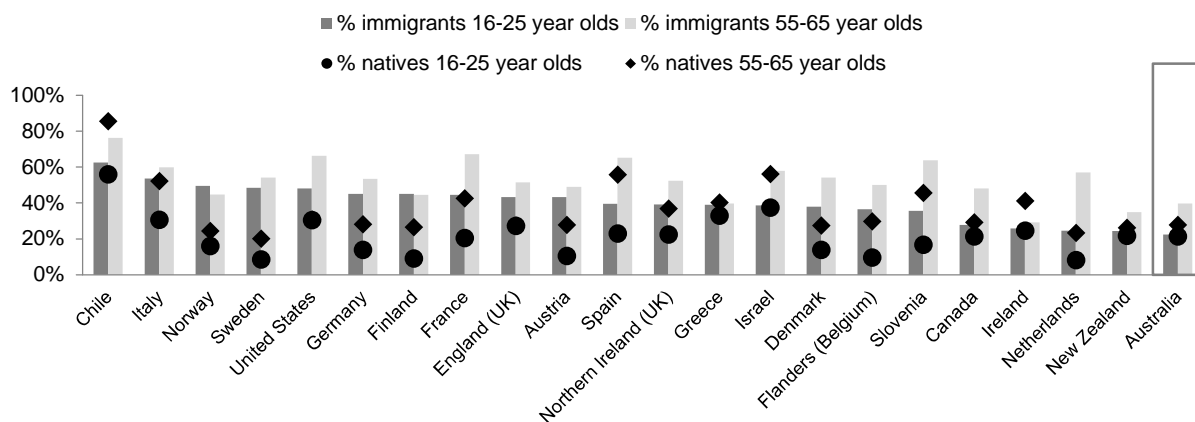
Strong performance of second generation migrants

In Australia, contrary to many other countries, second generation migrants have skills comparable to skills of those who were born in Australia and whose both parents were born in Australia. The integration of migrants, as measured by basic skills levels of their offspring, therefore does not seem to be a challenge in Australia (see Figure A A.1 in Annex A). For this reason, the following part of this section will only focus on two categories:

- *immigrants*: foreign born
- *natives*: native born (including second generation immigrants)

In the majority of countries, Australia included, the native population perform better than migrants. However, in Australia, the difference in performance by migration status is smaller than in many other countries (see Figure 2.1).

Figure 2.1. Share of low-skilled adults among immigrants and natives, by age



Note: The Czech Republic, Estonia, Japan, Korea, Lithuania, Poland, Slovak Republic and Turkey were excluded because there were not enough observations.

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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Australia tends to attract highly skilled young people from abroad

Australia has the lowest share of young migrants with low skills among all participating countries. The difference in skills among migrant and native populations in Australia is explained by the gap in performance among older adults, as there is no gap in performance by migration status among 16-25 year-olds.

Language background influences literacy and numeracy score

Knowledge of the host country's language is critical for literacy proficiency. It is also important for numeracy as this is mediated by literacy skills in the Survey of Adult Skills. Migrants in Australia whose mother tongue is the same as the language of assessment (English) perform much better than migrants whose mother tongue is not English. This gap in performance may reflect a better mastery of the language of assessment among English mother tongue speakers, but it can also be explained by the difference among these two populations, for example, migrants with English mother tongue may have a more advantageous socio-economic background or be better educated. While around half of migrants in Australia are of English mother tongue, the remaining half need to learn English to successfully function in the host country. Poor mastery of English is a barrier to reaching full potential in literacy and numeracy skills (as assessed in English). Immigrants, who would have scored highly had they been tested in their mother tongue, may benefit particularly from learning English. This is consistent with evidence showing that improved host country language skills among migrants, particularly well-qualified individuals, leads to fast gains in literacy and numeracy (Chiswick, 1991; Dustmann and Fabbri, 2003).

