Getting Skills Right

Chile



OECD

Getting Skills Right: Chile



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Foreword

Skills have the potential to transform lives and drive economies. Having a skilled workforce can contribute to better outcomes at the individual level as well as for firms and the country as a whole. Higher-skilled individuals are more likely to be employed and earn higher wages. Firms need high-level skills to innovate, grow and move up value chain. Countries benefit from a more skilled workforce through higher productivity and GDP growth.

However, having a pool of highly proficient workers does not guarantee these desirable outcomes. How employers use skills in the workplace is just as important as developing skills in the first place. In addition, when skills supply is not in line with skills demand, skill mismatch and skill shortages are likely to arise reducing the benefits that individuals, firms and countries can draw from skills acquisition.

In light of this challenge, the OECD has undertaken an ambitious programme of work to assess the degree of alignment between skill supply and skill demand and identify policies that can bring the two closer. This work builds on the extensive experience of the OECD in the area of skills, including the OECD Skill Strategy and its follow up national implementation strategies, the Survey of Adult Skills (PIAAC) and its rich analyses in the areas of skills mismatch, vocational education and training and work-based learning.

This study analyses the relationship between skills and labour market outcomes in Chile with a specific focus on disadvantaged groups: youth, women and the low-skilled. It examines the proficiency of the Chilean population in literacy, numeracy and problem-solving in a technological-rich environment and disentangles the relationship between proficiency and labour market outcomes in Chile. The study also devotes significant attention to the demand for skills, by describing the use of skills at work in Chile and identifying its key determinants, as well as assessing the extent of skills mismatch and its implications for individuals. Throughout the study, differences between sociodemographic groups are highlighted to investigate the roots of labour market disadvantage.

The work on this study was carried out by Glenda Quintini (Skills and Employability Division of the Directorate for Employment, Labour and Social Affairs), Paulina Granados and Javiera Ibacache (both working in the Skills and Employability Division at the time of drafting), under the leadership of Mark Keese (Head of the Skills and Employability Division).

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Acronyms and abbreviations

GDP	Gross domestic product
HPWP	High performance work practices
ICT	Information and Communication Technologies
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
NEET	Neither in employment nor in education or training
OLS	Ordinary Least Squares
PIAAC	Survey of Adult Skills
PPP	Purchasing power parity

Executive summary

The Chilean economy is gradually recovering from a period of slow growth due to sharply lower commodity prices. Economic growth is expected to strengthen to 2.8% in 2018 thanks to improved external demand and investment. As a result, the unemployment rate is projected to stabilise and wage growth to pick up. The overall unemployment rate remains close to the OECD average (6.5% in Chile v. 6.3%). Yet, participation in the labour market is five percentage points below the OECD average, with very marked differences for women (8 percentage points below average) and youth (12 percentage points below average). This is reflected in relatively low employment rates for these sub-groups. While participation of the low-educated to the labour market is high in international comparison, the quality of jobs is frequently poor: informality is common and Chile has the highest share of temporary workers in the OECD.

Ensuring that the most under-represented groups can build the necessary skills to successfully participate in the labour market can help reduce existing employment gaps. In addition, promoting labour market outcomes for under-represented groups can contribute to reducing income inequality and promoting employment and economic growth. Building skills to make labour markets more inclusive is, therefore, a priority on both equity and efficiency grounds.

While Chile has a range of programmes in place to support groups that face barriers in the labour market, the challenge of enhancing job opportunities for them is all the greater as the specialisation of the economy and the prospects of automation skew the demand for labour towards high-skilled workers.

By using the data provided by the Survey of Adult Skills, this study analyses the relationship between skills and labour market outcomes in Chile with a specific focus on disadvantaged groups: youth, women and the low-skilled. Chapter 1 examines the proficiency of the Chilean population in literacy, numeracy and problem-solving in a technological-rich environment; disentangles the relationship between proficiency and labour market outcomes in Chile; and sheds light on differences between sociodemographic groups. Chapter 2 describes the use of skills at work, the determinants of this use, the level of skills mismatch, and why it matters for individuals and economies. Chapter 3 examines in more depth the effect of skills on labour market outcomes by age and gender.

Key findings

- Both educational attainment and skill proficiency, as measured in the Survey of Adult Skills (PIAAC), are low in Chile when compared to other OECD countries. The share of adults who score at the highest levels of proficiency in literacy, numeracy and problem-solving in technology-rich environments is considerably smaller than the OECD average. This poor performance applies across the board,

at all education levels: the highest educated Chileans score, on average, below the OECD average for adults that have attained upper secondary education.

- Differences in proficiency related to age, educational attainment and parents' education are especially large in Chile, with gaps up to 20% bigger than in the OECD on average. Chile is one of only few countries where the gender gap is statistically significant: on average, women score 7 points (adjusted) lower in literacy, when compared to men. The gender gap is smaller among younger Chileans, even after controlling for educational attainment, suggesting that lower labour force participation may cause faster skills depreciation or slower skills acquisition through lifelong learning among women.
- On average across OECD countries and economies that participated in PIAAC, after accounting for educational attainment, an increase of one standard deviation in an individual's literacy proficiency (46 score points) is associated with a 8% increase in hourly wages. The relationship is stronger in Chile than in the OECD on average and remains strong, even after educational attainment and the use of reading skills at work are considered. Skill proficiency is also found to affect the likelihood of being neither in employment nor in education and training, but more so for older workers – affected by early retirement – than for youth finding it difficult to enter the labour market.
- The analysis of the relationship between skills and gender and age wage gaps points to the existence of gender discrimination and seniority wage practices: both gaps would be significantly reduced if the return to skills for women (youth) was the same as that for men (older workers).
- The use of skills in the workplace plays an important role in the labour market outcomes of individuals in all OECD countries over and beyond that played by skills proficiency and educational attainment. Workers in Chile show below-average use of all skills, although the difference with the OECD average is small. This could partly be attributed to the limited use of High Performance Work Practices (HPWP) in Chile. Indeed, a growing body of literature shows that participatory practices at work – such as those allowing workers more flexibility in determining the way and rhythm with which they carry out their tasks – encourage better use of skills in the workplace. Management practices also help, with bonuses, training and working time flexibility providing incentives for workers to use their skills at work more fully.
- The extent to which skills are used in the workplace varies across socio-demographic characteristics for several reasons. Workers may have different attitudes to the deployment of skills in the workplace, may be constrained in their choice of jobs because of personal reasons, or may be offered jobs to which HPWP are less likely to apply. In Chile, differences in skills use at work are particularly marked by age group. Prime-age workers tend to use all skills more frequently than either youth or older workers both in Chile and on average. However, Chile shows a different pattern than in the OECD on average when it comes to age, with lower use by older workers than by youth in all skills but reading although this appears to be due in part to differences in proficiency and job type. The opposite is true in the OECD on average.
- A discrepancy between skills use in the workplace and skill proficiency could signal the existence of mismatch, whereby workers are in jobs that require higher or lower skills than those they possess. In Chile, qualification mismatch, at 34%, is very close to the OECD average. On the other hand, Chile has one of the highest prevalence of skills mismatch in OECD countries, and the highest

prevalence of underskilling in literacy. Field of study mismatch shows that almost one in two workers in Chile is mismatched, one of the highest values in the OECD, compared with just 40% of workers on average. Older workers are the most likely to be mismatched – in terms of qualifications, skills and field of study.

- Wage penalties from overqualification are larger in Chile than in the OECD on average: overqualified workers earn about 18% less than their well-matched counterparts with similar qualifications. In addition, while field of study mismatch per se does not entail large wage losses, it can be quite costly when it coincides with over-qualification which is the case for a large share of mismatched workers in Chile.

While these findings point to the importance of strengthening the skills of the Chilean workforce, they also suggest that skills may only be part of the story for some groups. Notably, women's poor labour force participation in Chile is likely to be strongly related to the difficulty of reconciling work and family life. Better services to support women's labour market participation would help make the best use of women's skills.

Also, educational credentials continue to play a stronger role than actual skills, generating mismatch between workers' skills and the skill requirements of their jobs. In this context, it becomes critical to develop mechanisms to effectively signal skills proficiency to employers. Effective systems for the recognition of prior learning could help achieve more transparency on the skills that job-seekers possess, irrespective of the context in which skills have been acquired (initial education or non-formal and informal learning).

Finally, as many of those already in the labour force have poor information-processing skills, participation in adult learning is key to develop and maintain skills. Cost-efficient infrastructures for lifelong learning and ensuring participation by all is likely to gain in importance as rapidly changing skill needs will require more frequent re-training and up-skilling. Unfortunately, as it is the case across OECD countries, adult learning tends to benefit disproportionately those who already possess good foundation skills. Increasing participation by the low-skilled will require targeted financial subsidies but also attention paid to non-financial barriers.

Chapter 1. Skills proficiency and labour market outcomes in Chile

Skills can have a major impact in people's life opportunities. Proficiency in information processing skills is positively associated with labour market outcomes: on average, adults with higher skills proficiency tend to earn more and have better employment prospects. This chapter examines the proficiency of the Chilean population in literacy, numeracy and problem-solving in a technological-rich environment; disentangles the relationship between proficiency and labour market outcomes in Chile; and sheds light on differences between sociodemographic groups.

The statistical data for Israel are supplied by and 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.

Distribution of skills proficiency

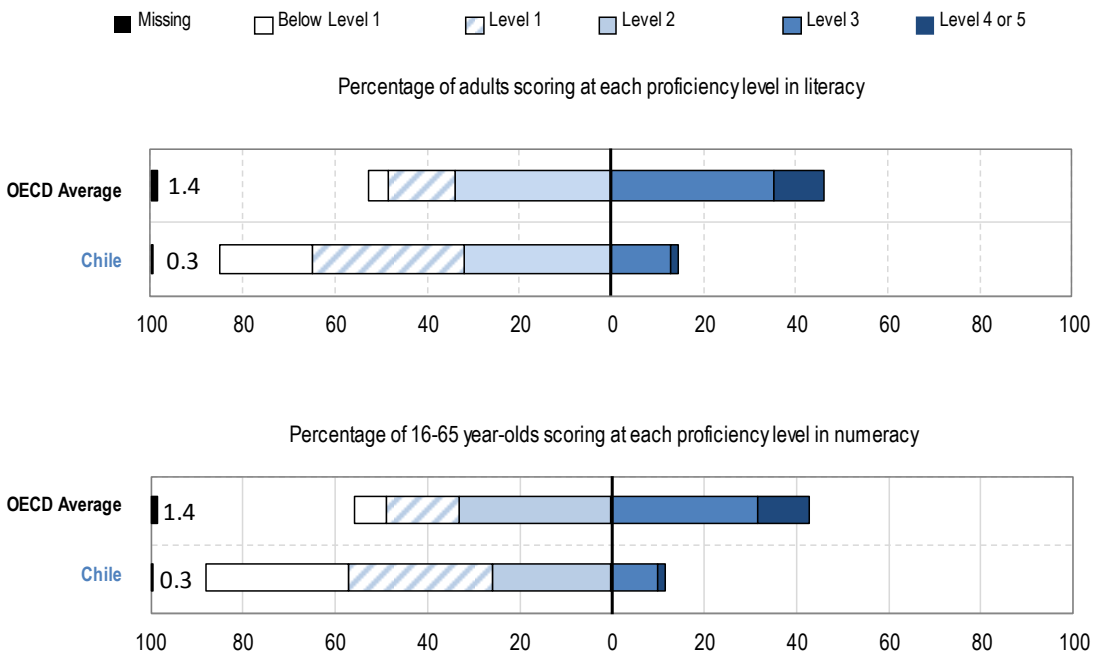
What people know and what they do with what they know can have a major impact in their life opportunities. This is supported by the positive association of skills proficiency and labour market outcomes: on average, adults with higher skills proficiency tend to have more chances of becoming employed and have higher wages than their less proficient peers (OECD, 2016[1]). The results on skills proficiency from the Survey of Adult Skills show that a much-larger-than-average proportion of adults in Chile have poor literacy and numeracy skills, and around half of Chilean workers have only basic proficiency problem solving in technology-rich environments (Figure 1.1).

More than one in two adults (53.4%) in Chile is proficient at or below Level 1 in literacy, compared to the OECD average of 18.9%. In numeracy, 61.9% of adults score at or below Level 1, compared to the OECD average of 22.7%. At Level 1 in literacy, adults can read brief texts on familiar topics and locate a single piece of specific information identical in form to information in the question or directive. In numeracy, adults at Level 1 can perform basic mathematical processes in familiar, concrete contexts, performing basic arithmetic operations and understanding simple percentages.

Around one in eight adults (12.9%) attains Level 3 in literacy (below the OECD average of 35.4%), and one in ten adults (10%) attains the same level in numeracy (below the OECD average of 31.8%). At this level of literacy, adults can understand and respond appropriately to dense or lengthy texts, can identify, interpret or evaluate one or more pieces of information, and make appropriate inferences using knowledge of text structures and rhetorical devices. In terms of numeracy, adults have a good sense of number and space, can work with mathematical relationships, patterns and proportions expressed in verbal or numerical form, and can perform basic analyses of data and statistics in texts, tables and graphs.

Only about one in 60 adults (1.6%) in Chile attains the highest levels of proficiency (Level 4 or 5) in literacy, compared to around one in 10 adults (10.6%) on average across the OECD countries that participated in the survey. And around 1.9% of adults in Chile attain Level 4 or 5 in numeracy, far below the OECD average of 11.2%. At or above Level 4, adults can integrate, interpret and synthesise information from complex or lengthy texts that contain conditional and/or competing information.

Figure 1.1. Literacy proficiency among adults



Note: Adults in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related and numeracy-related non-response).
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.1, Table A2.4 (http://dx.doi.org/10.1787/888933366458).

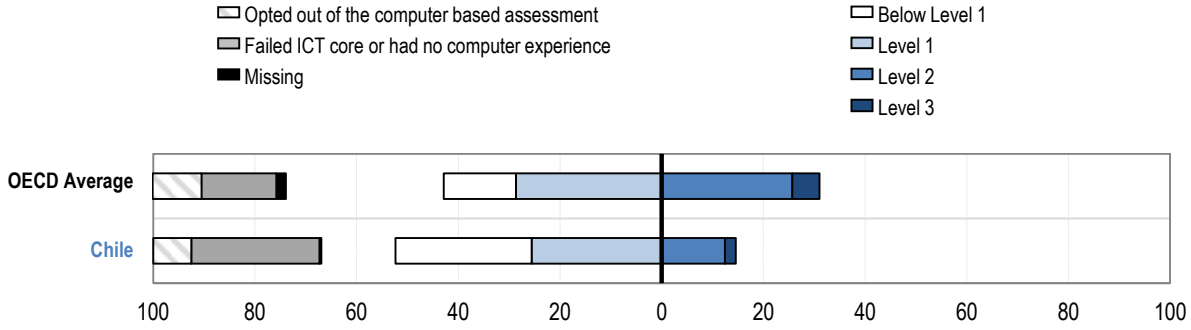
In terms of problem solving in technology-rich environments, 52.4% of adults scored at or below Level 1, higher than the OECD average of 42.9%, as depicted Figure 1.2. At this level, adults can use familiar technology applications, such as e-mail software or a web browser, to solve problems involving few steps, do simple reasoning and little or no navigation across applications.

Around one in eight adults (12.4%) attains proficiency Level 2 in problem solving, compared with the OECD average of one in four adults (25.7%). At this level, adults can complete problems that involve a small number of computer applications, and require several steps and operations to reach a solution. Only 2.1% of adults in Chile attain Level 3, the highest proficiency level, in problem solving in technology-rich environments. This is the third lowest percentage observed among all participating countries/economies, after Turkey and Greece, all below the OECD average of 5.4%. Adults that reach this proficiency level can complete tasks involving multiple computer applications that require a large number of steps, discovery and use of ad hoc commands in a novel environment.

Additionally, some 17.4% of adults in Chile reported no prior experience with computers, and 7.8% failed the ICT core test, compared to the OECD average of 10% and 4.7%, respectively. The proportion of adults that opted out of the computer-based assessment (7.5%), while important, is less compared to the OECD average of 9.6%.

Figure 1.2. Proficiency in problem solving in technology-rich environments among adults

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



Note: Adults included in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related non-response). The missing category also includes adults who could not complete the assessment of problem solving in technology-rich environments because of technical problems with the computer used for the survey. France, Italy and Spain did not participate in the problem solving in technology-rich environments assessment, hence they are not included in the OECD average.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A2.6 (http://dx.doi.org/10.1787/888933366458).

Determinants of proficiency levels

Sociodemographic differences

In most countries, including Chile, there are differences in skills proficiency related to socio-demographic characteristics, such as age, level of education and socio-economic status. Across OECD countries in the Survey of Adult Skills, educational attainment shows the strongest relationship with proficiency, both before and after accounting for the influence of other socio-demographic characteristics. When considering the relationship between educational attainment and differences in proficiency between different population groups, the adjusted differences are generally close to the unadjusted differences. This means that other background characteristics like age, gender or family background have little impact on the strength of the relationship. In fact, accounting for differences in educational attainment generally results in a much weaker association between proficiency and other background characteristics. In other words, while education explains a substantial part of the difference in proficiency between older and younger adults, the opposite is not true: differences in proficiency among adults with different levels of education remain substantial, even after taking account of age (OECD, 2016[1]).

