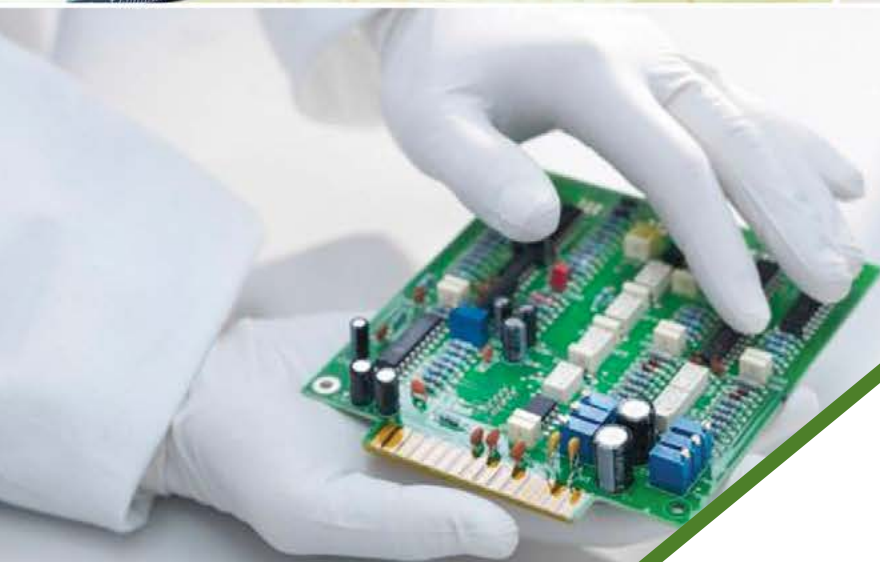




# Skilled for Life?

## KEY FINDINGS FROM THE SURVEY OF ADULT SKILLS





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

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## FOREWORD

It is no exaggeration to use the word “revolution” when talking about how our lives have changed over the past few decades. Today we rely on information and communication technologies and devices that hadn’t even been imagined in 1980. The way we live and work has changed profoundly – and so has the set of skills we need to participate fully in and benefit from our hyper-connected societies and increasingly knowledge-based economies.

Governments need a clear picture not only of how labour markets and economies are changing, but of the extent to which their citizens are equipping themselves with the skills demanded in the 21st century, since people with low skills proficiency face a much greater risk of economic disadvantage, a higher likelihood of unemployment, and poor health. Our new publication series, the *OECD Skills Outlook*, aims to provide that picture. It will offer an annual overview of how skills are being developed, activated and used across OECD and partner countries, and highlight the kinds of education, employment, tax and other social policies that encourage and allow people to make the most of their potential.

The inaugural edition of the *OECD Skills Outlook* is devoted to reporting the results of the first round of the Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC). The survey provides a rich source of data on adults’ proficiency in literacy, numeracy and problem solving in technology-rich environments – the key information-processing skills that are invaluable in 21st-century economies – and in various “generic” skills, such as co-operation, communication, and organising one’s time.

If there is one central message emerging from this new survey, it is that what people know and what they do with what they know has a major impact on their life chances. The median hourly wage of workers who can make complex inferences

and evaluate subtle truth claims or arguments in written texts is more than 60% higher than for workers who can, at best, read relatively short texts to locate a single piece of information. Those with low literacy skills are also more than twice as likely to be unemployed. The Survey also shows that how literacy skills are distributed across a population has significant implications on how economic and social outcomes are distributed within the society. If large proportions of adults have low reading and numeracy skills, introducing and disseminating productivity-improving technologies and work-organisation practices can therefore be hampered. But the impact of skills goes far beyond earnings and employment. In all countries, individuals with lower proficiency in literacy are more likely than those with better literacy skills to report poor health, to believe that they have little impact on political processes, and not to participate in associative or volunteer activities. In most countries, they are also less likely to trust others.

These results, and results from future rounds of the survey, will inform much of the analysis contained in subsequent editions of the *Outlook*. The *Outlook* will build on the extensive body of OECD work in education and training, including findings from its Programme for International Student Assessment (PISA) and its policy reviews of vocational education and training, and its work on skills, particularly the Skills Strategy – the integrated, cross-government framework developed by experts across the Organisation to help countries understand more about how to invest in skills in ways that will transform lives and drive economies. The *OECD Skills Outlook* will show us where we are, where we need to be, and how to get there if we want to be fully engaged citizens in a global economy.