The background and labour market situation of migrants

Migrants in Australia are highly educated

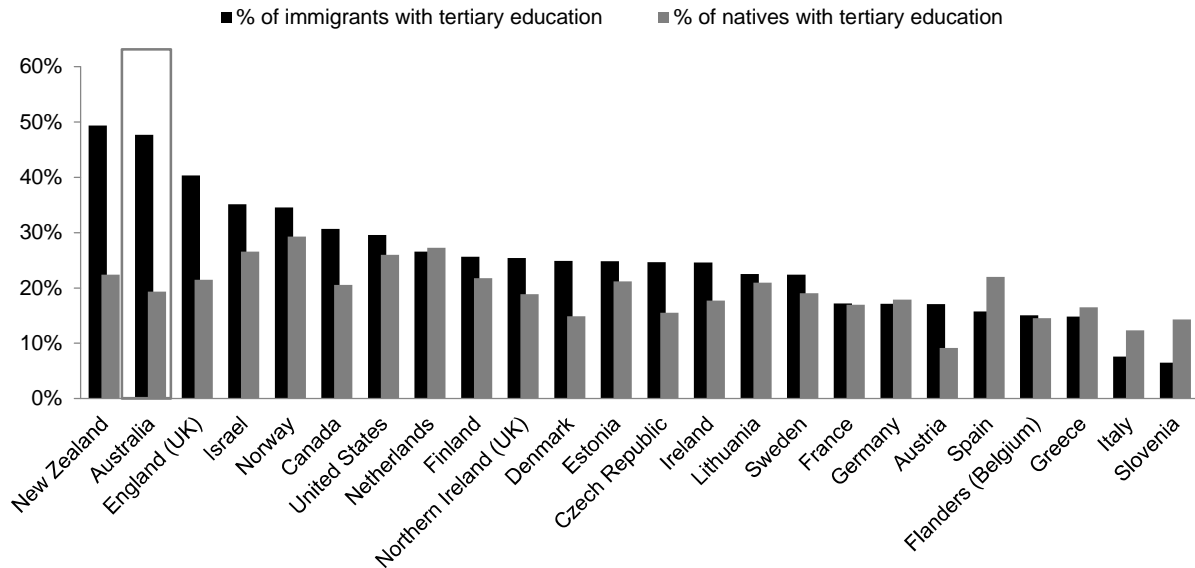
Migrants in Australia are better educated than migrants in other participating countries. They are also well educated in comparison to those native born. Migrants in Australia are twice as likely as native-born Australians to have a tertiary degree (bachelor degree, graduate certificate and graduate diploma, master's degree or doctoral degree). Only 12% of immigrants in Australia have below upper-secondary education, compared to 30% among natives.

Immigrants with low-educated parents are much more likely to perform poorly than those native born

Immigrants are better educated than native Australians, but they also have parents with higher levels of education. Around 40% of immigrants have at least one parent who has attained a tertiary degree, compared to 23% of native born.

The link between family background and performance in basic skills is stronger for migrants than for those native born. When neither parent has attained upper-secondary education, immigrants are almost twice as likely to be low skilled than the native population (40% comparing to 23%). Migrants with a disadvantaged socio-economic background are thus particularly at risk of developing skills shortages.