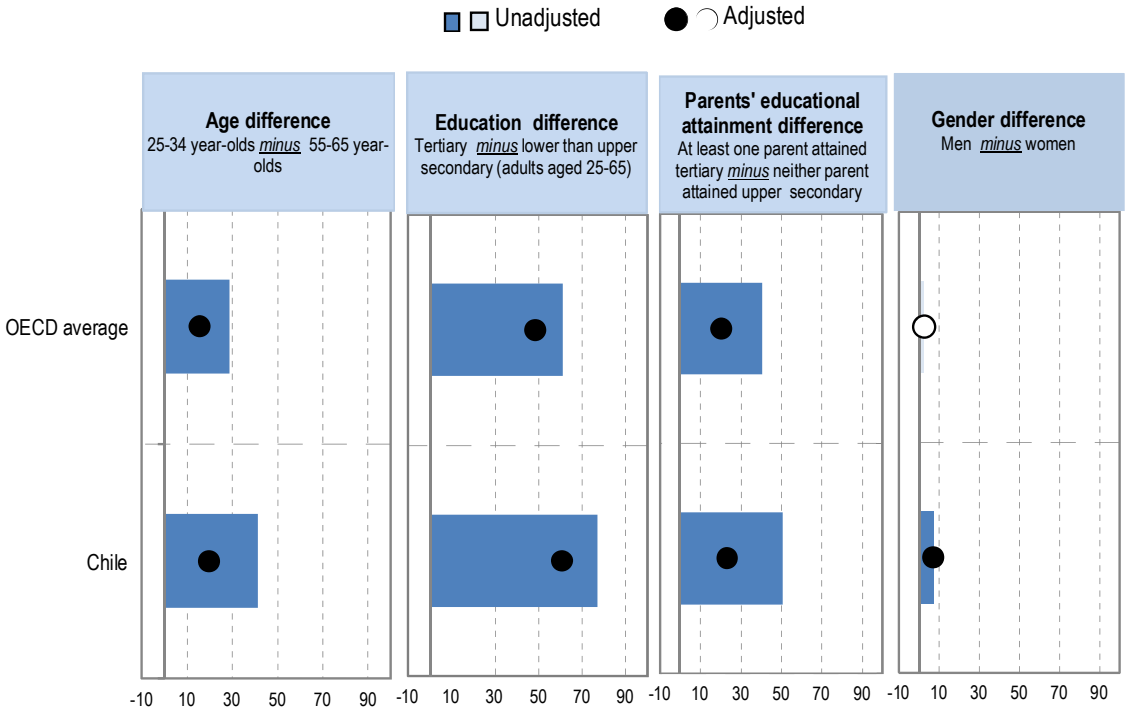
Differences in proficiency related to age, education and parents' education are especially large in Chile, with a gap that is up to 20% bigger than the score difference for the average of OECD countries. Figure 1.3 presents an overview of proficiency differences in literacy associated with various socio-demographic characteristics.[1] For Chile, all sociodemographic differences are statistically significant.

Younger adults score (adjusted), on average, 20 points higher than older adults, with a gap that is 20% bigger than the OECD average literacy score difference (16 points). Similarly, workers with tertiary education score (adjusted) on average 60 points higher than those with lower than upper secondary education, with a score difference that is also

20% bigger than the OECD average gap (48 points). In terms of parents' educational attainment, workers with at least one parent who completed tertiary education show an average score (adjusted) that is 13% bigger than OECD average difference (23 versus 20 points, respectively). While the score difference in terms of gender is found not to be significantly different from 0 for the average of OECD countries, for Chile not only is the gender gap significant, but it is also the third highest among all OECD countries after Jakarta (Indonesia) and Turkey. On average, female workers score 7 points (adjusted) lower in literacy, when compared to male workers.

Figure 1.3. Socio-demographic differences in literacy proficiency

Adjusted and unadjusted differences in literacy scores between contrast categories within various socio-demographic groups



Note: Statistically significant differences are marked in a darker tone. Unadjusted differences are the differences between the two means for each contrast category. Adjusted differences are based on a regression model and take account of differences associated with the following variables: age, gender, education, immigrant and language background and parents' educational attainment. Only the score-point differences between two contrast categories are shown, which is useful for showing the relative significance of each socio-demographic variable in relation to observed score-point differences.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.1 (L), A3.2 (L), A3.5 (L), A3.9 (L), A3.12 (L) and A3.14 (L).

Difference in proficiency by educational attainment

Data from the Survey of Adult Skills shows a positive correlation between levels of educational attainment and skills proficiency, regardless of other individual characteristics such as age, gender or family background. Figure 1.4 shows this correlation by summarising the average literacy proficiency by level of educational attainment (in the left panel), and proficiency differences between tertiary-educated adults

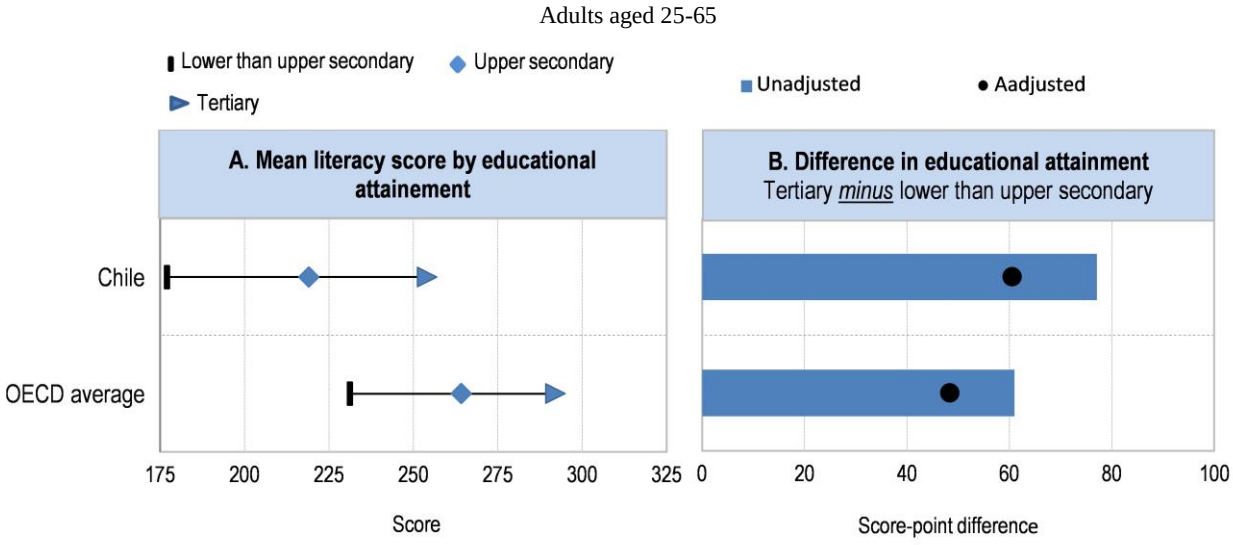
and adults without an upper secondary education (on the right), for the average of OECD countries and Chile.

Across OECD countries and economies participating in the survey, high-educated 25-65 year-olds (those who have attained at least a tertiary degree) scored higher in both literacy and numeracy than adults with an upper secondary education as their highest level of attainment. The latter, in turn, scored higher than adults who have not completed upper secondary education (hereafter "low-educated adults"). As noted in Figure 1.4, across all countries and economies tertiary-educated adults scored 292 points on the literacy scale, while adults with upper secondary education scored 264 points, and low-educated adults scored 231 points. The score differences by educational attainment are generally even larger in the case of numeracy proficiency.

In contrast, all adults in Chile, regardless of their level of educational attainment, score lower than the OECD average adult that has attained upper secondary education. Tertiary-educated adults in Chile scored on average 254 points on the literacy scale, while adults with upper secondary education scored 219 points, and low-educated adults scored 177 points. This means that Chilean adults with at least or lower than upper secondary education reach on average a Level 1 of proficiency in literacy, and those with tertiary education score reach on average a Level 2 of literacy proficiency.

Across the surveyed population for all OECD countries, 42% of low-educated adults scored on average at or below Level 1, more than double the proportion of upper secondary graduates at that level (slightly below 20%). Less than 10% of tertiary-educated adults scored below Level 2, and 21% scored at Level 4 or 5. In Chile, the proportion of low educated adults that score at or below Level 1 doubles the OECD average with 87%. This is particularly significant, given that in Chile low-educated adults make up 32% of the total population. The vast majority of tertiary graduates scored below Level 3 in literacy; less than 5% scored at Level 4 or 5, compared to an average of 21% among OECD countries/economies participating in the survey (OECD, 2016[2]).

Figure 1.4. Differences in literacy proficiency, by educational attainment



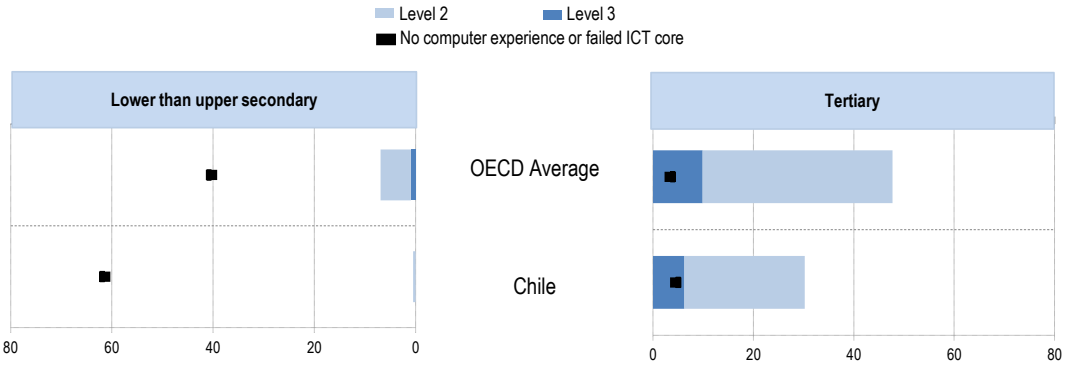
Note: All differences in panel B are statistically significant. Unadjusted differences are the differences between the two means for each contrast category. Adjusted differences are based on a regression model and take account of differences associated with other factors: age, gender, immigrant and language background and parents' educational attainment. Only the score-point differences between two contrast categories are shown in panel B, which is useful for showing the relative significance of educational attainment vis-a-vis observed score-point differences. Lower than upper secondary includes ISCED 1, 2 and 3C short. Upper secondary includes ISCED 3A, 3B, 3C long and 4. Tertiary includes ISCED 5A, 5B and 6. Where possible, foreign qualifications are included as the closest corresponding level in the respective national education systems.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.1 (L) and A3.2 (L).

The proficiency advantage among high-educated adults is even more striking when looking at proficiency in problem solving in technology-rich environments from a cross sectional perspective (Figure 1.5). For the average of OECD countries, only about 7% of low-educated adults scored at Level 2 or 3 on the problem-solving assessment, compared to 48% of adults who had attained tertiary education. In this respect, between-country/economy differences are small. In Chile, the difference is smaller but the overall performance is worse than the OECD average, putting the country at the bottom of the distribution for the entire group of participant countries. The share of low-educated adults that reach high proficiency in problem solving is around 0.5%, and around 30% of high-educated adults reach Level 2 or 3 on the problem solving assessment.

There is much more variation at the bottom of the proficiency distribution for all countries, with an average of 41% of low-educated adults reporting having no experience at all with ICTs, or failing the ICT core test. In the case of Chile, around 62% of low-educated adults reported no experience with ICTs or failed the test. The percentage of high-educated adults in this category is considerably smaller, with 5% of the subgroup reporting no experience or failing the test.

Figure 1.5. Problem-solving proficiency, by educational attainment

Percentage of low- and high-educated adults scoring at Level 2 or 3 in problem solving in technology-rich environments or having no computer experience (adults aged 25-65)



Note: Percentages on the problem solving in technology-rich environments scale are computed so that the sum of percentages for the following mutually exhaustive categories equals 100%: opted out of the computer-based assessment; no computer experience; failed ICT core test; below Level 1, Level 1, Level 2 and Level 3. For more detailed results for each category, see corresponding table mentioned in the source below. Lower than upper secondary includes ISCED 1, 2 and 3C short. Upper secondary includes ISCED 3A, 3B, 3C long and 4. Tertiary includes ISCED 5A, 5B and 6. Where possible, foreign qualifications are included as the closest corresponding level in the respective national education systems. France, Italy,and Spain did not participate in the problem solving in technology-rich environments assessment, hence they are not included in the OECD average.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A3.3 (P).

Difference in proficiency by age

By looking at proficiency levels across different age groups, it is possible to understand how information-processing skills are distributed, and design policies that target more accurately vulnerable individuals. Additionally, between-country comparisons of age distributions in proficiency, coupled with detailed knowledge of how policies and institutions evolved in individual countries/economies, can help identify where strengths and weaknesses lie.[2] Figure 1.6 plots the average age-proficiency profile in literacy and numeracy for Chile and the OECD countries/economies that participated in the Survey of Adult Skills.

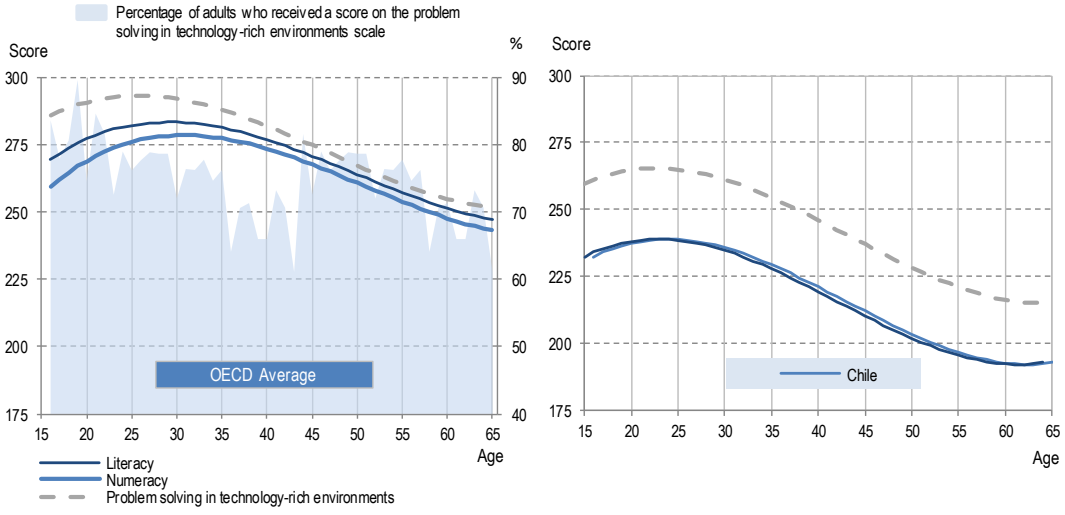
Although the age-proficiency profiles vary considerably across countries, on average and in the majority of countries, proficiency tends to peak at around age 30, and then gradually decline with age (Desjardins and Warnke, 2012[3]) (Paccagnella, 2016[4]). Additionally, there seems to be very little improvement in proficiency between the ages 16 and 30. In the case of Chile, proficiency in literacy and problem solving in technology-rich environments reaches the highest score around 24 years old, and proficiency in numeracy reaches its highest score around 27 years old. As age increases after the peak, the rate of decline in proficiency scores is greater for Chile when compared to the OECD Average. For example, the score for the average 65 years old in Chile is 19-29% lower than the average younger adult with the highest score in the country. For the OECD average, the average oldest adult shows a decline in proficiency scores that is 12-14% lower when compared to its respective average younger individual with the highest score.

One explanation for this skills proficiency difference between age brackets lays in the depreciation of skills due to ageing: cognitive abilities develop during youth and into adulthood, and then inevitably decline as people grow older. Yet, biological ageing is not the only reason behind the decline of cognitive skills. Skills at different ages are influenced by individual choices, such as pursuing higher education and/or a particular career, and practicing information-processing skills both in and outside the workplace. Moreover, the extent to which such individual choices affect the age-proficiency profile varies across countries, because of differences in the quality of education, the quality of and access to lifelong learning, industry structure and labour market institutions, to name just a few factors (OECD, 2016[1]).

Thus, the changes observed in this snapshot can also account for proficiency improvements across different generations (cohorts improving proficiency). Nevertheless, literacy scores in Chile have not improved since the 1990s, when the country started its participation in the International Adult Literacy Survey. This, in spite of the expansion of education opportunities in Chile, evidenced by the 20 percentage points increase in the share of tertiary-educated 25-34 year-olds when compared to the share of tertiary-educated 55-65 year-olds. If the large expansion of education over the past few decades has improved cohorts' literacy scores, this improvement may have been offset by Chile's population ageing, so the national average has remained the same (OECD, 2016[1]).