Angel Gurría  
OECD Secretary-General



## ABOUT THE SURVEY OF ADULT SKILLS (PIAAC)

A decade after the publication of results from the first round of the Programme for International Student Assessment (PISA), its seminal assessment of the knowledge and skills of 15-year-olds, the OECD has conducted its first Survey of Adult Skills, which extends the assessment of skills to the entire adult population. The survey, a product of the OECD Programme for the International Assessment of Adult Competencies (PIAAC), focuses on skills – literacy, numeracy and problem solving – similar to those assessed in PISA; but the two studies use different assessment tasks, reflecting the different contexts in which 15-year-old students and older adults live. The surveys have complementary goals: PISA seeks to identify ways in which students can learn better, teachers can teach better, and schools can operate more effectively; the Survey of Adult Skills focuses on how adults develop their skills, how they use those skills, and what benefits they gain from using them. To this end, the Survey of Adult Skills collects information on how skills are used at home, in the workplace and in the community; how these skills are developed, maintained and lost over a lifetime; and how these skills are related to labour market participation, income, health, and social and political engagement.

With this information, the Survey of Adult Skills can help policy makers to:

- examine the impact of reading, numeracy and problem-solving skills on a range of economic and social outcomes;
- assess the performance of education and training systems, workplace practices and social policies in developing the skills required by the labour market and by society, in general; and
- identify the policy levers that can reduce deficiencies in key competencies.

### Literacy

Literacy is defined as the ability to understand, evaluate, use and engage with written texts to participate in society, achieve one's goals, and develop one's knowledge and potential.

Literacy encompasses a range of skills from the decoding of written words and sentences to the comprehension, interpretation, and evaluation of complex texts. It does not, however, involve the production of text (writing).

Information on the skills of adults with low levels of proficiency is provided by an assessment of reading components that covers text vocabulary, sentence comprehension and passage fluency.

### Numeracy

Numeracy is defined as the ability to access, use, interpret and communicate mathematical information and ideas in order to engage in and manage the mathematical demands of a range of situations in adult life.

To this end, numeracy involves managing a situation or solving a problem in a real context, by responding to mathematical content and concepts represented in multiple ways.

### Problem solving in technology-rich environments

Problem solving in technology-rich environments is defined as the ability to use digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.

The assessment focuses on the abilities to solve problems for personal, work and civic purposes by setting up appropriate goals and plans, and accessing and making use of information through computers and computer networks.

## What is assessed

**The Survey of Adult Skills (PIAAC) assesses the proficiency of adults from age 16 onwards in literacy, numeracy and problem solving in technology-rich environments.** These skills are “key information-processing competencies” that are relevant to adults in many social contexts and work situations, and necessary for fully integrating and participating in the labour market, education and training, and social and civic life.

In addition, the survey collects a range of information on the reading- and numeracy-related activities of respondents, the use of information and communication technologies at work and in everyday life, and on a range of generic skills, such as collaborating with others and organising one’s time, required of individuals in their work. Respondents are also asked whether their skills and qualifications match their work requirements and whether they have autonomy over key aspects of their work.

## Methods

- Around **166 000 adults aged 16-65 were surveyed in 24 countries and sub-national regions:** 22 OECD member countries – Australia, Austria, Belgium (Flanders), Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Korea, the Netherlands, Norway, Poland, the Slovak Republic, Spain, Sweden, the United Kingdom (England and Northern Ireland), and the United States; and two partner countries – Cyprus\* and the Russian Federation.
- The **target population** for the survey were adults aged 16-65, residing in the country at the time of data collection, irrespective of nationality, citizenship or language status.
- **Data collection** for the Survey of Adult Skills took place from 1 August 2011 to 31 March 2012 in most participating countries. The Survey was undertaken in the respondent’s home and administered on a laptop computer or by completing a paper version using printed test booklets, depending on their computer skills.
- The **language of assessment** was the official language or languages of each participating country. In some countries, the

assessment was also conducted in widely spoken minority or regional languages.

- There were two **optional components** of the assessment for the countries: the assessment of problem solving in technology-rich environments and the assessment of reading components.
- **Sample sizes** depended primarily on the number of cognitive domains assessed and the number of languages in which the assessment was administered. The achieved samples ranged from a minimum of approximately 4 500 to a maximum of nearly 27 300.
- Respondents with very low literacy skills bypassed the full literacy, numeracy and problem solving in technology-rich environment assessments and went directly to a test of **basic “reading component”** skills instead.
- **Descriptions of proficiency levels** in literacy, numeracy and problem solving in technology-rich environments can be found in the *The Survey of Adult Skills: Reader’s Companion* (OECD, 2013).