Figure 2.2. Share of adults with tertiary education, by immigrant background



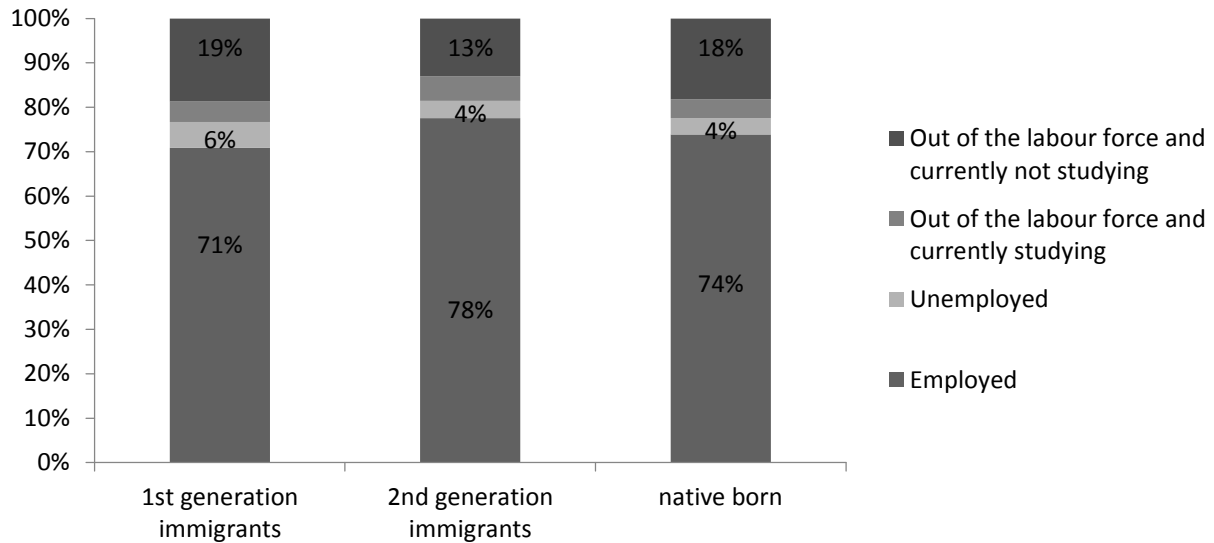
Note: Chile, Korea, Japan, Poland, the Slovak Republic and Turkey are excluded due to small sample size.

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.


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Many migrants are working in skilled occupations

Almost 71% of migrants in Australia are employed, which is much higher than the OECD average of 66% (see Figure 2.3). Migrants in Australia are more likely to work in skilled occupations, such as legislators, senior officials and managers, professionals, technicians, and associate professionals, compared to migrants in other participating countries. Immigrants in Australia consistently earn more than immigrants in other countries. Higher levels of education and strong basic skills may largely contribute to the positive labour market outcomes of immigrants in Australia. However, when compared to natives in Australia with similar levels of education, immigrants earn less even when gender, family background and skills are taken into account.

Figure 2.3. Labour force participation by immigrant background

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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Conclusions

- Australia has a large population of well-skilled and well-educated migrants, many of whom are young. These skilled migrants bring highly desirable and much-needed skills to the workforce.
- Migrants in Australia are more likely to work in skilled and well-paid jobs compared to migrants in other countries. In many other countries, second-generation migrants have lower basic skills than natives. Migrants in Australia thus integrate successfully into the mainstream society, as measured by their labour market outcomes and basic skills levels of their offspring.
- Positive outcomes for migrants may be explained by the fact that migration policy in Australia gives priority to skilled migration and successfully supports newcomers in integrating into the mainstream society.
- While, on average, migrants in Australia perform very well, those with a disadvantaged socio-economic background are over-represented among low-skilled adults. Targeted policy interventions may be helpful in improving the basic skills of this group.

Strength 2: Strong performance in ICT skills

What does “Problem solving in technology-rich environments” (PSTRE) mean in the Survey of Adult Skills (PIAAC)?

Problem solving in technology-rich environments (PSTRE) is a third domain evaluated in the Survey. Proficiency in this skill reflects the capacity to use ICT devices and applications to solve the types of problems adults commonly face as ICT users in modern societies. In order to display proficiency in this domain, adults must have the basic

computer skills needed to undertake an assessment on a computer: the capacity to type, manipulate a mouse, drag and drop content, and highlight text.