Figure 1.6. Relationship between skills proficiency and age

Trend scores by age, foreign-born adults excluded



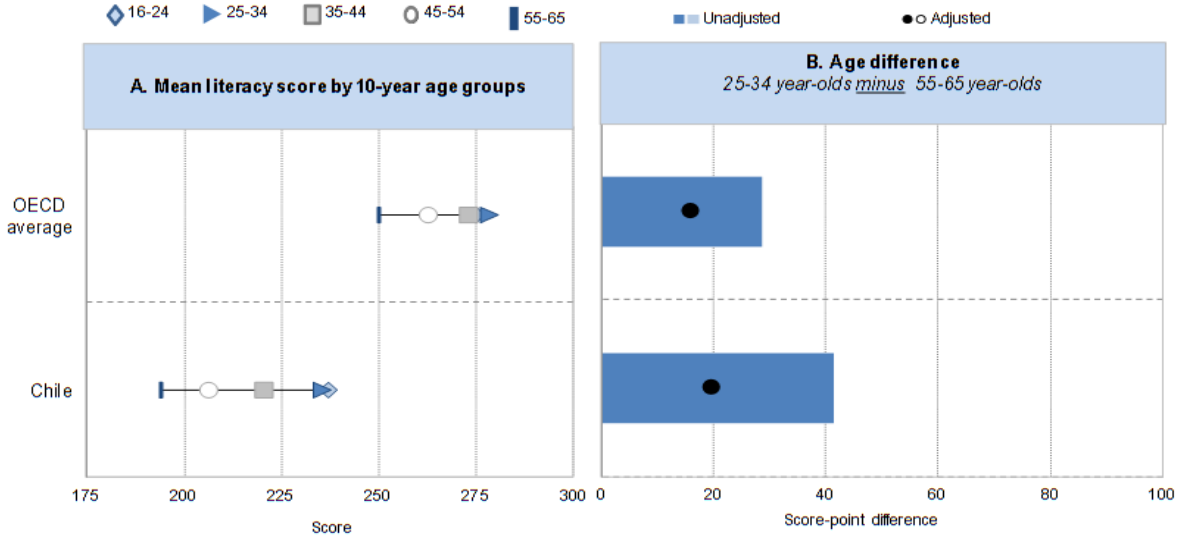
Note: A cubic specification of the trend curves is found to be most accurate in reflecting the distribution of scores by age in most countries/economies. Results account for cross-country differences in OECD average scores by age cohort. Foreign-born adults are excluded from the analysis. See corresponding tables mentioned in the source below for regression parameters and significance estimates. Only countries/economies participating in the second round of the survey are shown. Similar results for the countries/economies participating in the first round are available in the OECD Skills Outlook 2013, Figure 5.2b (L).
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.6 (L), A3.6 (N) and A3.6 (P).

Figure 1.7 presents the average proficiency among different age groups (left panel) and differences in literacy proficiency among 55-65 year-olds and 25-34 year-olds, i.e. the

two age groups that, in most countries, show the lowest and the highest literacy proficiency, respectively (right panel). Similar to Figure 1.4 on literacy scores by educational attainment, all age groups in Chile score, on average, lower than the lowest performing age group from the average of OECD countries/economies. The literacy proficiency of 55-65 year-olds is particularly low in Chile, with a 73% of older adults scoring below Level 1 on the literacy scale. Adults aged 25-34, and that scored the highest compared to other age groups in Chile, also have particularly low proficiency levels relatively to the OECD average: 40% of them scored at or below Level 1, while the OECD average of less than 15% (OECD, 2016[1]).

As shown in the right panel of the figure (also detailed in Chapter 3), adjusting for other characteristics, including educational attainment, has different effects on the magnitude of differences related to age.[3] In Chile, adjusted differences are much smaller than unadjusted differences, moving closer to the OECD average score gap among the two age groups, and having a similar score difference to Korea and France.

Figure 1.7. Age differences in literacy proficiency



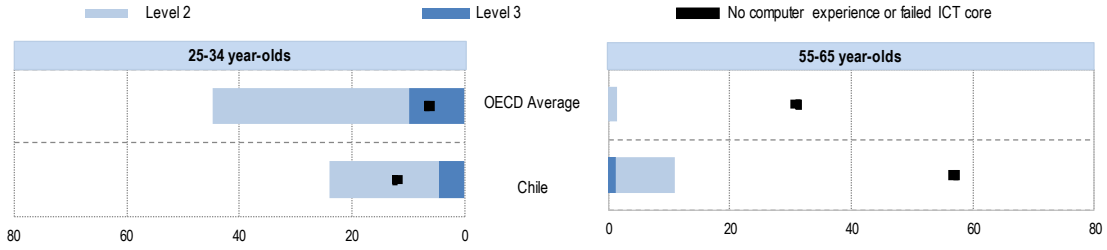
Note: Statistically significant differences in Panel B are marked in a darker tone. Unadjusted differences are the differences between the two means for each contrast category. Adjusted differences are based on a regression model and take account of differences associated with other factors: gender, education, immigrant and language background and parents' educational attainment. Only the score-point differences between two contrast categories are shown in Panel B, which is useful for showing the relative significance of age in relation to observed score-point differences.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.1 (L) and A3.5 (L).

The gap across different groups becomes more pronounced when considering age-related differences for problem solving in technology-rich environment (Figure 1.8). For every level of proficiency, 25-34 year-olds are more likely than older adults to score at Level 2 or 3. Given that the widespread use of ICTs is a relatively recent phenomenon, older adults were in a position of relative disadvantage compared to younger adults, as indicated by the large share of 55-65 year-olds who skipped the problem-solving assessment because of their lack of computer experience, or because they failed the ICT core test.

On average for all OECD countries/economies, some 45% of 25-34 year-olds scored at Level 2 or 3 in the problem solving assessment, compared to only 11% of older adults. At the same time, few 25-34 year-olds skipped the problem-solving assessment (well below 10% in most countries). In Chile, only 24% of younger adults scored at Level 2 or 3, ranking among the bottom three countries by the proportion of 25-34 year-olds reaching these levels, along with Greece (20%) and Turkey (12%). Moreover, around 12% of younger workers, and 58% of older workers in Chile, had no computer experience or failed the ICT core test (OECD, 2016[2]).

Figure 1.8. Problem-solving proficiency among younger and older adults

Percentage of adults aged 25-34 and 55-65 scoring at Level 2 or 3 in problem solving in technology-rich environments or having no computer experience.



Note: Percentages on the problem solving in technology-rich environments scale are computed so that the sum of percentages for the following mutually exhaustive categories equals 100%: opted out of the computer-based assessment; no computer experience; failed ICT core test; below Level 1, Level 1, Level 2 and Level 3. For more detailed results for each category, see corresponding table mentioned in the source below. France, Italy, France and Spain did not participate in the problem solving in technology-rich environments assessment, hence they are not included in the OECD average.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A3.7 (P).

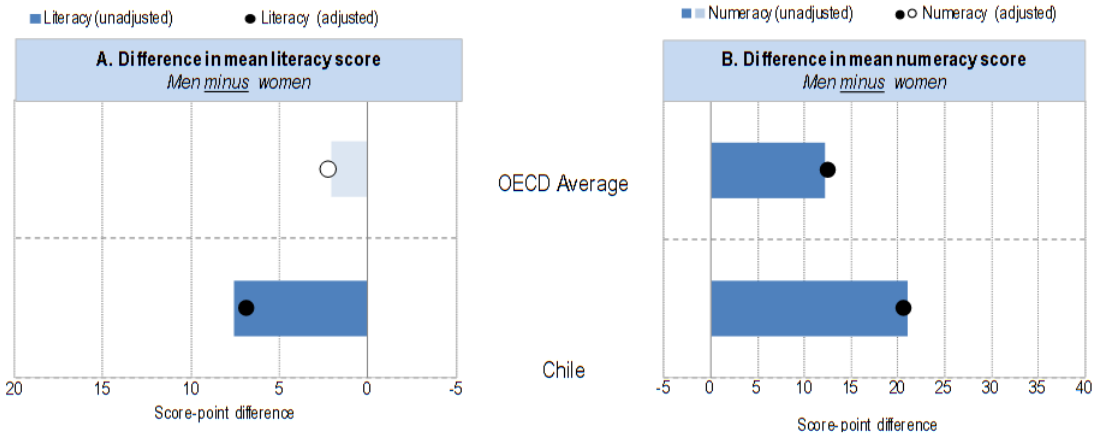
Difference in proficiency by gender

In regards to gender-related differences in proficiency, the Survey of Adult Skills shows small differences in literacy, and larger differences in numeracy, favouring male workers. Given that gender gaps in educational attainment have shrunk considerably over the past few decades, differences in skills proficiency are much more pronounced among older adults, and are almost non-existent among younger adults. This is a result of the expansion of education in many countries over the past decades. Populations' average level of schooling has not only risen, but also resulted in a substantial narrowing of the gender gap in educational achievement. Today, girls outperform boys in reading at age 15, and are more likely to enrol in tertiary education (OECD, 2015[5]).

Survey data, as summarised in Figure 1.9, shows that in most countries there is no significant difference in literacy proficiency between men and women. And, even in countries/economies where a statistically significant difference can be detected, such as Chile (8 score points), the gap is relatively small when compared to differences found for other sociodemographic groups. However, this difference tends to be larger in numeracy, when compared to the average OECD difference of 12 score points. Chile has the second larger gap in numeracy proficiency scores by gender among all countries, and right after Turkey, with a 21 and 27 score point difference each. Similar to literacy and numeracy, gender differences in proficiency in problem solving are small, although men tend to have a slight advantage over women (Figure 1.10). On average for all OECD countries, 33% of

men scored at Level 2 or 3, compared to 29% of women. In Chile, 17% of men score at Level 2 or 3, compared to 12% of women that reach the same level. The proportion of men and women who have no computer experience, or who failed the ICT core test, is more balanced both for the average of OECD countries and for Chile.

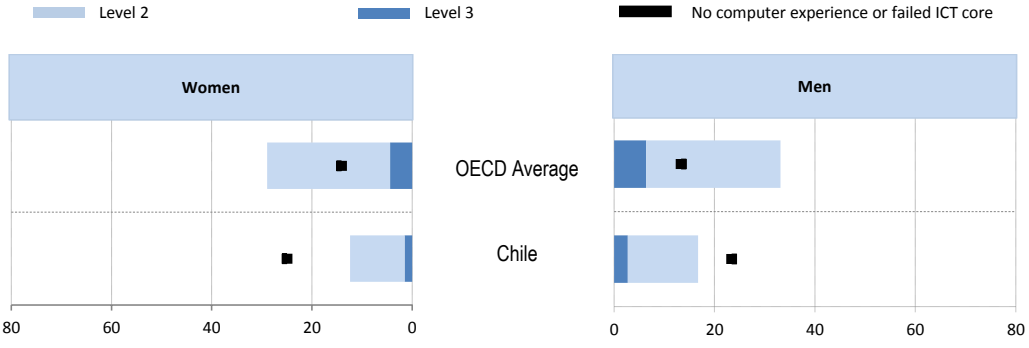
Figure 1.9. Gender differences in literacy and numeracy proficiency



Note: Statistically significant differences are marked in a darker tone. Unadjusted differences are the differences between the two means for each contrast category. Adjusted differences are based on a regression model and take account of differences associated with other factors: age, education, immigrant and language background and parents' educational attainment.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.1 (L), A3.9 (L) and A3.9 (N).

Figure 1.10. Problem-solving proficiency among women and men

Percentage of women and men scoring at Level 2 or 3 in problem solving in technology-rich environments or having no computer experience



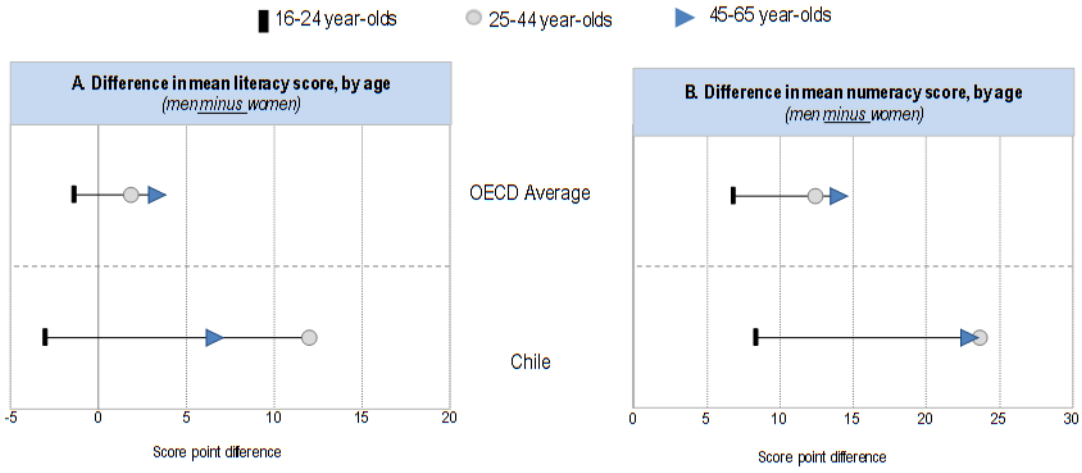
Note: Percentages on the problem solving in technology-rich environments scale are computed so that the sum of percentages for the following mutually exhaustive categories equals 100%: opted out of the computer-based assessment; no computer experience; failed ICT core test; below Level 1, Level 1, Level 2 and Level 3. For more detailed results for each category, see corresponding table mentioned in the source below. France, Italy, and Spain did not participate in the problem solving in technology-rich environments assessment , hence they are not included in the OECD average.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A3.11 (P).

Gender gaps in literacy and numeracy proficiency by age appear to be narrower at the younger cohorts (16-24 year-olds), and significantly wider among 25-44 and 45-65 year-olds. Age and cohort effects are both likely to play a role, but it is difficult to disentangle those effects. Accounting for differences in other observable characteristics, particularly educational attainment, generally leads to a small reduction of the gender gap among 45-65 year-olds, and to a small increase among 16-24 and 25-44 year-olds.

As shown in Figure 1.11, the overall score point difference across age groups in Chile is much larger than the OECD average. In literacy, even though with a small difference, younger women (16-24 year-olds) in Chile outperform the OECD average difference, with an average score that is 3 points higher than men in the same group. However, for prime-age adults (25-44 year-olds), the gap widens up to 12 points higher on average for men. This gap is six times larger than the OECD average for the same group. In numeracy, men either retain or increase their advantage. These processes seem to stop once people complete their transition into adulthood, as the gender gaps are of similar magnitude among 25-44 year-olds and 45-65 year-olds.

One possible explanation for the observed evolution of gender gaps is the higher employment rates among men than women (possibly for reasons unrelated to skills proficiency). Arguably, reading is a transversal skill that is practiced across a wide range of occupations, so that men may have more opportunities to practice their reading skills than women do. Men are also much more likely than women to pursue careers in fields that require more intensive use of numeracy skills - which may explain why they tend to retain or increase their advantage in numeracy (OECD, 2016[1]).

Figure 1.11. Gender gap in literacy and numeracy, by age



Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A3.10 (L) and A3.10 (N).

Skills and labour market outcomes

The Survey of Adult Skills provides more precise, recent and comparative information on how a person's current skills proficiency influences his or her likelihood to work and his or her wages (e.g. (Hanushek et al., 2015[6]) (OECD, 2013[7]) (Vignoles, 2016[8])).[4] This is relevant under the assumption that workers' productivity is related to the knowledge and skills they have, and that wages reflect such productivity, even if imperfectly. Thus,

individuals with more skills should expect higher returns from labour market participation and would be more likely to participate in the labour market.

For countries/economies that participated in the first round of the survey, after accounting for educational attainment, an increase of one standard deviation in an individual's literacy proficiency (46 score points[5]) is associated with a 20% increase in the probability of being employed, as opposed to being unemployed. In this group of countries, and for salaried employees, the same increase in proficiency is also associated with an 8% increase in hourly wages (OECD, 2013[7]). Similar findings hold when considering countries and economies that participated in the second round of the survey.

Particularly in Chile, the relationship between proficiency and labour market outcomes is seen most clearly in wages. The impact of literacy on wages is stronger than the OECD average, and similar to that observed in Canada and Germany. This relationship remains strong, even after educational attainment and the use of reading skills at work are considered. For the majority of OECD countries/economies, employed adults show higher proficiency than unemployed adults. But in Chile, as in Singapore, employed adults do not have higher literacy and problem solving proficiency levels than unemployed adults. For numeracy however, employed adults perform better than the rest of individuals.

Proficiency in the labour force

Proficiency plays an important and independent role as a determinant of success in the labour market, over and above the role played by formal education. Although it may be intuitive that adults with higher skills proficiency are more likely to be employed, the direction of causality is unclear. For example, employment may itself favour skills acquisition or prevent the depreciation of workers' skills that are not put to use when adults are unemployed.