\*See notes regarding Cyprus on page 2.

## Additional countries

A second round of the Survey of Adult Skills started in 2012 involving nine additional countries: Chile, Greece, Indonesia, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey.

Data will be collected in 2014 and the results will be released in 2016. A third round for new countries will start in May 2014.



## SKILLS TRANSFORM LIVES AND DRIVE ECONOMIES

### Skills have a major impact on each individual's life chances.

Skills transform lives, generate prosperity and promote social inclusion. Without the right skills, people are kept at the margins of society, technological progress does not translate into economic growth, and enterprises and countries can't compete in today's globally connected and increasingly complex world. Getting the best returns on investment in skills requires good information about the skills that are needed and available in the labour market. It also requires policies that ensure that skills are used effectively to generate better jobs that lead to better lives. To support these goals, the OECD has begun to measure the skills of adult populations.

If there is one central message emerging from this new Survey of Adult Skills, it is that what people know and what they can do with what they know has a major impact on their life chances. For example, the median hourly wage of workers scoring at Level 4 or 5 in literacy – those who can make complex inferences and evaluate subtle truth claims or arguments in written texts – is more than 60% higher than for workers scoring at Level 1 or below – those who can, at best, read relatively short texts to locate a single piece of information that is identical to the information given in the question or directive or to understand basic vocabulary. Those with low literacy skills are also more than twice as likely to be unemployed.

### Low-skilled individuals are increasingly likely to be left behind...

As the demand for skills continues to shift towards more sophisticated tasks, as jobs increasingly involve analysing and communicating information, and as technology pervades all aspects of life, those individuals with poor literacy and numeracy skills are more likely to find themselves at risk. Poor proficiency

in information-processing skills limits adults' access to many basic services, to better-paying and more-rewarding jobs, and to the possibility of participating in further education and training, which is crucial for developing and maintaining skills over the working life and beyond.

### ...and countries with lower skill levels risk losing in competitiveness as the world economy becomes more dependent on skills.

Those relationships hold not just for individuals; they also apply to countries: per capita incomes are higher in countries with larger proportions of adults who reach the highest levels of literacy or numeracy proficiency and with smaller proportions of adults at the lowest levels of proficiency.

### Inequality in skills is associated with inequality in income.

How literacy skills are distributed across a population also has significant implications on how economic and social outcomes are distributed within the society. The Survey of Adult Skills shows that higher levels of inequality in literacy and numeracy skills are associated with greater inequality in the distribution of income, whatever the causal nature of this relationship. If large proportions of adults have low reading and numeracy skills, introducing and disseminating productivity-improving technologies and work-organisation practices can be hampered; that, in turn, will stall improvements in living standards.

### Those with lower skills proficiency also tend to report poorer health, lower civic engagement and less trust.

But the impact of skills goes far beyond earnings and employment. In all countries, individuals with lower proficiency in literacy

**On average, as adults' proficiency increases, their chances of being in the labour force and being employed increase, as do their wages. Skills proficiency is also positively associated with other aspects of wellbeing.**

are more likely than those with better literacy skills to report poor health, to believe that they have little impact on political processes, and not to participate in associative or volunteer activities. In most countries, they are also less likely to trust others. For example, on average across countries, individuals who perform at Level 1 in literacy are twice as likely to report low levels of trust as individuals who score at Level 4 or 5, even after accounting for their education and social background.

While the causal nature of these relationships is difficult to discern, these links clearly matter, because trust is the glue of modern societies and the foundation of economic behaviour. Without trust in governments, public institutions and well-regulated markets, public support for ambitious and innovative policies is difficult to mobilise, particularly where short-term sacrifices are involved and where long-term benefits are not evident. Less trust can also lead to lower rates of compliance with rules and regulations and therefore lead to more stringent and bureaucratic regulations. Citizens and businesses may avoid taking risks, delaying decisions regarding investment, innovation and labour mobility that are essential to jump-start growth and regain competitiveness. Emphasising fairness and integrity in policy development and implementation, ensuring that policy making is more

inclusive, and building real engagement with citizens all involve citizens' skills.