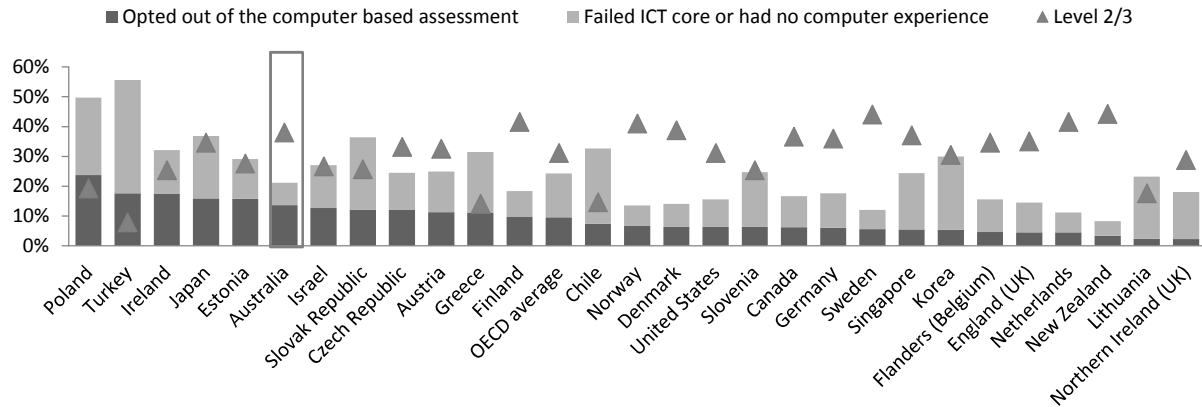
As with numeracy and literacy, proficiency in PSTRE is described in terms of a scale of 500 points divided into levels. In PSTRE, four levels of proficiency are defined: below Level 1, Level 1, Level 2 and Level 3. For the purpose of this study, adults scoring below Level 1 are considered as low skilled in PSTRE, while those at Level 2 or 3 are considered as highly skilled.

Out of 33 participating countries/economies in the Survey, four did not participate in the assessment of PSTRE, and in the countries that did take part, many adults opted out of the computer-based assessment. There are three main reasons for some individuals not completing the assessment on a computer and, thus, not having a score in problem solving using ICT. First, some adults had never used a computer (10% in OECD countries, 4% in Australia). Second, among the adults who had used a computer, some did not pass the ICT core test, which was designed to assess whether respondents had sufficient skill in the use of computers to complete the assessment (5% in OECD and 4% in Australia). Third, a number of respondents opted to complete the assessment in its paper-based format rather than on a computer (10% in participating countries and 14% in Australia). While those who declared no computer experience and failed the ICT score clearly lack basic computer skills, those who opted out may have done so for various reasons, such as a lack of familiarity with computers, unwillingness to use a computer for an assessment, or different field work practices across countries (OECD, 2015).

An example of a task in problem solving in technology-rich environments can be found in Annex B (Box BB.1).

Adults in Australia score high on PSTRE

Almost 40% of Australians who sat the computer assessment performed highly in PSTRE, one of the highest rates among participating countries. Australia has a very low share of adults who were not able to sit the computer assessment, but a relatively high share of adults who opted out of taking the computer-based assessment. Typically, in countries with a strong PSTRE performance the percentage of those opting out was lower than in Australia. Figure 2.4 shows the average performance of countries on PSTRE and the share of adults who did not sit the computer assessment.