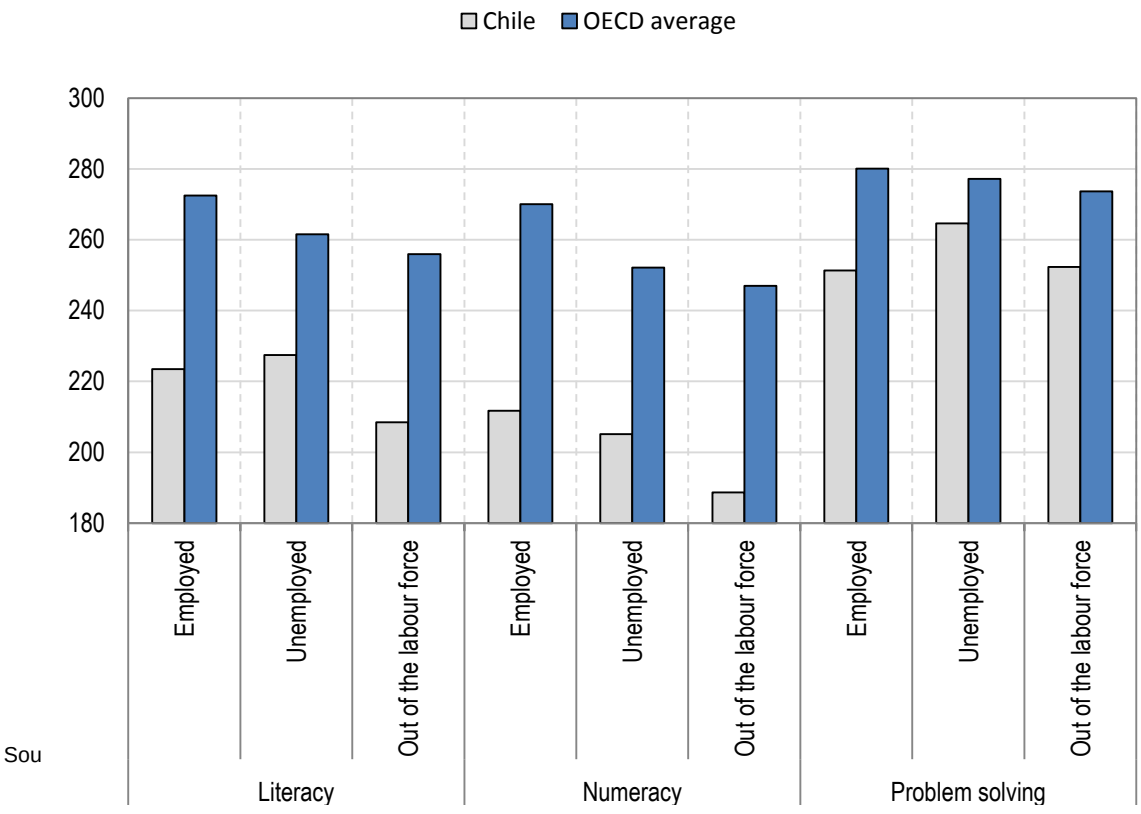
As described in Figure 1.12, the average proficiency in literacy among employed adults is generally higher than that among unemployed and inactive adults. However, the differences in proficiency are surprisingly small.[6] Across OECD countries/economies that participated in the survey, the average literacy score of employed adults is about 11 score points higher (about 4%) than that of unemployed adults, which, in turn, is almost identical to that of inactive adults. This relatively small difference can be partly attributed to the high rate of unemployment among young people, and the fact that many are inactive as they remain in education. Additionally, young people may be more proficient than their older counterparts, driving up the average literacy score of unemployed or inactive adults. In addition, the difference in proficiency between employed and unemployed adults is much larger when only those individuals who have been unemployed for longer than 12 months – the long-term unemployed – are used in the comparison (OECD, 2016[1]).

Individuals in Chile, regardless of their labour force status, score lower than the OECD average in all proficiency domains. On average, Chilean employed and unemployed adults reach just Level 1 in numeracy, and the unemployed show higher proficiency in literacy, attaining Level 2 on average. Problem solving in both groups is also at a Level 2 on average, yet this is low considering that the OECD average indicates a Level 3 proficiency in almost all domains. In terms of proficiency scores, unemployed individuals show a slightly better proficiency in literacy and problem solving skills, as opposed to numeracy, in which employed individuals show a higher score on average. There are various possible explanations for these differences. For instance, individuals with low

skills would find it more difficult to access the labour market and would also be more likely to be in unstable jobs, with spells of unemployment in between. On the other hand, high youth unemployment rates could justify the small positive difference in proficiency scores between and the unemployed and the employed in literacy and problem solving. More generally, identifying the structural and institutional constraints preventing skilled people from engaging in employment is key to well-targeted skill-development programmes (OECD, 2016[1]).

Figure 1.12. Literacy and employment status

Mean proficiency score in literacy, numeracy and problem solving in technology-rich environments, by labour force status.



Sou

Note: Proficiency scores are scaled between 0 and 500 score points.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.1 (L), A5.1 (N), A5.1 (P).

Even though it is found that on average skills proficiency plays an important role in the labour market outcomes of individuals, educational attainment remains a strong predictor of the likelihood of being employed. Since it is difficult for employers to judge workers' actual skills proficiency before or outside of work, they are more likely to rely on readily available signals, albeit potentially imperfect, such as educational qualifications. Skills thus become a stronger predictor of labour market outcomes when workers have more experience and have shown in work what they are capable of doing, a phenomenon called "employer learning" (OECD, 2014[9]).

Figure 1.13 shows the effect of education and skills proficiency on the likelihood of being employed. Both are found to play a significant role in improving employment outcomes.

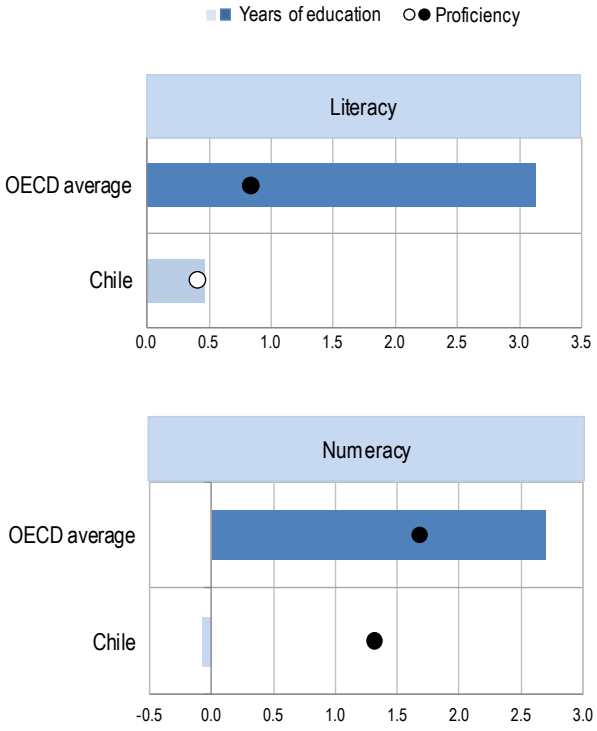
The effect of literacy/numeracy proficiency is computed by comparing the likelihood of being employed among adults with different proficiency in literacy/numeracy, but who have spent the same number of years in education. Similarly, the effect of years of education is computed by comparing adults with similar proficiency in literacy/numeracy but who have spent a different number of years in education. Such a calculation is possible because of the imperfect overlap of education and proficiency.

For the OECD average an increase of 3.2 years in formal education (the equivalent of one standard deviation) is related to up to a 3.1 percentage-point increase in the likelihood of being employed. The relationship between literacy proficiency and the likelihood of employment is weaker, with a 0.84 percentage point change in the likelihood of being employed with an increase of one standard deviation of the literacy score. However, at the aggregate level for Chile, neither skills proficiency nor years of education are found to be predictive of workers' employment status.

For numeracy, even though skills proficiency shows a small magnitude on the probability of being employed (1.3 percentage point change) in Chile, the effect is statistically significant and close to the OECD average. Years of education remains not relevant to predict the probability of being employed, which suggests higher rewards to lifelong learning and the development of skills than to educational attainment. In Chile, skills proficiency is recognised and valued in finding employment, highlighting the importance of skills development in active labour market policies to help unemployed adults find work.

Figure 1.13. Effect of education, literacy and numeracy proficiency on the likelihood of being employed

Marginal effects (as percentage point change) of a one standard deviation increase in years of education and literacy, and years of education and numeracy, on the likelihood of being employed among adults not in formal education



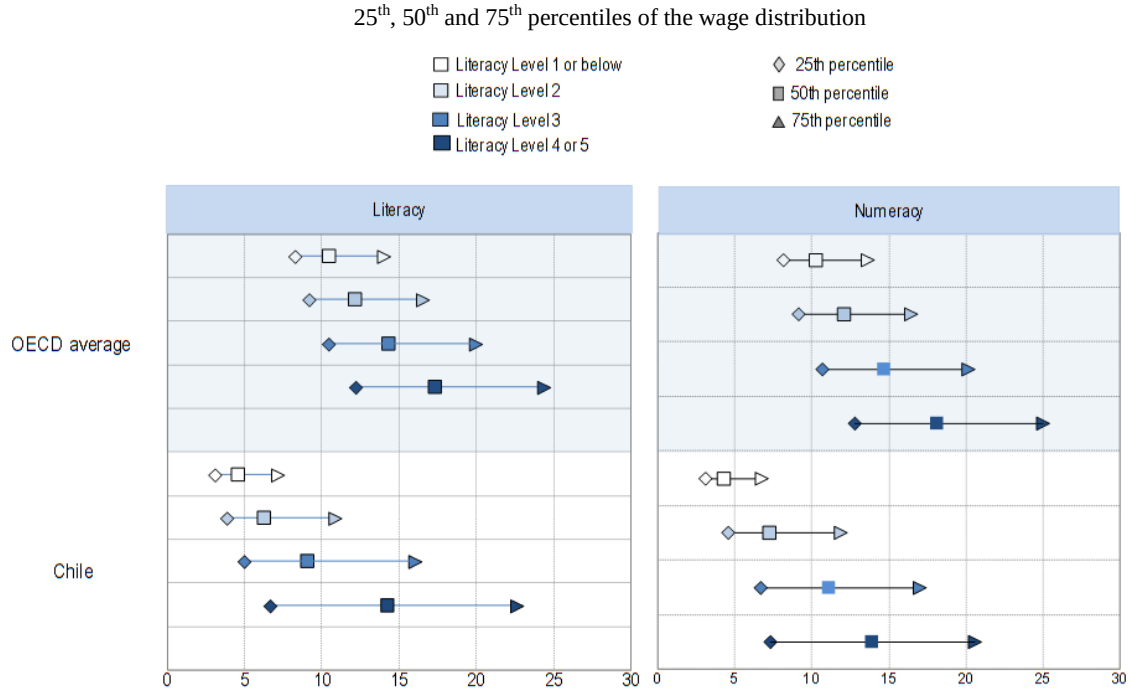
Note: The reference category is "unemployed". Results are adjusted for gender, age, marital and foreign-born status. One standard deviation in proficiency in literacy for the working population is 48 score points. One standard deviation in years of education for the working population is 3.2 years. Statistically significant values (at the 10% level) are shown in a darker tone.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.2 (L) and Table A5.2 (N).

Wages in the labour force

In Chile, hourly wages are strongly associated with skills proficiency, and this relationship is particularly strong for Chile.[7] On average across the OECD countries/economies that participated in the survey, the median hourly wage of salaried employees scoring at Level 4 or 5 on the literacy scale is 65% higher than that of workers scoring at or below Level 1. However, differences in returns to proficiency vary across countries and economies, more so than for employment status. Also, there is significant overlap in the distribution of wages by proficiency level within and in between countries. Figure 1.14 presents a summary of this wage distribution by proficiency levels for Chile and the OECD average. On average across the OECD countries/economies in the survey, the top 25% best-paid workers scoring at Level 2 earn about the same as the median worker scoring at Level 4 or 5, a result that is also observed in Israel, Singapore and Turkey.

The wage distribution at high proficiency levels is broader in Chile than in the OECD on average and this is particularly the case for literacy. In Chile, the median worker scoring at literacy proficiency Level 4 or 5 earns almost 30% more than the top earners in Level 2, suggesting that literacy skills are accurate predictors of higher wages. Additionally, the median adult in the highest proficiency level earns almost three times more than the median worker scoring at or below Level 1. This translates in USD 20 more per hour than the worst-paid workers who score at or below Level 1. Across all countries, the difference in hourly wages between the most- and least-skilled adult is USD 16. Finally, wages in Chile are much lower than the OECD average at every proficiency level, except for adults who score at Level 4 or 5 in literacy. The wages of adults who score at proficiency Level 4 or 5 are in the 75th percentile of the earnings distribution. These adults earn only USD 1.8 less per hour than the average among similarly proficient high-earning workers across OECD countries (OECD, 2016[1]).

Figure 1.14. Distribution of wages, by literacy and numeracy proficiency levels



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

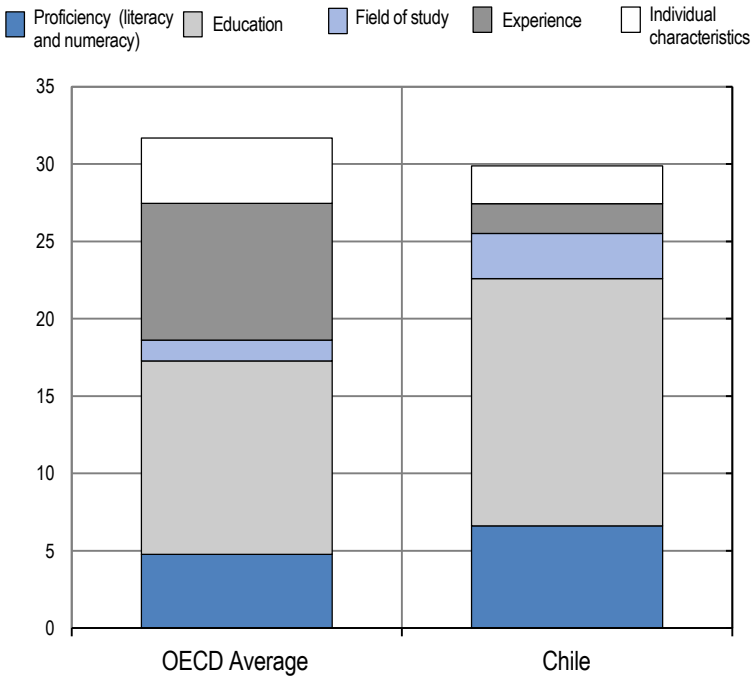
Looking at the distribution of wages by proficiency levels, however, is only a first approximation of the relationship between the two. Other human capital variables may also contribute to determine wage levels and mediate the effect of skills proficiency.

The Survey of Adult Skills finds that human capital components, such as experience, years of education, field of study and proficiency in literacy and numeracy, account for about one third of the explained variation in wages, on average across countries/economies. As described in Figure 1.15, information-processing skills contribute 5%, and educational attainment accounts for 13% of the explained variation in the hourly wages of the OECD average. In Chile, their contribution is larger, with 7% of

the explained variation explained by proficiency, and 15% explained by educational attainment. The remaining of human capital components account for 10% of the explained variation of hourly wages, on average, for OECD countries, and only for 5% of the explained variation in Chile. Additionally for Chile, around 2% of the explained variation is explained by individual characteristics such as gender, immigrant background, marital status and language spoken at home. The remaining 70% of the explained variation is related to other individual and human capital characteristics, such as occupation, industry and firm characteristics.

Figure 1.15. Contribution of education, literacy and numeracy to the variation of hourly wages

Contribution of each factor to the percentage of the explained variance (R-squared) in hourly wages



Note: Results obtained using a regression-based decomposition following the methods in Fields (2003). Each bar summarises the results from one regression and its height represents the R-squared of that regression. The sub-components of each bar show the contribution of each factor (or set of regressors) to the total R-squared. The Fields decomposition is explained in more detail in Box 5.4 of the OECD Employment Outlook 2014 (OECD, 2014b). The dependent variable in the regression model is the log of hourly wages, including bonuses in PPP-adjusted USD (2012). The regressors for each factor are: years of working experience and its squared term for "Experience"; proficiency in literacy and numeracy for "Proficiency"; years of education for "Education"; and gender, marital status, migration status and language spoken at home for "Individual characteristics".
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.5.