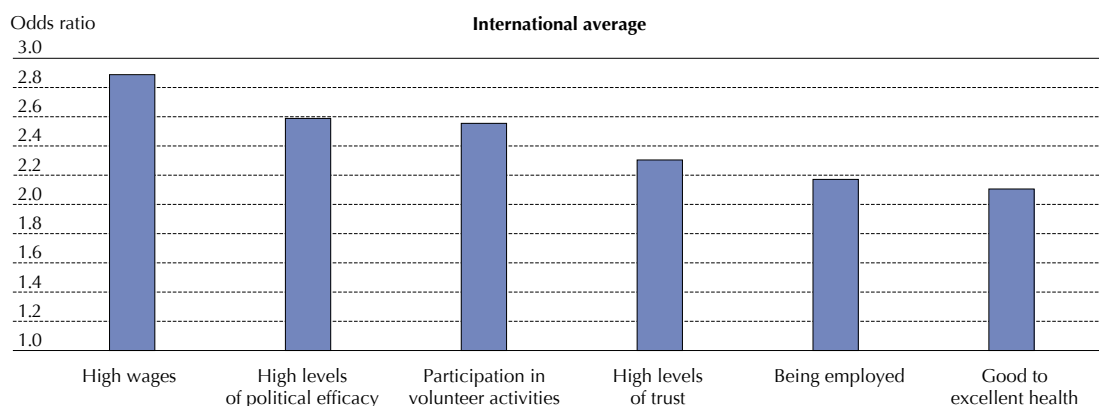
**The survey results provide new insights into the policy challenges facing skills systems.**

Taken together, these results underscore the crucial importance of information-processing skills in adults' participation in the labour market, education and training, and in social and civic life. These skills are also highly transferable and therefore relevant to many social contexts and work situations. Accessing, analysing and communicating information takes now place largely through the use of digital devices and applications, such as personal computers, smart phones and the Internet. The capacity to use these devices intelligently to manage information is thus becoming essential.

The survey results offer vital insights for policy makers working to tackle the challenges involved in developing skills, activating the supply of skills, and putting skills to more effective use so as to achieve better outcomes for individuals and societies. While the survey only shows correlations, these results, when combined with the wealth of OECD policy analysis, can inform improvements to skills systems.

**■ Likelihood of positive social and economic outcomes among highly literate adults ■**

Increased likelihood (odds ratio) of adults scoring at Level 4/5 in literacy reporting high earnings, high levels of trust and political efficacy, good health, participating in volunteer activities and being employed, compared with adults scoring at or below Level 1 in literacy (adjusted).



Notes: Odds ratios are adjusted for age, gender, educational attainment and immigrant and language background. High wages are defined as workers' hourly earnings that are above the country's median.

Source: Based on data from the Survey of Adult Skills (PIAAC) (2012).

StatLink <http://dx.doi.org/10.1787/888932903633>



## THE LEVEL AND DISTRIBUTION OF SKILLS DIFFERS MARKEDLY ACROSS COUNTRIES

### All countries can shape their own skills profile.

Perhaps most important in the context of public policy, the information-processing skills measured by the Survey of Adult Skills are “learnable”. That is, countries can shape the level and distribution of these skills in their populations through the quality and equity of learning opportunities both in formal educational institutions and in the workplace. Against this backdrop, it is striking how widely countries vary in how well their populations are prepared.

### Finland and Japan both have large shares of top-performers...

Roughly every fifth Finn and Japanese reads at high levels (Level 4 or 5 on the Survey of Adult Skills). This means, for example, that they can perform multiple-step operations to integrate, interpret, or synthesise information from complex or lengthy texts that involve conditional and/or competing information; and they can make complex inferences and appropriately apply background knowledge as well as interpret or evaluate subtle truth claims or arguments. They are also good at numbers: they can analyse and engage in complex reasoning about quantities and data, statistics and chance, spatial relationships, change, proportions and formulae; perform tasks involving multiple steps and select appropriate problem-solving strategies and processes; and understand arguments and communicate well-reasoned explanations for answers or choices.

### ...while in other countries, large proportions of adults struggle with the most basic skills.

In other countries large proportions of young people leave school with poor skills in literacy, numeracy and problem solving, and significant numbers of adults have low levels of proficiency in the information-processing skills increasingly needed in the information societies of today. In Italy and Spain, for example, only 1 in 20 adults is proficient at the highest level of literacy (Level 4 or 5). Nearly 3 out of 10 adults in these countries performs at or below the lowest level of proficiency (Level 1) in both literacy and numeracy. These individuals can, at best, read relatively short texts to locate a single piece of information that is identical to the information given in the question or directive, understand basic vocabulary, determine the meaning of sentences, and read continuous texts with some degree of fluency. They can, at best, perform one-step or simple mathematical processes involving counting, sorting, basic arithmetic operations, understanding simple percentages, and locating and identifying elements of simple or common graphical or spatial representations.