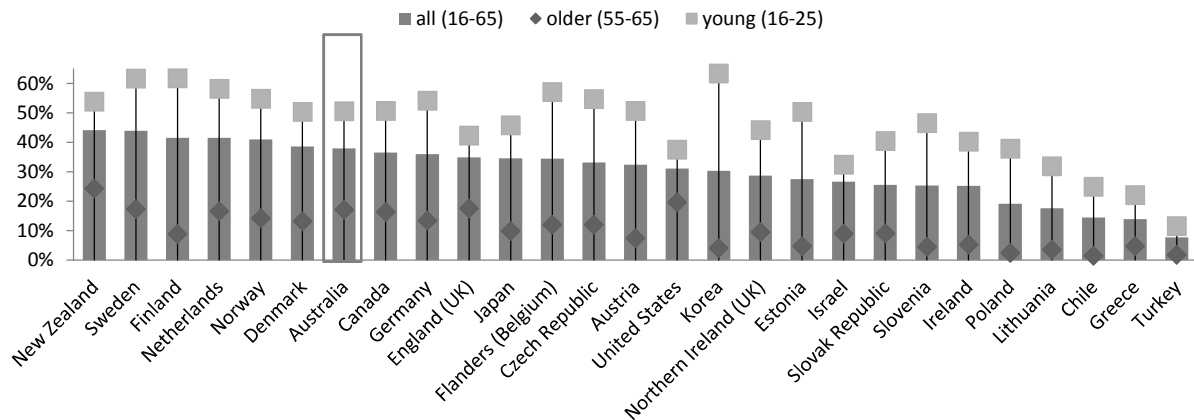
Figure 2.4. Proficiency in problem solving in technology-rich environments

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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High performance in PSTRE for all age groups

In Australia, both young (16-25 year-old) and older (55-65 year-old) adults perform better in PSTRE than their peers in corresponding age groups in many other participating countries (see Figure 2.5).

Figure 2.5. Share of adults scoring at Level 2 or 3 in PSTRE, by age group

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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However, performance in PSTRE is lower in older cohorts

In many countries, including Australia, young people are more familiar with ICT technologies and perform better in PSTRE than older adults: in Australia while more than half of 16-25 year-olds have strong PSTRE skills, fewer than 20% of 55-65 year-olds reach this level of proficiency. Use of ICT is widespread in Australia, with around 85% of

those aged 15 and older using the Internet (The World Bank, 2016). The high penetration of ICT technology means that knowledge of ICT and computers may be required at work and to participate in political and social life. Adults lacking computer knowledge and skills therefore are more at risk of being excluded or disadvantaged in various aspects of life.

There is no difference in the performances between men and women

Gender is weakly related to proficiency in PSTRE in all participating countries, particularly in Australia, where the difference between men and woman performing at high levels in PSTRE is the smallest across OECD countries.

Australian migrants perform particularly well in PSTRE, although not as good as those native born

Immigrant and language background is correlated with the probability of performing at Level 2 or 3 in PSTRE. While, on average, migrants perform worse than those native born in Australia, the gap in performance by migration status is smaller than in other countries.

More educated adults are much more likely to have better PSTRE skills

Educational attainment and ICT use are strongly associated with PSTRE proficiency. An adult in Australia with tertiary education is 36 percentage points more likely than an adult with less than upper-secondary education to perform at Level 2 or 3 in PSTRE. Even after accounting for other factors, such as age, gender, parents' education, immigrant background, literacy proficiencies and use of ICT skills, this association remains significant. (OECD, 2015: 47). Individuals may develop higher-level PSTRE skills through education and training, and these skills may be further reinforced through work and out-of-work practices. The impact of work on PSTRE skills is mediated by education, if high levels of education and training lead to jobs involving more work with computers.

Strong PSTRE skills are associated with better labour market outcomes

Consistent with findings on literacy and numeracy skills and labour market performance, higher levels of proficiency in PSTRE are associated with better labour market outcomes. On average across OECD countries, hourly wages for workers who perform at proficiency Level 2 or 3 are 26% higher than mean hourly wages for workers who perform below Level 1 (see also Falck et al., 2016). While strong PSTRE skills in Australia also yield higher wages, the premium is lower than in most participating countries. Proficiency in PSTRE, as well as use of ICT (as measured by the use of e-mails at work), are associated with higher rates of labour force participation, even after accounting for other factors. Having a job is also linked to stronger performance. In Australia, 42% of workers have high PSTRE skills, compared to 25% of non-workers. However, it is not clear whether employment is conditional for strong PSTRE skills, or whether these skills improve through work, or both.