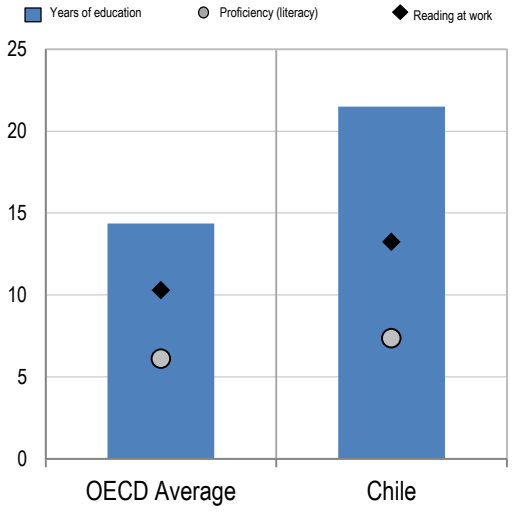
The relative importance of human capital components is also reflected in the effect they appear to have on the level of wages. Figure 1.16 summarises how hourly wages change with education, literacy proficiency and reading at work, for Chile and the average of OECD countries. On average, one standard deviation rise in years of education (around 3.4 years for the working population) is associated with a 14% increase in wages. For Chile, this correlation is larger, with an expected change of around 21%. Moreover,

one standard deviation increase in literacy proficiency (around 48 points for the working population) for the OECD average is associated with a 6% increase in wages. Similar to schooling, in Chile the effect is larger, with an expected change of 7% increase in hourly wages. This is not that more proficient workers earn more because they are selected for more skills-intensive jobs, but rather that they earn higher wages even when compared to workers in jobs with similar skill requirements, reflecting the importance of skills proficiency beyond the type of work they do.

In addition to years of education and skills proficiency, Figure 1.16 also presents the correlation between the use of reading skills at work and hourly wages. Workers in jobs that require more intense use of reading also earn higher wages, pointing to the fact that wages do not just reflect the supply of skills (workers), but also the demand for skills (employers). Overall, the number of years spent in education tends to have a bigger impact on wages in countries/economies with a more unequal wage distribution, such as Chile, Israel, Jakarta (Indonesia), Singapore and the United States. However, this only suggests a link between the earnings distribution and returns to education, as other factors affect the ranking of countries/economies (OECD, 2016[1]).

Figure 1.16. Effect of education, literacy proficiency and reading use at work on wages

Percentage change in wages associated with a change of one standard deviation in years of education, proficiency in literacy and reading use at work



Note: Hourly wages, including bonuses, in PPP-adjusted USD (2012). Coefficients from the OLS regression of log hourly wages on years of education, proficiency and use of reading skills at work, directly interpreted as percentage effects on wages. Coefficients adjusted for age, gender, foreign-born status and tenure. The wage distribution was trimmed to eliminate the 1st and 99th percentiles. One standard deviation in proficiency in literacy is 48 points. One standard deviation in years of education is 3.2 years.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.4.

Notes

1. Differences in numeracy proficiency are found to be generally similar.

2. Foreign-born adults are excluded from the analysis below because the demographic structure of the immigrant population tends to be different from that of native-born adults.

3. However, controlling for observable characteristics, such as educational attainment, is not enough to separately identify age and cohort effects, because of, among other things, changes in unobservable quality of education ((Green and Riddell, 2013[10])(Paccagnella, 2016[4]).

4. Although literacy, numeracy and problem-solving competencies – the skill domains that are explicitly tested in the PIAAC assessment exercise – are important elements of people's productive capacity, it should be kept in mind that they only imperfectly proxy workers' overall set of skills.

5. Among the countries and economies that conducted the Survey of Adult Skills in 2011-12, the standard deviation in literacy skills was 46 points. Among the OECD countries and economies that have participated in the survey (in either 2011-12 or 2014-15), the standard deviation for the sub-population of workers is 48 points.

6. A result that might reflect that in some of these countries relatively few unemployed adults participated in the survey or those higher-skilled workers may have more support during unemployment to find a well-matched job.

7. The measure of hourly wages includes bonuses.

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Chapter 2. Skills use at work, skills mismatch and why they matter in Chile

Having a large pool of highly proficient workers does not guarantee that their skills are optimally used in the workplace. The extent to which skills are used at work matters for individuals and for countries and poor skills use can lead to job mismatch – the misalignment between workers' qualifications and skills and those required by their job. This chapter describes the use of skills at work in Chile, the determinants of this use, the level of skills mismatch, and why it matters.

Note by Turkey

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

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

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

The statistical data for Israel are supplied by and 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.

Skills use at work and its determinants

The use of skills at the workplace plays an important role in the labour market outcomes of individuals in all OECD countries over and beyond that played by skills proficiency and educational attainment (as Figure 1.6 shows). Those who use their skills more intensely tend to earn higher wages, once account is taken of their individual and job characteristics. Moreover, in order for countries to grow and individuals to thrive in the labour market, skills must be put to productive use at work (OECD, 2016[1]). The Survey of Adult Skills provides information on how frequently skills are used in the workplace.

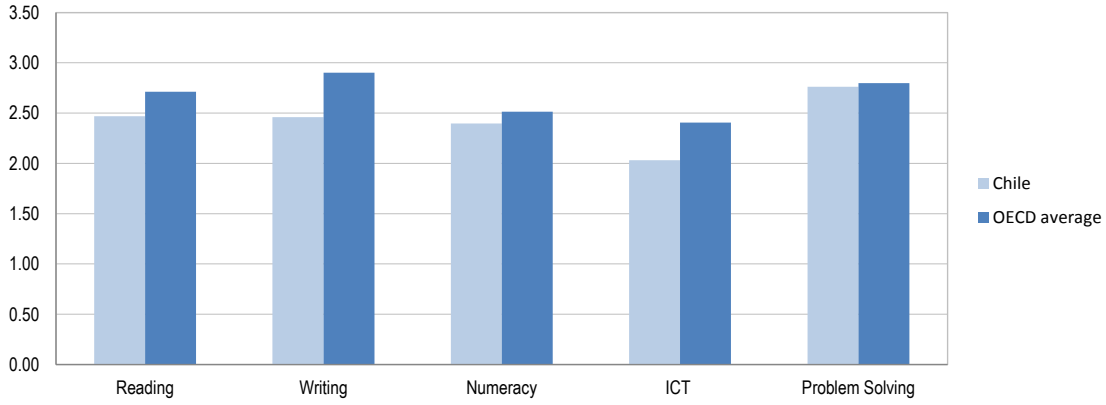
The use of skills at work is measured by an index ranging from 1 to 5 and representing the frequency with which specific skills are used (see (OECD, 2016[2]) for a detailed explanation of how the index is derived). A value close to 1 indicates that the person does not use that particular skill at work, while a value close to 5 suggests that the person uses the skill every day.[1] On average across OECD countries and economies, the skills most frequently used at work are writing and problem solving. For both, the average-use indicator has a value close to 3.The use of reading skills at work follows close behind, while numeracy and ICT are the least frequently used, with an index value closer to two.

For Chile, the survey shows that problem solving is the skill most used in the workplace, with a value of 2.76. ICT is the least frequently used, with a value of 2.03. However, reading and writing have almost the same frequency in use, with a value of 2.47 and 2.46 respectively. Even though Chile is close to the OECD average, workers in Chile show below-average use of all skills. In practical terms, on average they perform writing, reading, and ICT related tasks less than once a month, and problem solving related tasks at least once a month but less than once a week (Figure 2.1).

It is important to acknowledge that the frequency in which a certain skill is used to perform a job does not translate directly on the level of proficiency a worker has. Proficiency is defined as the competences workers possess to conduct tasks with different levels of complexity, in regards to the items measured by the survey (OECD, 2016[3]). When looking at the skills proficiency for Chile, then the average performance moves farther apart from OECD average, as shown in Figure 2.1.

Figure 2.1. Skills use at work

Average frequency with which each skill is used in the workplace

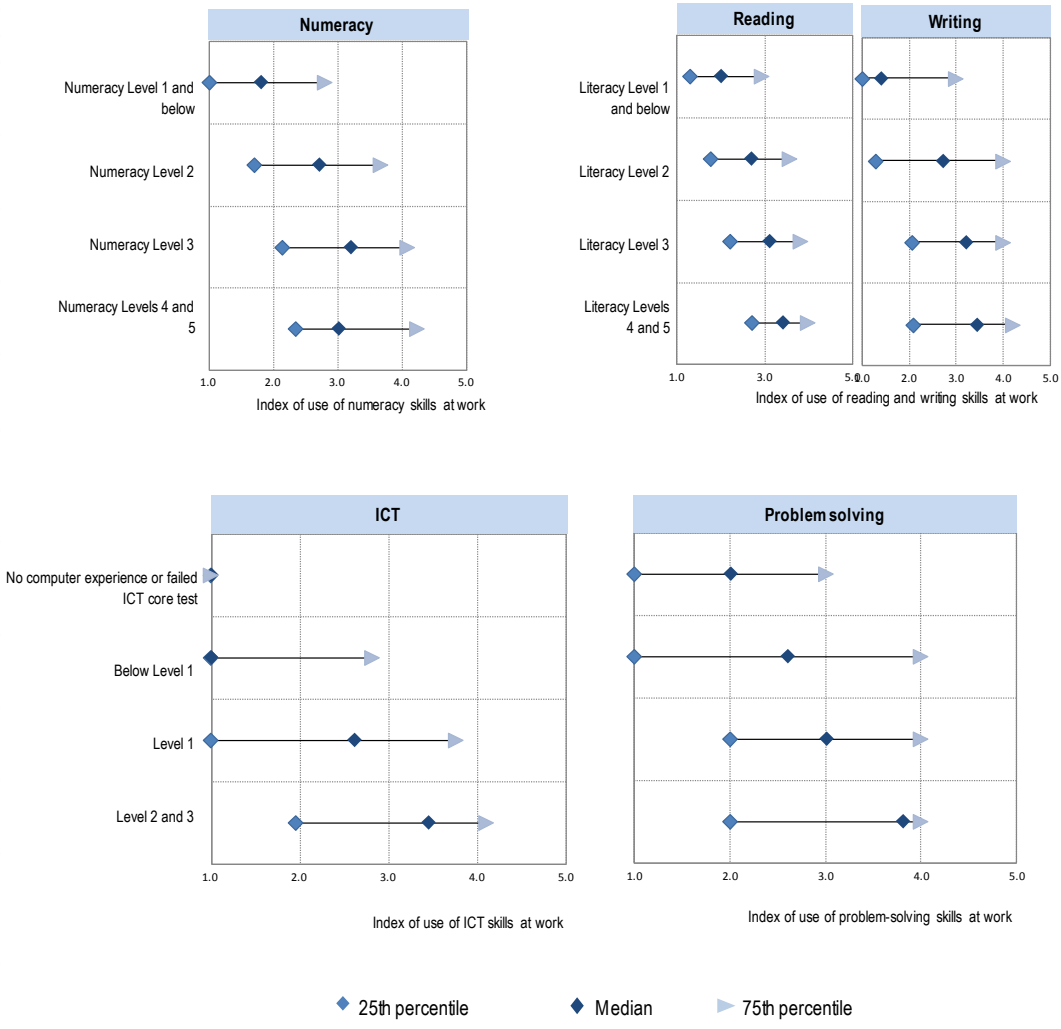


Note: For reading, writing, numeracy and ICT skills, skills use indicators are scales between 1 "Never" and 5 "Every day". Problem-solving skills use refers to respondents' answers to "How often are you usually confronted with more complex problems that take at least 30 minutes to find a good solution?" The set of possible answers also ranges between 1 "Never" and 5 "Every day". Proficiency scores range from 0 to 500.
Countries and economies are ranked in ascending order of the proficiency score.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A4.1.

Disaggregating skills use at work by proficiency level, as presented in Figure 2.2 shows that the frequency of skills use among Chilean adults with different proficiency levels overlap substantially. For instance, while the median use of literacy skills increases consistently as levels of proficiency increase, it is not uncommon that more proficient workers use their skills at work less frequently than less proficient workers do. This could partially reflect the limited comparability between skills proficiency as measured in the Survey and the tasks included in the skills-use indicators. However, it could also suggest that the use of skills may depend on factors other than workers' actual skills.

Figure 2.2. Chile: Skills use at work, by proficiency level

Median, 25th and 75th percentiles of the distribution of skills use, by level of proficiency



Note: For reading, writing, numeracy and ICT skills, skills use indicators are scales between 1 "Never" and 5 "Every day". Problem-solving skills use refer to respondents' answers to "How often are you usually confronted with more complex problems that take at least 30 minutes to find a good solution?". The set of possible answers also ranges between 1 "Never" and 5 "Every day".
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A4.5 (L), A4.5 (N) and A4.5 (P).

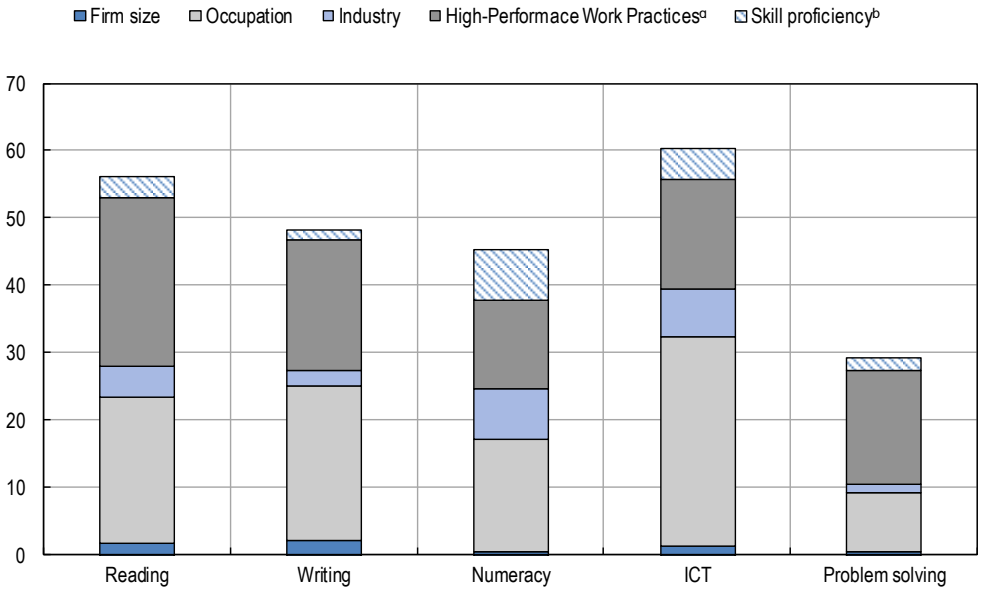
The factors that influence skills use could be endogenous, given the workers individual characteristics or exogenous, given the job characteristics and working environment. Figure 2.3 shows the extent to which various factors – including individual skill proficiency, job/firm characteristics and work practices – explain the variation of skills use at work in Chile. After considering workers' occupation and the way their work is organised, proficiency accounts for a small part of the variation in skills use at work among adults, from around 2% in problem solving and reading, to just under 5% in ICT.[2] Most of the variation is explained by other factors: work practices account for up to 25% of the variation in the use of reading skills at work, while occupation accounts for up to 31% of the variation in ICT use at work. Thus, the relationship between skills proficiency

and skills use is not direct but mediated by variables like workers' occupation and work organisation.

The OECD Employment Outlook for 2016 (OECD, 2016[2]) provides further evidence in regards to the high correlation between High Performance Work Practices (HPWP) and skills use at work. The findings are in line with a growing body of literature showing that participatory practices at work – such as those allowing workers more flexibility in determining the way and rhythm with which they carry out their tasks – encourage better use of skills in the workplace. Management practices also help, with bonuses, training and working time flexibility, all providing incentives for workers to use their skills at work more fully. High skills proficiency may set the foundation for high skills use, but it is not a necessary condition. Figure 2.4 shows that, in Chile, HPWP are used less than in the OECD on average, irrespectively of the measure used to assess this. This could relate to lower than average skills use in Chile.

Figure 2.3. Explaining information-processing skills used at work

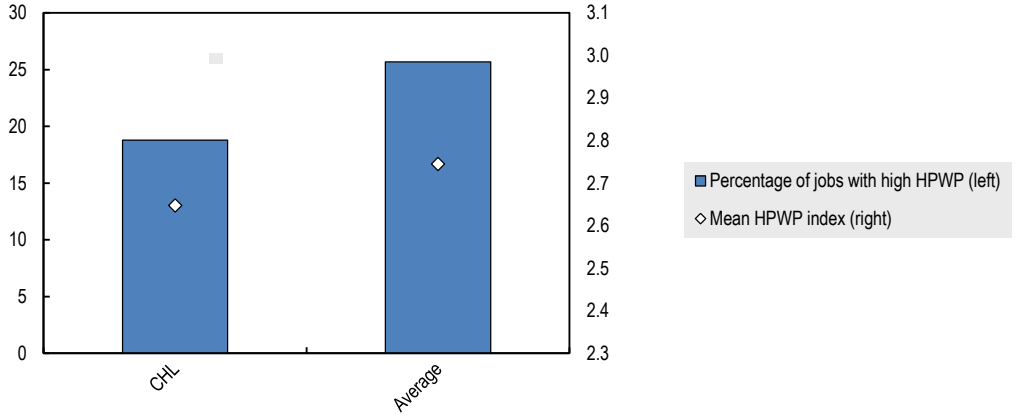
Percentage of the variance in skills use explained by each factor



Notes: For reading, writing, numeracy and ICT skills, skills use indicators are scales between 1 "Never" and 5 "Every day". Problem-solving skills use refers to respondents' answers to "How often are you usually confronted with more complex problems that take at least 30 minutes to find a good solution?" The set of possible answers also ranges between 1 "Never" and 5 "Every day".
(a) High Performance Work Practices include the following variables: choosing and changing the sequence of your tasks, the speed of work and how to do your work, organising your own time and planning your own activities; cooperating with others; instructing, teaching or training people; sharing information with co-workers; bonus; participating in training; flexible working hours.
(b) For reading and writing, skills proficiency refers to proficiency in literacy; for numeracy, skills proficiency refers to proficiency in numeracy; for ICT and problem solving, skills proficiency refers to proficiency in problem solving in technology-rich environments (hence, the analysis excludes countries for which this proficiency domain is not tested). Using literacy proficiency to include all countries when decomposing the variance of ICT and problem solving use does not change the main thrust of the results presented here.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A4.6.