## Most of the variation in skills proficiency is observed within, not between, countries.

However, even highly literate nations have significant liabilities in their talent pool. Indeed, a closer look at the results reveals that more than nine-tenths of the overall variation in literacy skills observed through the survey lies within, rather than between, countries. In fact, in all but one participating country, at least one in ten adults is proficient only at or below Level 1 in literacy or numeracy. In other words, significant numbers of adults do not possess the most basic information-processing skills considered necessary to succeed in today's world. Policy makers should be particularly concerned about low proficiency in literacy and numeracy among workers in elementary occupations, as it may hamper the introduction of changes in technologies and organisational structures that can improve productivity.

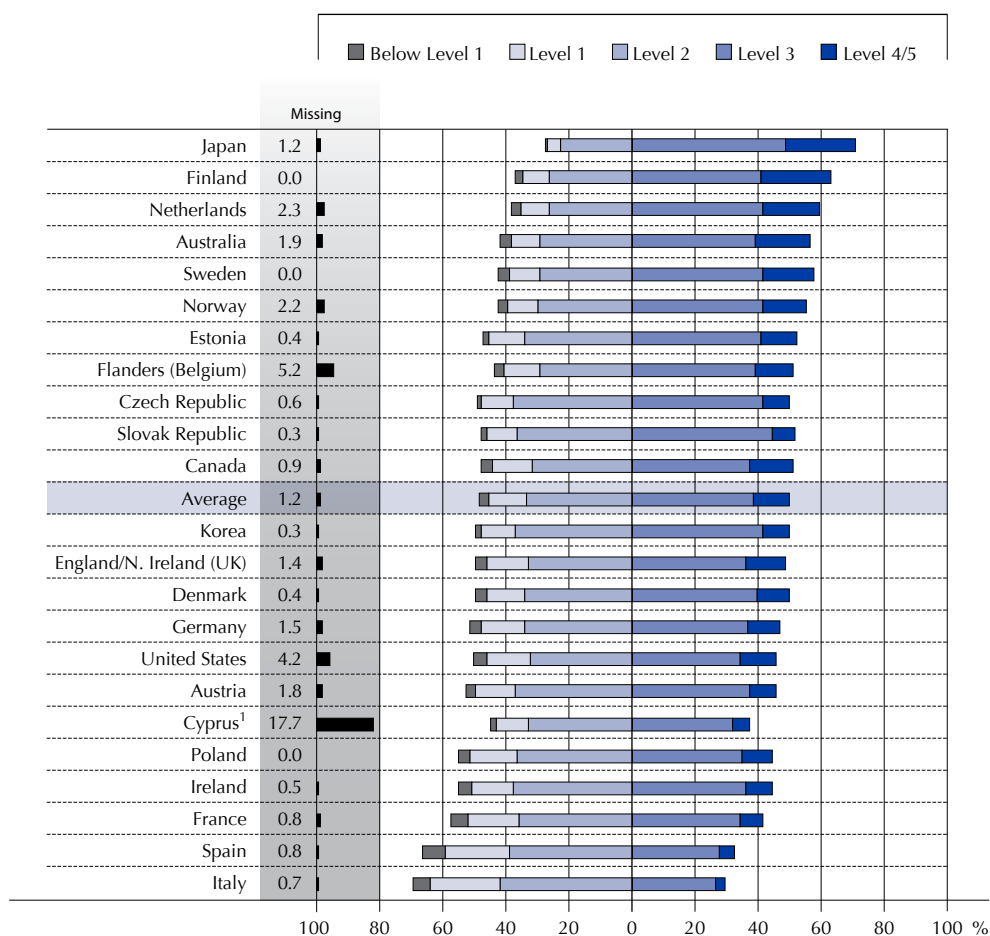
Poor literacy and numeracy skills may also place workers at considerable risk in the event that they lose their jobs or have to assume new or different duties when new technologies, processes and forms of work organisation are introduced.

## In nearly all countries, at least 10% of adults lack the most elementary computer skills.

The Survey of Adult Skills also shows that, in most countries, significant shares of adults have trouble using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks. Across participating countries, from 7% to 27% of adults report having no experience in using computers or lack the most elementary computer skills, such as the ability to use a mouse. In addition, there are also adults who lack confidence in their

### ■ Literacy proficiency among 16-65 year-olds ■

Percentage of adults scoring at each proficiency level in literacy



1. See notes regarding Cyprus on page 2.

Notes: Adults in the missing category were not able to provide enough background information to impute proficiency scores because of language difficulties, or learning or mental disabilities (referred to as literacy-related non-response).

Countries are ranked in descending order of the mean score in literacy.