Conclusions

- By international standards, adults in Australia, across all age groups, have strong PSTRE skills. This is important as ICT technologies and the use of computers have changed working methods and work organisation. As a consequence,

employment in jobs subject to automation has been shrinking, along with the demand for the skills necessary to perform these jobs. This trend may accelerate in the future as technology is increasingly applied in workplaces and computers are able to perform more and more complex tasks. Adults not familiar with computers will therefore be poorly equipped to respond to new work requirements triggered by new technology.

- Policies targeting specific populations can build on good ICT knowledge among adults in Australia. They can involve, for example, career guidance provision and online learning for disadvantaged youth.

Strength 3: In Australia, the workplace is conducive to learning

Learning on-the-job encompasses a wide range of activities. Drawing on data from the Survey for Adult Skills this report distinguishes three types of on-the-job learning:

- structured on-the-job training
- learning while working
- use of skills on the job

These forms of learning often depend on the work organisation and managerial culture that influences how people interact and approach problems to be solved at work. The three types of learning are discussed separately below.

Structured on the-job training

Around 20% of low-skilled employees participate in structured training

In Australia, around one in five low-skilled adults receive on-the-job training (see Box 2.1 for the definition), which is close to the average of participating countries. However, on-the-job training encompasses various activities, and it is unclear how much of this training contributes to basic skills development. For example, narrowly defined job-specific training, such as mandatory training related to health and safety, makes a limited contribution to a person's basic skills. Without disentangling various forms of training it is therefore difficult to say how much it helps low-skilled individuals to upgrade their skills.

Box 2.1. Organised on-the-job training attended in the last 12 months

Organised on-the-job training is characterised by planned periods of training, instruction or practical experience that use the normal tools of work.

It is usually organised by the employer to facilitate the adaptation of (new) staff.

It may include general training about the company and specific job-related instructions (health and safety hazards, working practices).

It includes, for instance, organised training or instructions by management, supervisors or co-workers to help the respondent do his/her job better or to introduce him/her to new tasks. It can also take place in the presence of a tutor.

Source: OECD (2013), *Skills Outlook 2013: First Results from the Survey of Adult Skills*, Variable B_Q12c, learning while working, <http://dx.doi.org/10.1787/9789264204256-en>.

In Australia, the work environment favours learning while working, also among the low skilled

The Survey of Adult Skills provides information on some aspects of work that may promote learning and skills development, such as learning-by-doing from the performed tasks and learning new work-related skills from co-workers and supervisors.

In many countries, including Australia, employees with low skills are over-represented in jobs where they receive no help from co-workers and supervisors, and in jobs involving no learning while doing (presumably often jobs requiring few skills). However, by international standards, low-skilled workers in Australia have more opportunities to learn from others and by doing than in other countries. For example, in Australia, around 46% of low-skilled employees report learning-by-doing on a daily basis, one of the highest rates among OECD countries. Figure 2.6 shows how often low-skilled adults learn from others across participating countries.