Figure 2.4. High Performance Work Practices (HPWP)

Share of jobs with high HPWP score and mean HPWP score, by country



Note: Average value, across jobs by country, of an HPWP index obtained summing the scales of the variables indicated in Figure 2.3. Share of jobs for which the summary HPWP is above the 75th percentile of the distribution.
Source: OECD Employment Outlook, 2016; Figure 2.10.

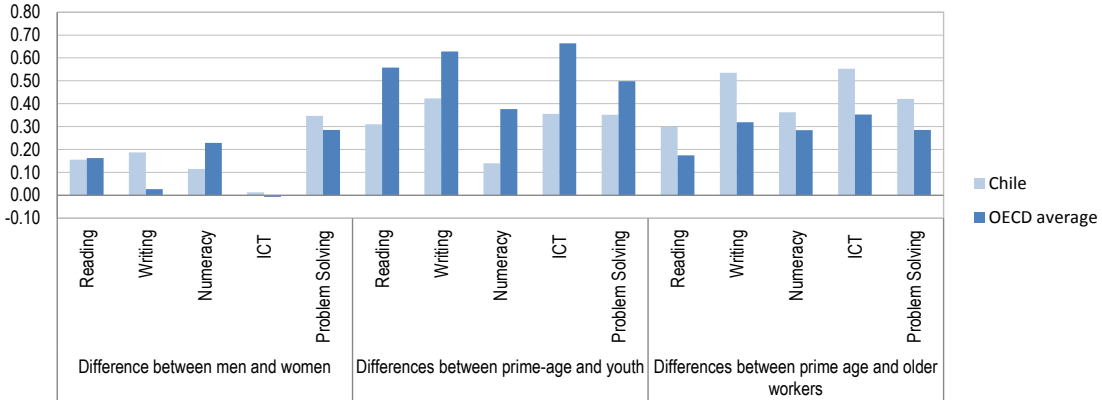
Skills use at work, gender and age

The extent to which skills are used in the workplace varies across socio-demographic characteristics for several reasons. Workers may have different attitudes to the deployment of skills in the workplace, may be constrained in their choice of jobs because of personal reasons, or may be offered jobs to which HPWP are less likely to apply.

Differences between men and women are small, except for the use of problem solving at work, where they are also larger in Chile than in the OECD on average (Figure 2.5). Differences are more marked by age group. Prime-age workers tend to use all skills more frequently than either youth or older workers both in Chile and on average. However, Chile shows a different pattern than in the OECD on average when it comes to age, with lower use by older workers than by youth in all skills but reading. For some but not all skill use areas, this is due to differences in proficiency and job type across age groups: the disadvantage of older workers persists in numeracy and problem solving.

Figure 2.5. Skills use, gender and age

Differences in skills use, Chile and OECD average



Note: See note under Figure 2.3.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Tables A4.7 and A4.8.

Skills mismatch in Chile

A discrepancy between skills use in the workplace and skill proficiency could signal the existence of mismatch, whereby workers are in jobs that require higher or lower skills than those they possess. While skills use and proficiency, as measured in PIAAC, cannot be directly compared, there are other ways to assess the extent to which workers are mismatched to their jobs, in terms of qualifications, field of study or skills.

A mismatch of workers' qualifications, field of study or skills reflects a poor fit of those demanded by his or her job, having potentially significant economic implications. At the individual level, it affects job satisfaction and wages. At the firm level, it increases the rate of turnover and may reduce productivity. At the macro-economic level, it increases unemployment and reduces GDP growth through the waste of human capital and/or a reduction in productivity (Adalet McGowan and Andrews, 2015[4]). Furthermore, rapid change in the skill needs of labour markets is putting the issue at the top of policy makers' agendas.

Qualification mismatch arises when workers have an educational attainment that is higher or lower than what is required by their job. Qualifications reflect several different skills, including both information-processing and job-specific competences. Individuals may also face a field of study mismatch, which arises when workers are employed in a different field from the one they have specialised in. This could reflect an imbalance between the jobs available in each field and the number of graduates in that field but could also result from (the field is saturated) the difficulty workers may face in having their credentials recognised and valued across different fields (skills are not easily transferable). Finally, workers could be mismatched in a particular skill if they have higher or lower skills proficiency than that required by their job. Analysing these three forms of mismatch simultaneously offers insights into the linkages between education and the labour market, and sheds light on appropriate policy responses (Montt, 2015[5]) (OECD, 2016[3]).

About 34% of workers are mismatched by qualification across OECD countries/economies (Figure 2.6). This is similar to the overall 33% of qualification

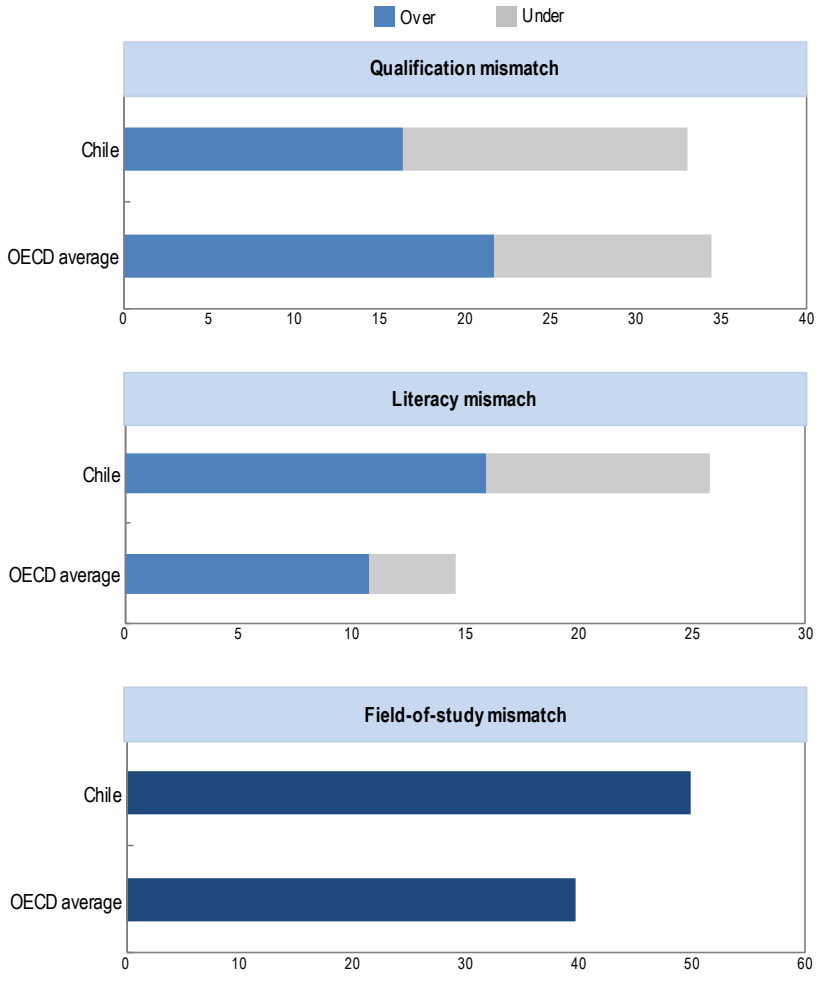
mismatch in Chile, with just a little over half of them being underqualified in the workplace. On the other hand, Chile has one of the highest prevalence of skills mismatch in OECD Countries, and the highest prevalence on underskilling in literacy. Around 10% of workers in Chile are less proficient in literacy than their job requires (underskilled) – the largest proportion among all participating countries/economies (the OECD average is 3.8%). Some 15.9% of workers in Chile are more proficient in literacy than required by their job (overskilled), well above OECD average of 10.8%. Field of study mismatch shows that almost one in two workers in Chile is mismatched, one of the largest values found in the group, along with England (United Kingdom), Italy, Jakarta (Indonesia), Korea and New Zealand. By comparison, across OECD countries, on average 40% of workers are employed in a field different from that in which they earned their qualifications.

Individual and job characteristics may influence the likelihood of mismatch. For example, it may take young people, as new entrants into the labour market, some time to sort themselves into well-matched jobs. Or, some workers may choose to accept a job for which they are overqualified. This can happen when workers wish to remain close to their families or better reconcile work and family life and accept part-time jobs r jobs outside their field of study. It can also happen during economic downturns when an overqualified job is preferred to unemployment.

Figure 2.7 shows the percentage point change in the likelihood of mismatch by age and gender, all else being equal. The results suggest that women, with or without family ties, are not more likely to be mismatched than men once other factors are accounted for. If anything, women are less likely to be over-qualified or over-skilled than their male counterparts and more so in Chile than in the OECD on average. In terms of age differences, older workers appear to have a lower likelihood of overqualification and overskilling while youth are more likely to be overskilled, all probabilities compared to those of prime-age men (25-44). On the other hand, both older and young workers have an increased probability of being mismatched by field of study although this could reflect different phenomena: in the case of youth it could be the result of limited opportunities in their field; in the case of older workers it could come as field of study is less relevant once experience is acquired in the labour market.

Figure 2.6. Qualification, literacy and field-of-study mismatch

Percentage of mismatched workers, by type of mismatch



Note: Field-of-study mismatch is unavailable for Australia due to the unavailability of ISCO 3-digit information for Australian workers in the Survey of Adult Skills (PIAAC).
Source: Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.7.

Figure 2.7. Mismatch, age and gender

Percentage point change in the likelihood of mismatch, by type mismatch, age and gender

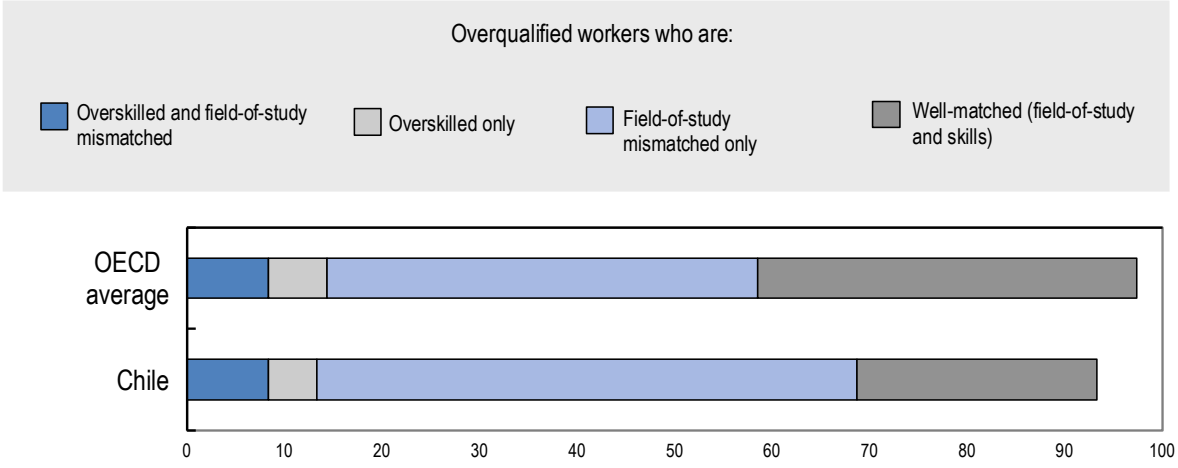


Note: Marginal effects (as percentage-point change) on the likelihood of a worker being overqualified/overskilled/mismatch by field of study, after controlling by age, gender, marital status, proficiency, firm size, migration status and type of contract.
Source: Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.9, Table A5.10, Table A5.11.

Furthermore, the results from Survey of Adult Skills show that there is significant overlap between the different dimensions of mismatch (Figure 2.8). Overqualification tends to be associated with field-of-study mismatch in Chile, where more than one in two overqualified workers are also mismatched by field of study, but well-matched by skills. This raises questions about the capacity of Chilean adults to find jobs in their field and to transfer their skills to other sectors. The skills of individuals who transition out of their field may not be recognised, and therefore workers could be forced to downgrade in order to find work (Montt, 2015[5]).

Figure 2.8. Overqualified workers who are mismatched by literacy or field of study

Percentage of overqualified workers in each category of literacy and field-of-study mismatch



Note: Overqualified workers who are "underskilled and field-of-study mismatched" or "underskilled and field-of-study well-matched" are omitted from the figure and together correspond to the remaining part of the total 100%.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A5.8a.

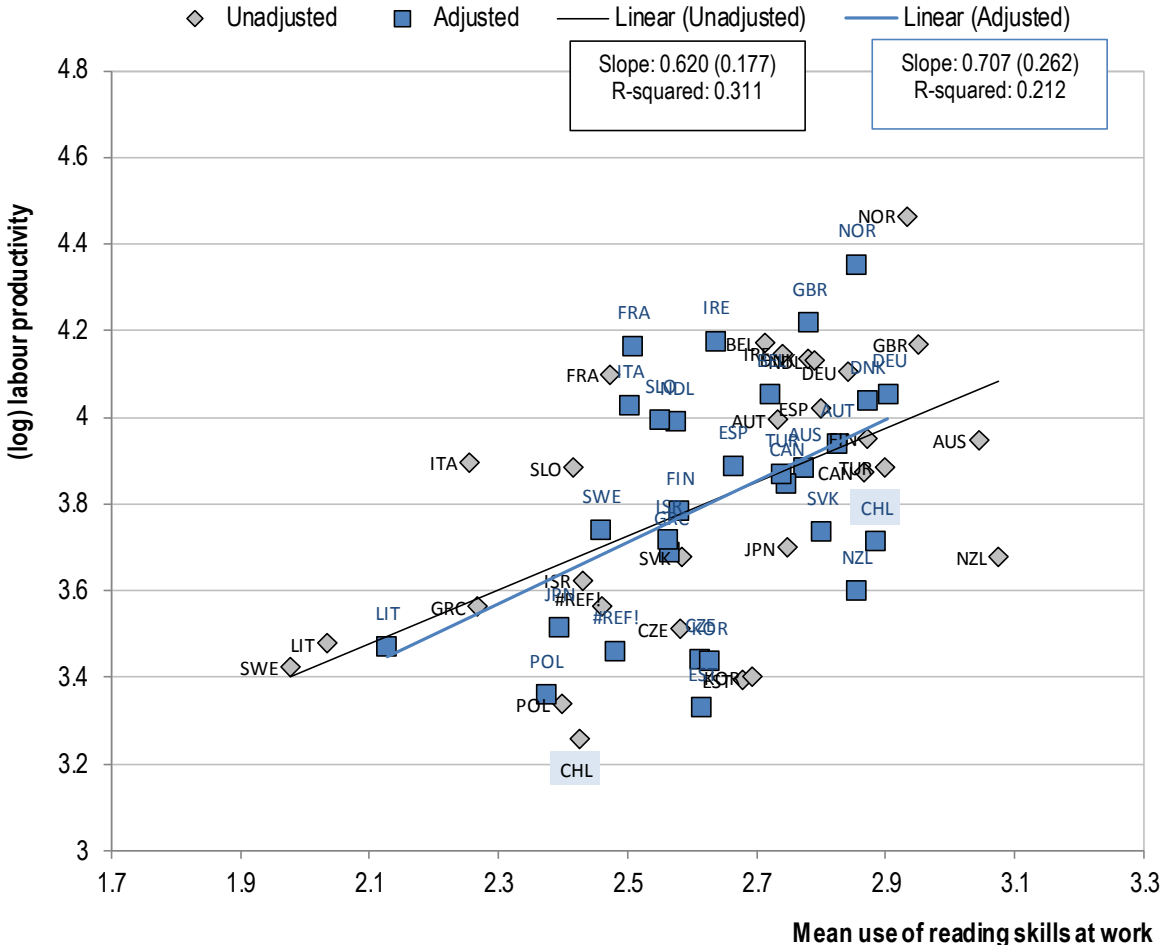
Why mismatch matters

The use of skills in the work place and the extent to which workers are mismatched in their jobs has important implications not only for the economic output of a country, but also for outcomes at the micro level. The relevant literature finds that better skills use results in higher productivity and lower staff turnover in firms (UKCES, 2014). Some have also argued that better skills use stimulates investment, employees' engagement, and innovation (Wrightm and Sissons, 2012[6]).Workers who use their skills more frequently also tend to have higher wages, even after accounting for differences in educational attainment, skills proficiency and occupation. But the importance of skills use in the workplace goes beyond monetary rewards, as it has been found that more effective skills use is related to greater job satisfaction and employee well-being, with possible spill-over effects into life satisfaction and better health (e.g. (Francis et al., 2013[7])).