Source: Survey of Adult Skills (PIAAC) (2012), Tables A2.1 and A2.2a.

StatLink <http://dx.doi.org/10.1787/888932903652>

## Access to computers and ICTs is widespread and growing

- **Between 1999 and 2009, the number of Internet subscriptions in OECD countries nearly tripled, and the number of mobile phone subscriptions more than tripled.**
- **In over two-thirds of OECD countries, over 70% of households have access to computers and the Internet in their homes.**
- **In most OECD countries, workers in at least 65% of small businesses, over 85% of medium-sized businesses, and over 95% of large businesses have access to and use the Internet as part of their jobs.**
- **In OECD countries, an average of 40% of citizens and 80% of businesses interacted with public authorities via the Internet in 2010.**

ability to use computers. Of the adults undertaking the problem-solving assessment, most are only capable of using familiar applications to solve problems that involve few steps and explicit criteria, such as sorting e-mails into pre-existing folders.

Naturally, young adults are more likely than their older counterparts to have computer skills or to have higher proficiency in problem solving in technology-rich environments; yet in some countries, there are surprisingly small proportions of young adults who can solve more complex problems in computer environments. The Nordic countries and the Netherlands have been far more successful than other countries in creating an environment in which most adults have experience with computers and few have only the most basic computer skills.

### Social background has a strong impact on skills in some countries...

In England/Northern Ireland (UK), Germany, Italy, Poland and the United States, social background has a major impact on literacy skills. In these countries more so than in others, the children of parents with low levels of education have significantly lower proficiency than those whose parents have higher levels of education, even after taking other factors into account.

...but Japan, Australia, the Netherlands, Norway and Sweden combine above-average performance with a high level of equity.

Interestingly, the data show no relationship between a country's average literacy skills and the impact of social background on those skills, suggesting that high average proficiency does not need to come at the expense of social inequities. Japan, and to a lesser extent Australia, the Netherlands, Norway and Sweden, combine above-average performance with a high level of equity. France, Germany, Poland and the United States all show both below-average performance and large social disparities.

The fact that the countries with the greatest social inequities in the OECD Programme for International Student Assessment (PISA) are also those with low rates of social mobility as observed in the Survey of Adult Skills suggests that the relationship between social disadvantage and lower skills proficiency may be established early in individuals' lives.

In Korea and the United States, the relationship between socio-economic background and skills proficiency is much weaker among younger adults than among older adults.

Moreover, the relationship between parents' education and skills proficiency varies across generations. In Korea and



the United States, for example, the relationship between socio-economic background and skills proficiency is much weaker among younger adults than among older adults. In Australia and the Slovak Republic, the reverse is true. In some countries, improvements in access to and the quality of education for individuals from disadvantaged backgrounds have weakened the relationship between socio-economic background and skills proficiency among younger adults. In others, the ways in which skills are developed and used later in life may reinforce initial social disparities. For example, in some contexts access to school may be closely related to social background while subsequent skills development may primarily reflect an individual's ability, irrespective of his or her social background. Either way, breaking the cycle of disadvantage across generations and enhancing social mobility is a key policy goal – and challenge.

**Foreign-language immigrants with low levels of education tend to have low skills proficiency, and successful integration is not simply a matter of time.**

In most countries, immigrants with a foreign-language background have significantly lower proficiency in literacy and numeracy than native-born adults. Countries with relatively

large immigrant populations, such as Flanders (Belgium), France, the Netherlands, Sweden and the United States, need to consider more effective ways to support immigrants in learning the host language, through pre- and/or post-arrival interventions.

Successful integration is not simply a matter of time. In some countries, the time elapsed since immigrants arrived appears to make little difference to their proficiency in literacy and numeracy, suggesting either that the incentives to learn the language of the receiving country are not strong or that policies that encourage learning the language of the receiving country are of limited effectiveness.

Foreign-language immigrants who have low levels of education are particularly at risk. When low educational attainment is combined with poor proficiency in the language of the host country, integration into the labour market and society becomes even more difficult. The challenges posed by migration and social diversity are, if anything, likely to increase over the years to come, both in countries that traditionally benefit from immigration and in those that have not previously seen high rates of immigration. In some countries, the rapid ageing of populations will also contribute to massive shifts in the composition of the talent pool.