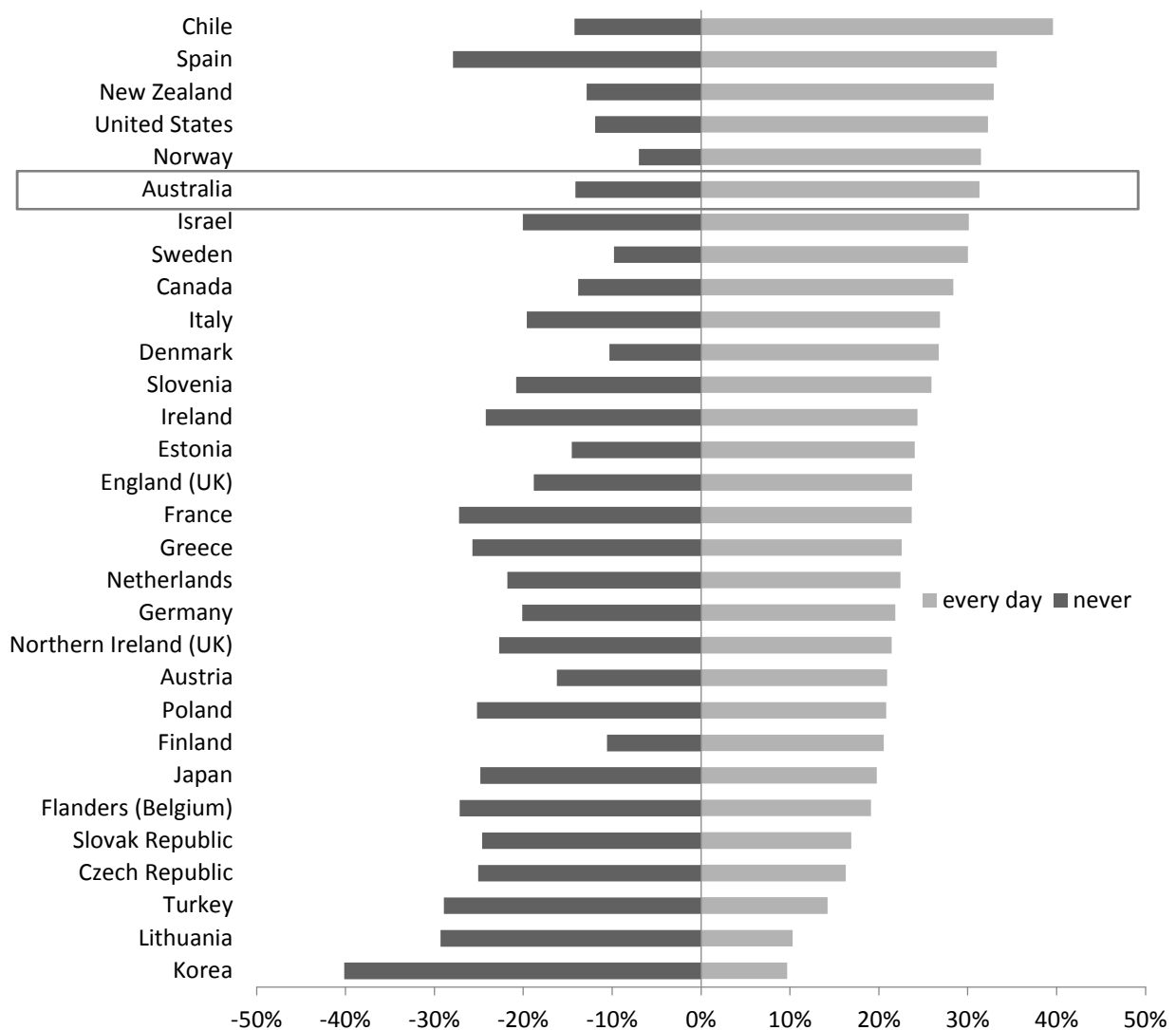
Some companies are better than others at providing opportunities for learning while working

Detailed analysis shows that opportunities for learning while working, including for low-skilled adults, depend on firm characteristics. An analysis of various factors, including firm and individual characteristics, confirms that adults with stronger basic skills and higher education learn more often from others at work. It also shows that in Australia, learning from co-workers and colleagues is more common in large companies and in companies that have recently been employing. Age is negatively associated with learning from colleagues. This shows that younger workers, who presumably have less work experience, receive more advice from co-workers. It may also be that younger workers are more open to guidance from others. Adults in elementary low-skilled jobs are less exposed to relevant learning while working. When other characteristics are taken into account, gender is not associated with learning while working opportunities.

Use of skills on the job


Australian adults use their skills intensely in the workplace

The Survey of Adult Skills provides detailed information on how often respondents perform specific tasks in their jobs, such as reading, writing, numeracy, ICT skills and problem solving (OECD, 2013a). Table 2.1 describe these skills in more detail and shows how Australia compares to participating countries in terms of skills use at work among high and low-skilled workers. In many areas of skills use, such as reading, numeracy and problem solving, Australia, similar to New Zealand, ranks near the top of the distribution.