The Survey of Adult Skills also shows that the use of reading skills at work correlates strongly with labour productivity (Figure 2.9). This is also the case for writing skills. One possible explanation is that using certain skills simply reflects workers' proficiency in

them. If so, the link between the use of reading skills at work and productivity could actually reflect a relationship between literacy proficiency and productivity. Yet, the frequency in which skills are used at work remains significant, even after accounting for average proficiency scores. This indicates that skills use is explaining differences in labour productivity over and above the effect of proficiency. In the case of Chile, after accounting for proficiency scores, labour productivity increases from 3.25 to 3.71 for every marginal increase in the frequency of reading at work. The strength of the link across countries/economies varies, depending on a number of factors, such as the capital stock, the quality of production technologies, and the efficiency of the match between workers and jobs.[3] These additional factors influence both output per hour and human capital as captured by skills use and proficiency.

Figure 2.9. Labour Productivity and the use of reading skills at work



Notes: Lines are best linear predictions. Labour productivity is equal to the GDP per hour worked, in USD current prices 2012 for round-1 and 2014 for round-2 countries/economies. Adjusted estimates are based on OLS regressions including controls for literacy and numeracy proficiency scores.
Source: Survey of Adult Skills (PIAAC) (2012, 2015), Table A4.3

Similar to skill use, most studies conclude that, by comparing workers with similar credentials/skills but in jobs for which they are well-matched or overqualified/overskilled,

mismatch has a negative impact on wages. On average, overqualified/overskilled workers appear to earn less than their well-matched peers with similar credentials or skills proficiency. Similar evidence is found by the Survey of Adult Skills, as shown by Figure 2.10. Overqualification has a stronger negative impact on hourly wages than overskilling or field-of-study mismatch, when workers are compared with their equally-qualified and equally-proficient well-matched counterparts.

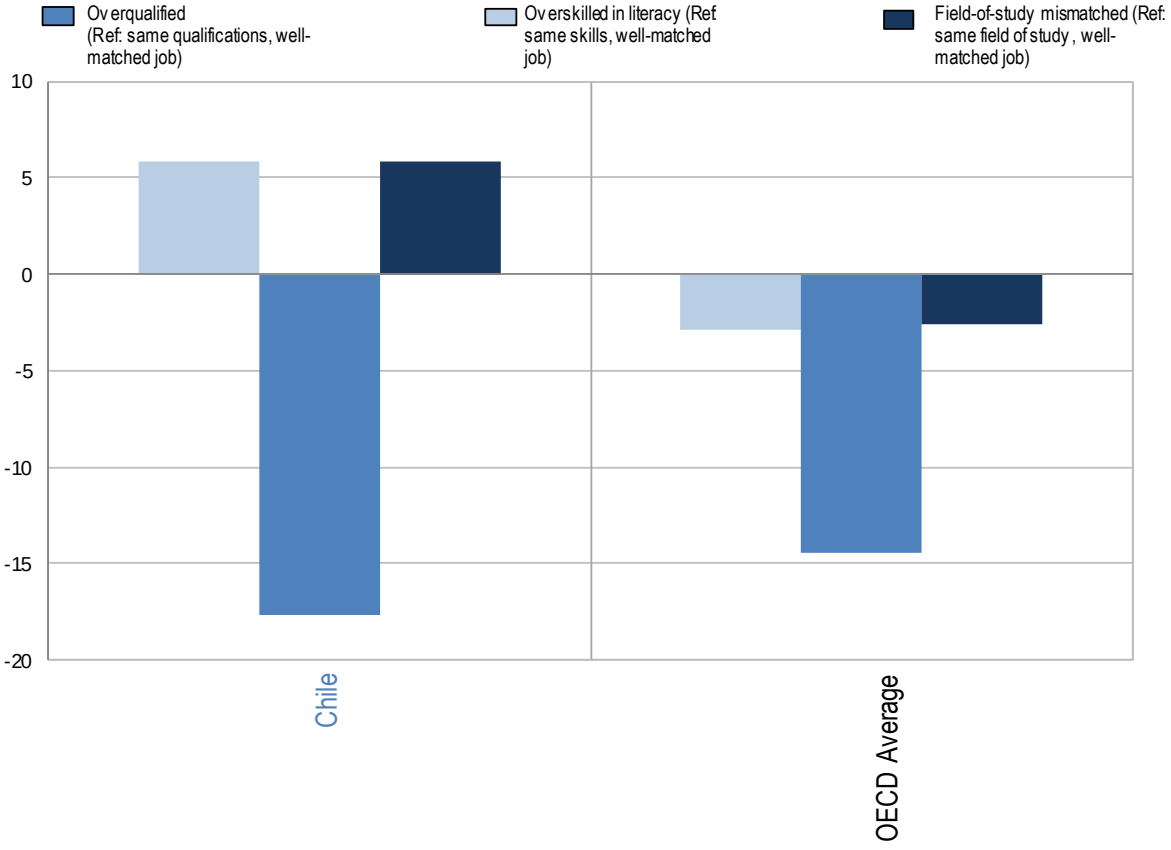
On average, overqualified workers earn about 14% less than well-matched workers with the same qualifications and skills proficiency. For Chile, the wage penalty associated with overqualification is almost 18%. There is no significant effect of overskilling on wages, which goes in line with the cross country trend. And this relationship remains insignificant even when the controls for qualification mismatch are removed. After accounting for overqualification and overskilling, field-of-study mismatch entails a small wage penalty of less than 3%, on average across countries and economies, and it is slightly larger (5%) in Chile, but with no statistical significance.

Though field-of-study mismatch may not be linked to a wage penalty, this is only the case when workers are mismatched by field of study but are well-matched in terms of qualifications. As shown previously in Figure 2.8, this is not the case for Chile, as a large proportion of workers that are overqualified are also mismatched by field of study. To the extent that workers who venture outside their field need to downgrade in order to find a job, field-of-study mismatch will result in a penalty that is largely related to their overqualification.

This is not to say that having a qualification does not pay on the labour market. On average, overqualified workers earn about 4% more than well-matched workers in similar jobs. In other words, a tertiary graduate who holds a job requiring only an upper secondary qualification will earn less than if he or she were in a job requiring a tertiary qualification, but more than an upper secondary graduate in a job requiring upper secondary qualifications. However, at the aggregate level these workers would be better off if they matched in qualifications (Montt, 2015[5]) (OECD, 2016[3]).

Figure 2.10. Effect of qualification, literacy and field-of-study mismatch on wages

Percentage difference in wages between overqualified, overskilled or field-of-study mismatched workers, and their well-matched counterparts



Note: Coefficients from OLS regression of log hourly wages on mismatch directly interpreted as percentage effects on wages. Coefficients adjusted for years of education, age, gender, marital status, working experience, tenure, foreign-born status, establishment size, contract type, hours worked, public sector dummy, proficiency in literacy and use of skills at work. The wage distribution was trimmed to eliminate the 1st and 99th percentiles. The regression sample includes only employees. The analysis excludes the Russian Federation because wage data obtained through the survey do not compare well with those available from other sources. Hence further checks are required before wage data for this country can be considered reliable. The analyses exclude Australia because field-of-study mismatch due to the unavailability of ISCO 3-digit information for Australian workers in the Survey of Adult Skills (PIAAC). Statistically significant values (at the 10% level) are shown in a darker tone. Countries and economies are ranked in ascending order of the effect of overqualification on wages.

Notes

1. A value of 1 indicates that the skills related task is never carried out; a value of 2 indicates that it is carried out less than once a month; a value of 3 indicates that it is carried less than once a week but at least once a month; a value of 4 indicates that it is carried out at least once a week but not every day; and a value of 5 indicates that it is carried out every day.

2. The variance analysis presented here uses Fields (2004) regression-based decomposition technique. This approach is only one way of comparing the importance of a factor as a correlate of skill use. An alternative would be to use regression analysis. The advantage of the variance decomposition approach is that it allows for a comparison of factors that are measured on different scales. See also (OECD, 2014[7]), Chapter 5.

3. It is possible that the link between skills use at work and productivity may reflect the association between reading (or writing or problem solving) use and the use of other skills, or the link between use and the nature of the work environment (e.g. capital intensity).

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Chapter 3. Labour market outcomes of youth, older workers and women in Chile

This chapter sheds further light on difference between socio-demographic groups. It looks at the role played by skills inequality in explaining wage differentials by gender and age. It looks at the how the relationship between wages and proficiency, field of study, experience and educational attainment varies along the life-cycle. It sheds light on the relationship between skills and NEET status.

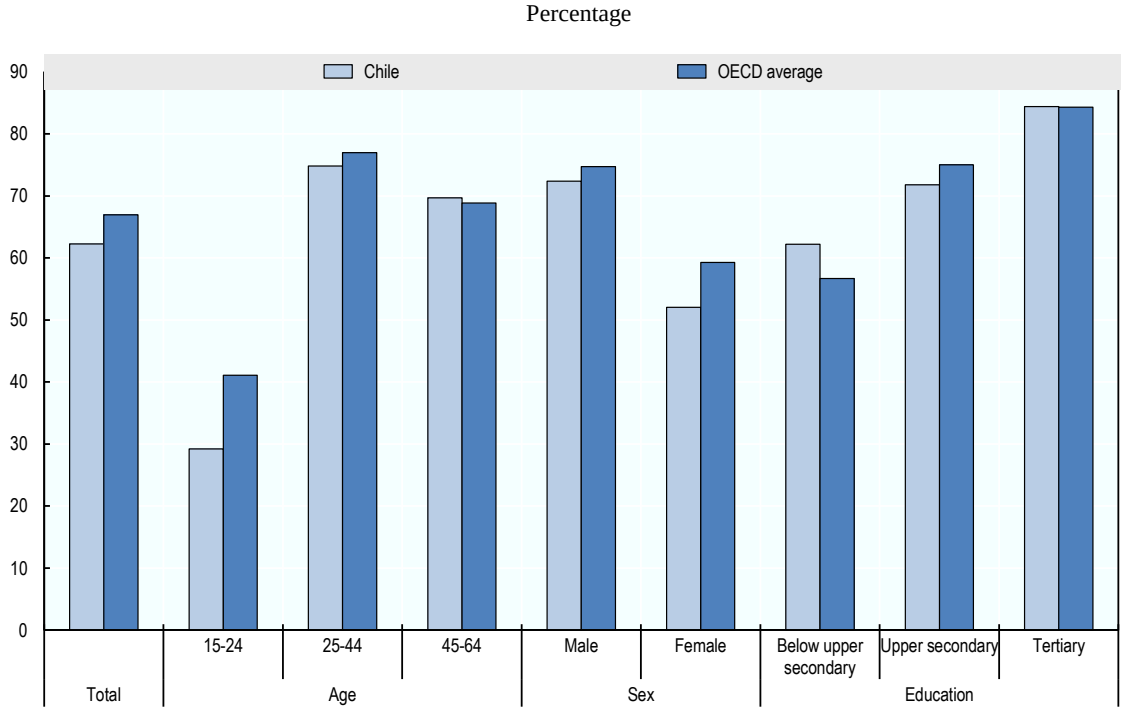
The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Labour market outcomes by socio-demographic characteristics

In Chile, as well as in the OECD on average, labour market outcomes vary significantly across socio-demographic groups (Figure 3.1). Both youth and women are less likely to be employed than in the OECD on average. Only 29% of youth are employed compared to 41% on average while the employment rate of women, at 52%, is 7 percentage points below the average. Chileans who have not completed high-school do relatively well in international comparison, but their employment rate is 24 percentage points below that of individuals with tertiary credentials.

On one side, educational attainment and skills proficiency vary by age and gender, as shown in Chapter 1. On the other, the relationship between skills and educational background and labour market outcomes may vary in sign and strength by socio-demographic characteristics. This can be explained by selection into different occupations as a result of gender stereotyping, more limited career opportunities because of difficulties reconciling work and family life, different labour market experience and soft skills for recent graduates, or discrimination against older workers and women, to cite a few.

Figure 3.1. Employment rates by age, gender and educational attainment, 2016



Note: OECD unweighted average.
Source: OECD Employment Database, www.oecd.org/employment/database.

Analysing labour market outcomes by age and gender helps to disentangle whether there are differences in the outcomes of different subgroup levels, and if there are, where to effectively target policy in order to improve their well-being in the labour market. Two indicators are used to assess how the youth (16-29 years old), older workers (50-65 years old), and women perform in the labour market in Chile: hourly wages for those that work,

and the likelihood of being neither in Employment nor in Education or Training (NEET). Examining the wages of those in work provides information on how much various skills are valued in the labour market, which no doubt influences the education and skill decisions made by workers. Additionally, the NEET status across ages – which captures both being out of work and not studying – is a better indicator of labour market distress, especially for the youth, than the unemployment rate taken on its own.

Skills and wage gaps

Wage ratios between groups and the role of skills

Simple wage ratios between different socio-demographic groups can give a first approximation of how youth, older workers and women compare to their prime-age and male counterparts in terms of hourly wages. The Survey of Adult Skills provides evidence that these wage gaps can be significant. For example, across the 22 countries covered by the 2015 Employment Outlook analysis, men's wages are 18.4% higher than women's, on average; and older workers (aged 50-65) have wages 36.1% higher than younger workers (aged 16-29). The key issue addressed in this chapter is how much of these wage gaps is related to skills: to the difference in the way skills are distributed between groups; and to the differences in the returns to skills between groups.

To assess the role of skills and their return on the labour market, alternative wage distributions are simulated for each of the groups of interest. For instance, the questions addressed in the case of gender differences are: how would the wage ratio change if women had the same numeracy skill distribution as men; and how would the wage ratio change if women's skills were rewarded in the same way as those of men. [1]

Figure 3.2 presents the results of this analysis. The bars represent the mean wage gaps between the groups of interest for each country. The white diamonds indicate how much these wage gaps would be reduced if the skills distribution (both level and dispersion) of the comparison group is adopted, while the black diamonds show how the wage gap would change if skills were rewarded in the same way as for the comparison group. The potential role of skills policies varies considerably depending on which of the wage gaps one would like to address.

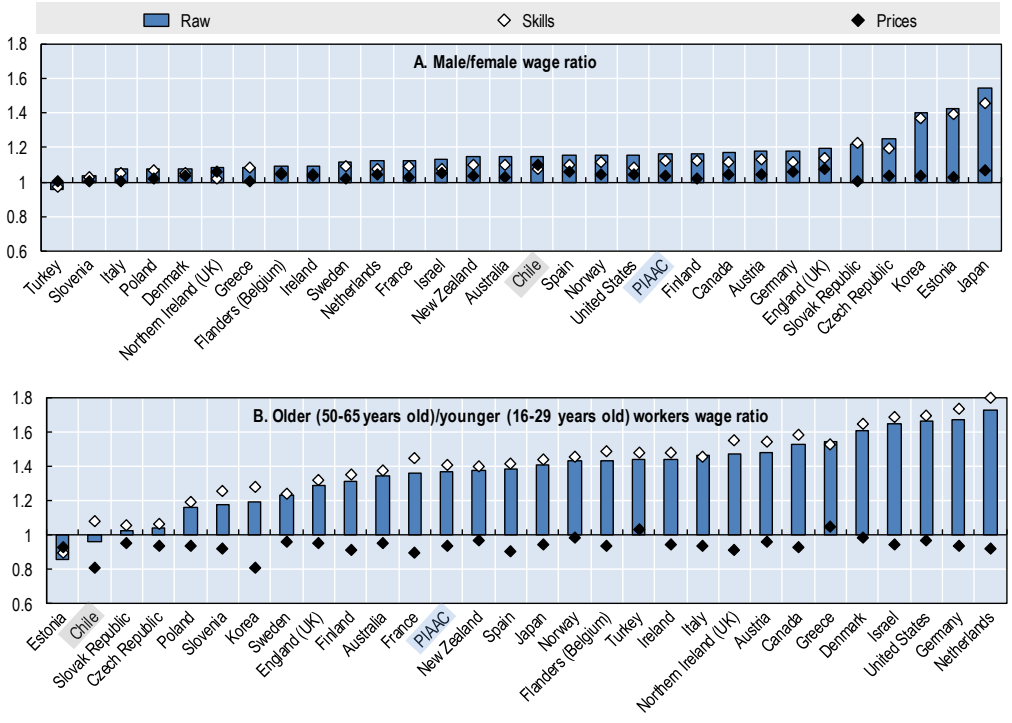
In the case of the gender wage gap (Panel A), for example, observed differences in skills account for 23% of the observed wage gap across countries that participated in the Survey of Adult Skills (PIAAC), on average, and this share is relatively consistent across countries (OECD, 2015[1]). In Chile, male workers receive a wage that is 15% bigger when compared to average wage of a female. The gap would be more than halved, decreasing to 7%, if women had the same skill distribution as men, and alternatively to 10% if the skills women possess were rewarded the same way as men. The fact that the gap still remains after accounting for an alternative distribution of skills, indicates that while skills policies could therefore play some role in reducing the difference in wages between men and women, other policy interventions will also be required, possibly fighting gender discrimination.