## SOME COUNTRIES HAVE MADE SIGNIFICANT PROGRESS IN IMPROVING SKILLS PROFICIENCY

### Older Koreans have low skills while younger ones are top performers.

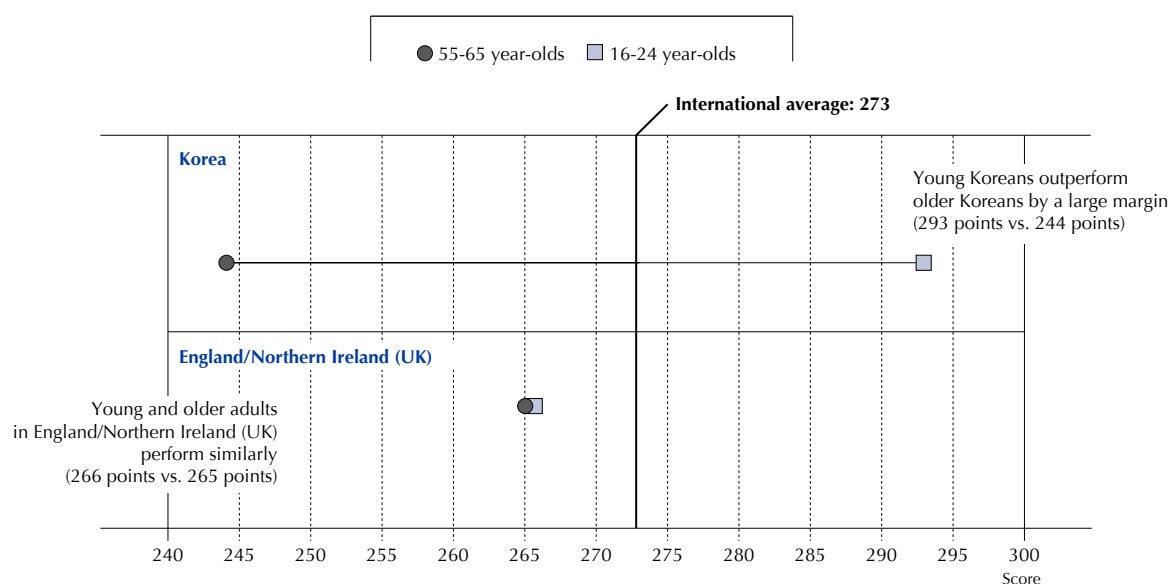
The Survey of Adult Skills results show how effective countries have been in developing literacy skills through successive generations. The gains made in some countries illustrate the pace of progress that is achievable. For example, Korea is among the three lowest-performing countries when comparing the skills proficiency of 55-65 year-olds; however, when comparing proficiency among 16-24 year-olds, Korea ranks second only to Japan. Similarly, older Finns perform at around the average among the countries taking part in the Survey of Adult Skills while younger Finns are, together with young adults from Japan, Korea and the Netherlands, today's top performers.

### In other countries, the talent pool is shrinking...

However, progress has been highly uneven across countries. In England/Northern Ireland (UK) and the United States, the improvements between younger and older generations are barely apparent. Young people in these countries are entering a much more demanding labour market, yet they are not much better prepared than those who are retiring. England/Northern Ireland (UK) is among the three highest-performing countries in literacy when comparing 55-65 year-olds; but England/Northern Ireland (UK) is among the bottom three countries when comparing literacy proficiency among 16-24 year-olds. In numeracy, the United States performs around the average when comparing the proficiency of 55-65 year-olds, but is lowest in numeracy among all

#### ■ Literacy skills gap between older and younger generations ■

Mean scores in literacy



Source: Survey of Adult Skills (PIAAC) (2012), Table A3.1(L).

StatLink <http://dx.doi.org/10.1787/888932903671>

participating countries when comparing proficiency among 16-24 year-olds. This is not necessarily because performance has declined in England/Northern Ireland (UK) or the United States, but because it has risen so much faster in so many other countries across successive generations.

### ...which could imply a decline in the relative standing of these countries.

Of course, the survey data are results from a cross-section of populations, not cohorts, so some of the observed differences across generations are attributable to changes in the composition of populations, such as increased social diversity, income inequality or migration, or to different rates with which skills depreciate with age. At the same time, the fact that socio-economic patterns explain part of the observed changes is little consolation to countries whose economic success depends on the quality of their actual labour force, not the hypothetical labour force that they might have had in a different context. The implication for these countries is that the stock of skills available to them is bound to decline over the next decades unless action is taken both to improve skills proficiency among young people, both through better teaching of literacy and numeracy in school, and through providing more opportunities for adults to develop and maintain their skills as they age.