Figure 2.6. How often low-skilled workers learn work-related skills from co-workers and supervisors

Note: The left hand (negative) side stands for the percentage of low-skilled workers who report to never learn from others. Bars on the right hand side show the percentage of low-skilled workers reporting learning every day from colleagues.

Source: OECD calculations based on OECD (2016a), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

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In Australia, many low-skilled adults use basic skills at work

In Australia, those with low skills are more likely than in most countries to use reading, numeracy and problem-solving skills at work. This is positive if using these skills at work promotes the development of initially low-skilled employees. However, Survey of Adult Skills data do not allow for estimating the impact of daily work on basic skills development. It is therefore not clear whether and how many low-skilled workers improve their basic skills as a result of carrying out tasks involving basic skills on the job. On the negative side, the allocation of low-skilled individuals to tasks requiring a higher level of skills can be a sign of misallocation of human resources, especially if tasks performed on the job have no or low effect on the basic skills of the employee.

Table 2.1. Low skilled in Australia use their skills in the workplace more often than their peers in other countries

Use of specific skills by low-and highly skilled (literacy and/or numeracy) workers in Australia in comparison with use of the same skills in other countries

The tasks involved		Use of these skills in Australia in comparison to the average of participating countries	
		Low skilled	Highly skilled
Reading	Reading documents (directions, instructions, letters, memos, e-mails, articles, books, manuals, bills, invoices, diagrams, maps).	5th ranking	2nd ranking
Writing	Writing documents (letters, memos, e-mails, articles, reports, forms).	10th ranking	6th ranking
Numeracy	Calculating prices, costs or budgets; use of fractions, decimals or percentages; use of calculators; preparing graphs or tables; algebra or formulas.	5th ranking	3rd ranking
ICT skills	Using e-mail, Internet, spreadsheets, word processors, programming languages; conducting transactions on line; participating in online discussions.	15th ranking	8th ranking
Problem solving	Facing complex problems (at least 30 minutes of thinking to find a solution).	3rd ranking	3rd ranking

Source: OECD calculations based on OECD (2016), *Survey of Adult Skills (PIAAC)* (Database 2012, 2015), www.oecd.org/site/piaac/publicdataandanalysis.htm.

There are gender differences in the use of some skills at work

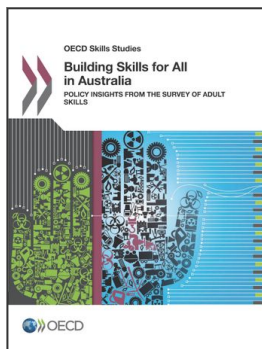
In Australia, as in many other participating countries, men use numeracy and problem solving at work more often than women; while women are as likely as men to use reading and writing skills. There is no gender gap in ICT skills in Australia. Differences in the use at work of numeracy and problem-solving skills between men and women may reflect the self-selection of women into specific sectors and jobs that rely less on numeracy skills. Gender differences in the use of skills start early on in life, and already in school children are sorted into different fields of study, with boys being more likely to choose fields requiring stronger numeracy skills than girls. If work contributes to the development of skills, the over-representation of women in jobs where numeracy and problem solving are less commonly used can further reinforce the gender gap in skills. The issue of gender preferences and its impact on skills will be further explored in Chapter 3.

Conclusions

- People develop their skills in the workplace. They learn at work through more formalised training, but also by daily interactions with colleagues and supervisors, and simply by doing the work. Jobs in Australia provide more learning opportunities, including for those with low skills, than jobs in many other countries. The workplace is therefore an important and strong element of the skills system in Australia.
- Drawing on this positive experience, Australia could promote and scale up work arrangements and management practices that lead to the best outcomes in terms of skills improvement.

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