Panel B shows that younger workers would earn even less relative to older workers if they had the same numeracy skills as them. This is because, in general, younger workers tend to have higher skills than older generations (OECD, 2013[2]). Moreover, in Chile, the raw wage gap is already in favour of youth, who earn 4% more on average, which is in line with the fact that they are not only more educated but also more proficient, compared to older adults. Most striking, however, is the extremely large difference in

how numeracy skills are rewarded for older adults across countries. In the case of Chile, if workers were rewarded equally, younger adults would earn even more than older adults.[2] This could be explained by the high likelihood of older workers being rewarded for other types of skills that are not captured by the PIAAC measure of numeracy skills.

Figure 3.2. Wage ratios between groups and the role of numeracy skills

Wage ratio before and after controlling for skills distribution and price effects



Note: OECD refers to the simple, unweighted country average. Wage gaps are expressed as the ratio of the average wage for each population subgroup. Wage corresponds to the hourly wage.
The Survey of Adult Skills only covered Flanders (BEL) and England/Northern Ireland (GBR).
Source: Survey of Adult Skills (PIAAC) 2012, 2015.

Contribution of proficiency to variation of hourly wages

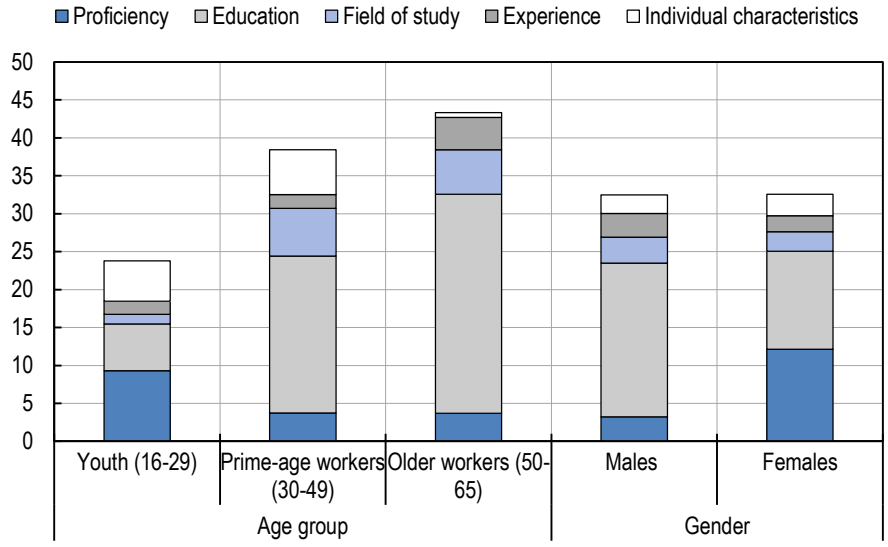
Given the wage differences observed by age and gender and the importance of proficiency on wages for Chile, it is important to address what role skills play in explaining wage outcomes for each population group. Figure 3.3 describes the contribution of each human capital component to the variation of hourly wages in Chile, disaggregated by age and gender. First, education, field of study and proficiency explain a larger share of the total variation in hourly wages for older workers (43%) than for other age groups and in the OECD average (see Figure 3.3), suggesting that human capital plays a key role for this age group in Chile. To support this conclusion, individual characteristics account for little variation of hourly wages when compared to other age groups, reflecting the high weight employers put on having a specific set of skills and knowledge to perform a job for older workers.

For prime-age and older workers, education makes the largest contribution to the respective explained variation in hourly wages. Educational attainment, either in itself or

expressed as years of education, represents a wider set of knowledge and skills, including job and domain-specific competencies, as well as personal attributes, than does proficiency in the domains assessed in the Survey of Adult Skills. Since it is more difficult for a prospective employer to assess skills than qualifications, the relative strength of the influence of years of education and proficiency on wages may also reflect the fact that wage negotiations that occur during hiring are based on the observable characteristics of individuals, i.e. formal qualifications, and have a lasting impact on wages. On the contrary for the youth, proficiency in information-processing skills explains a higher proportion of the variation of wages. This is opposite to what is found for the OECD average of countries, in which the contribution of information-processing skills grows in importance for prime-age and older workers, eventually exceeding the influence of education. This difference could be explained by the fact that younger workers are the most proficient group in the Chilean working population, as indicated in Chapter 1. Additionally, as the expansion of education opportunities increase for newer cohorts, younger workers enter the labour market with a similar level of educational attainment in Chile.

Figure 3.3. Chile: Contribution of education, literacy and numeracy to the variation of hourly wages, by age group and gender

Contribution of each factor to the percentage of the explained variance (R-squared) in hourly wages



Note: The dependant variable is the log of hourly wages, including bonuses, in PPP-adjusted USD (2012). The wage distribution was trimmed to eliminate the 1st and 99th percentiles. The factors are: years of work experience and a squared term; proficiency in literacy and numeracy; years of education; and demographic variables (gender, marital status, immigrant background and the language spoken at home).
Results obtained using regression-based decomposition through the formulae proposed by Fields (2003). Each bar summarises the results from one regression and the height of each bar represents the total R-squared for that regression. The subcomponents of each bar show the contribution of each factor (or set of regressors) to the R-squared. The Fields decomposition is explained in more detail in Box 5.4 of the OECD Employment Outlook 2014 (OECD, 2014[3]).
Source: Survey of Adult Skills (PIAAC) (2012, 2015).

In terms of the extent to which different components account for wages conditional on gender, the contribution of human capital components in Chile indicates that proficiency in information-processing skills have a larger contribution in the variation of hourly

wages for women than for men, and education has a larger contribution to the wage variation men. This is also the opposite to what is found in the average of OECD countries. This difference in the explained variation could be that more males with different levels of educational attainment participate in the labour market in Chile, as opposed to women. On the contrary, participation rates tend to be much higher among women with high educational attainment.

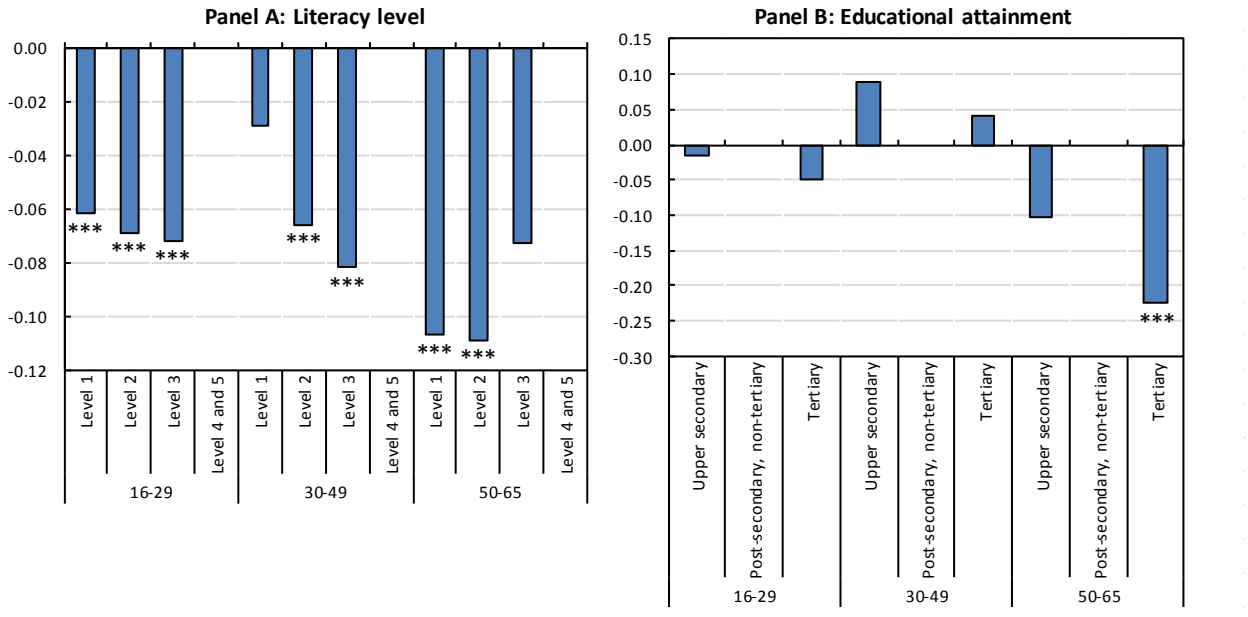
Skills and probability of being NEET

The Survey of Adult Skills shows that, on average, individuals with lower educational attainment and weaker information-processing skills are more likely to be neither in employment nor in education or training (NEET), and this association increases with age. This is also holds for Chile, but not for all age groups. The strongest association happens for proficiency in literacy, which is associated with a smaller probability of being NEET at every age.

Figure 3.4 shows the result of a multivariate analysis using a probit model to calculate the probability of being NEET in Chile, according to different levels of educational attainment and literacy proficiency. They all have independent and significant effects on the likelihood of being NEET, when included jointly, suggesting that they capture distinct skills.

Figure 3.4. Chile: The relationship between the probability of being NEET, literacy proficiency (a) and educational attainment (b), by age group

Marginal effects from probit regressions (percentage points)



Note: ***, **, *: statistically significant at the 1%, 5% and 10% levels, respectively.
(a) Below Level 1 corresponds to the lowest level of literacy proficiency while Levels 4 and 5 are the two highest levels (for more information on the literacy skills required to attain each level of proficiency, see Annex 5.A1). Similar results are obtained when numeracy proficiency is used instead of literacy.

(b) Probit regressions by country (results here only showed for Chile), with the probability of being NEET as the dependent variable and each skill area as the explanatory variable with additional controls for gender, marital status, migration status and language spoken at home. The omitted categories for each skill area are: Social Sciences for field of study; below Level 1 for literacy proficiency; and lower than upper secondary education for educational attainment.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) 2012.

Proficiency in literacy has a strong negative relationship with NEET status regardless of age, but especially for youth (Panel B). Youth scoring at Level 3 of the literacy scale are about 7% less likely to be NEET than those scoring below Level 1. Higher levels of literacy proficiency decrease the likelihood of being NEET by up to 11% in the case of older workers. Similarly, holding a tertiary degree decreases the likelihood of being NEET for older workers, when compared to having attained a below upper secondary level of education.

Notes

1. The method is in essence a generalisation of the Oaxaca-Blinder decomposition of means to the full distributional case (Lemieux, 2002). As explained in (OECD, 2015[1]), the original decomposition technique was modified to account for the full distribution of wages, rather than focusing only on group differences in the mean. In this framework, differences in the prices of skill will reflect a mixture of uncontrolled-for factors that also affect productivity and wages (e.g. unobserved skills, innate ability), as well as any discrimination in pay levels. Similar results are obtained when literacy scores are used instead of numeracy ones.

2. Note that these results do not depend on the definition of the age groups. In particular, one might be concerned that the younger age group (16-29) may include many individuals who have not yet completed education. Yet repeating the exercise for 25-29 year-olds only does not alter the conclusions reached.

References

OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264204256-en. [2]

OECD (2014), *OECD Employment Outlook 2014*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2014-en. [3]

OECD (2015), *OECD Employment Outlook 2015*, OECD Publishing, Paris, http://dx.doi.org/10.1787/empl_outlook-2015-en. [1]

Chapter 4. Conclusions

This chapter reviews the report's main finding and briefly presents the main implications in terms of public policy.

In Chile, proficiency in literacy, numeracy and problem solving remains very low in international comparisons. Skill use in the workplace is also below average although Chile compares better internationally on the use of reading, writing, numeracy, ICT and problem solving than it does in skills proficiency. Mismatch is widespread in the country, particularly when it comes to the discrepancy between skills possess and skills required at work and to the likelihood of working in an area different from the worker's field of study.

All three aspects – proficiency, skills use and mismatch – have important implications on labour market outcomes, including employment and hourly wages. However, there are some indications that skills may only be part of the story for some groups. For instance, in Chile, like in other OECD countries, gender differences in proficiency are small making the low participation of women in the labour force a major "waste" of human capital. Among women who work, skills use and mismatch do not appear to be more of an issue than among men, ceteris paribus. This suggests that women's poor labour force participation in Chile is related to the difficulty of reconciling work and family life. Better services to support women's labour market participation would help make the best use of women's skills.

Also, educational credentials continue to play a stronger role than actual skills. As a result, proficient individuals who do not manage to either start or complete a tertiary level of education are at disadvantage, so it becomes critical to develop mechanisms to effectively signal skills proficiency to employers. Effective systems for the recognition of prior learning could help achieve more transparency on the skills that job-seekers possess, irrespective of the context in which skills have been acquired (initial education or non-formal and informal learning).

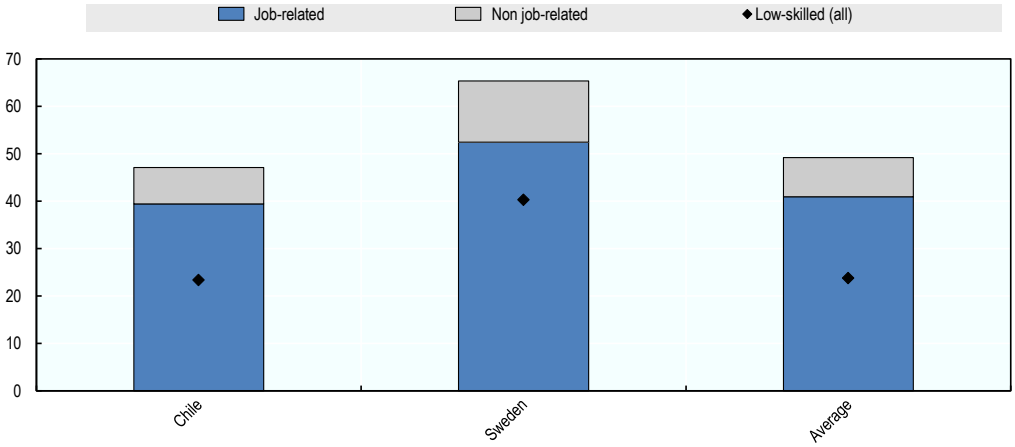
Overall, the evidence presented in this study underlines the importance of skills to enter and thrive in the labour market. As proficiency in all domains assessed by the Survey of Adult Skills is weak in Chile, investments in the quality of initial education are crucial. In addition, as many of those already in the labour force have poor information-processing skills, participation in adult learning is key to develop and maintain skills. Cost-efficient infrastructures for lifelong learning and ensuring participation by all is likely to gain in importance as rapidly changing skill needs will require more frequent re-training and up-skilling.

Unfortunately, as it is the case across the OECD, adult learning tends to benefit disproportionately those who already possess good foundation skills (Figure 4.1). Increasing participation by the low-skilled will require targeted financial subsidies but also attention paid to non-financial barriers.

OECD is currently undertaking work to assess the readiness of adult learning systems in the context of rapidly changing skill needs and inclusiveness will play a key role in the assessment.

Figure 4.1. Participation in job-related training, by skill level, 2016

Percentage of adults who participated in adult education and training during year prior to the survey



Note: OECD unweighted average.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) 2012, 2015.

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Getting Skills Right

Chile

Skills have the potential to transform lives and drive economies. However, in many countries, imbalances between the supply and demand for skills lead to significant skill mismatches and shortages, with as many as three in five workers in the OECD employed in jobs that do not make the best use of their skills. At the same time, a large number of employers report hiring problems due to skill shortages. This series examines how countries measure changing skill needs and how they develop skills that respond to labour market needs and how they ensure that these skills are fully utilised by individuals and employers. Presenting both thematic reports on specific policies and issues and in-depth country reviews, this series offers countries the information and analysis they need to get skills right.

This study analyses the relationship between skills and labour market outcomes in Chile with a specific focus on disadvantaged groups: youth, women and the low-skilled. It examines the proficiency of the Chilean population in literacy, numeracy and problem solving in a technological-rich environment and disentangles the relationship between proficiency and labour market outcomes in Chile. The study also devotes significant attention to the demand for skills, by describing the use of skills at work in Chile and identifying its key determinants, as well as assessing the extent of skills mismatch and its implications for individuals. Throughout the study, differences between sociodemographic groups are highlighted to investigate the roots of labour market disadvantage.

Consult this publication on line at ***http://dx.doi.org/10.1787/9789264293151-en***.

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