## Key points for policy

- **Provide high-quality initial education and lifelong learning opportunities.** The impressive progress that some countries have made in improving the skills of their population over successive generations shows what can be achieved. These countries have established systems that combine high-quality initial education with opportunities and incentives for the entire population to continue to develop proficiency in reading and numeracy skills, whether outside work or at the workplace, after initial education and training are completed.
- **Make lifelong learning opportunities accessible to all.** While countries cannot change the past, policies designed to provide high-quality lifelong opportunities for learning can help to ensure that the adults of the future maintain their skills. This requires a concerted engagement of all stakeholders. Governments, employers, employees, parents and students need to establish effective and equitable arrangements as to who pays for what, when and how. Since individuals with poor skills are unlikely to engage in education and training on their own initiative and tend to receive less employer-sponsored training, second-chance options can offer them a way out of the low-skills/low-income trap. The survey shows that some countries have been much better than others in establishing systems that combine high-quality initial education with opportunities and incentives for the entire population to continue to develop proficiency in reading and numeracy skills after the completion of initial education and training, whether outside work or at the workplace.
- **Make sure all children have a strong start in education.** As PISA has shown, initial education can do much to ensure that all school-leavers, regardless of their background, have the skills and attitudes necessary to be successful in modern societies. Investing in high-quality early childhood education and initial schooling, particularly for children from socio-economically disadvantaged backgrounds, has proved to be an efficient strategy to ensure that all children start strong and become effective learners. Financial support targeted at disadvantaged students and schools can improve the development of skills.



## MORE EDUCATION DOES NOT AUTOMATICALLY TRANSLATE INTO BETTER SKILLS

### Formal education plays a key role in developing foundation skills...

Formal education is one of the main mechanisms through which proficiency in literacy, numeracy and problem solving is developed and maintained. Indeed, reading, writing, literature and mathematics make up close to half of the school curricula across OECD countries. Also, adults who have completed tertiary education will have spent more time in education and received higher levels of instruction than their less-qualified peers. And generally adults with higher qualifications also have greater ability and motivation for study. Completing higher levels of education also often provides access to jobs that involve further learning and more information-processing tasks.

### ...and educational attainment is closely correlated with proficiency in foundation skills.

For all these reasons, it is not surprising, then, that the Survey of Adult Skills finds that educational attainment is positively related to proficiency. For example, adults with tertiary-level qualifications have an average 36 score-point lead on the literacy scale – the equivalent of about five years of formal schooling – over adults who have not completed secondary education, even after accounting for differences in their social background and age. This is close to the overall 46 score-point difference between the highest- and lowest-performing country in the survey. But the skills gap between adults with tertiary education and those who have not completed secondary education varies considerably: in Canada and the United States, for example, it is over a third wider than it is in Australia, Austria, Estonia, Finland, Italy, Japan, Norway and the Slovak Republic.

### While educational attainment is related to proficiency, skills levels vary considerably among individuals with similar qualifications.

What is most surprising is the extent to which information-processing skills vary among individuals with similar qualifications, both within and across countries. While the Survey of Adult Skills only assesses some components of the knowledge and skills certified by educational qualifications, proficiency in literacy, numeracy and problem solving represents outcomes that are expected to be developed through formal education. Irrespective of any other outcomes, across countries, the extent to which graduates with similar qualifications differ in their proficiency in information-processing skills is striking.

### Japanese and Dutch 25-34 year-olds who have only completed high school easily outperform some countries' university graduates of the same age.

The Survey of Adult Skills shows that, in some countries, actual skills levels differ markedly from what data on formal qualifications suggest. For example, Italy, Spain and the United States rank much higher internationally in the proportion of 25-34 year-olds with tertiary attainment than they do in literacy or numeracy proficiency among the same age group. Even more striking is that, on average, Japanese and Dutch 25-34 year-olds who have only completed high school easily outperform Italian or Spanish university graduates of the same age. The performance gaps observed across countries cannot be explained by the proportion of the age group attending tertiary education. In Austria and Germany, a comparatively small share of 25-34 year-olds

are tertiary graduates, but that age group performs around the average on the literacy scale, while Japan has a large share of tertiary graduates who do very well. The picture is similar, albeit less pronounced, among people with less formal education.

In virtually all countries, there is also significant overlap in the distribution of skills among individuals with different levels of educational attainment. For example, significant shares of individuals with secondary education as their highest level of attainment outperform adults with a university degree.

### Skills and qualifications may diverge for several reasons.

People may have acquired new skills since they completed their formal education or lost some skills that they did not use. Indeed, the longer a person is out of formal education, the weaker the direct relationship between his or her formal education and proficiency, and the greater the role of other factors that may affect proficiency, such as the work or social environment. In other

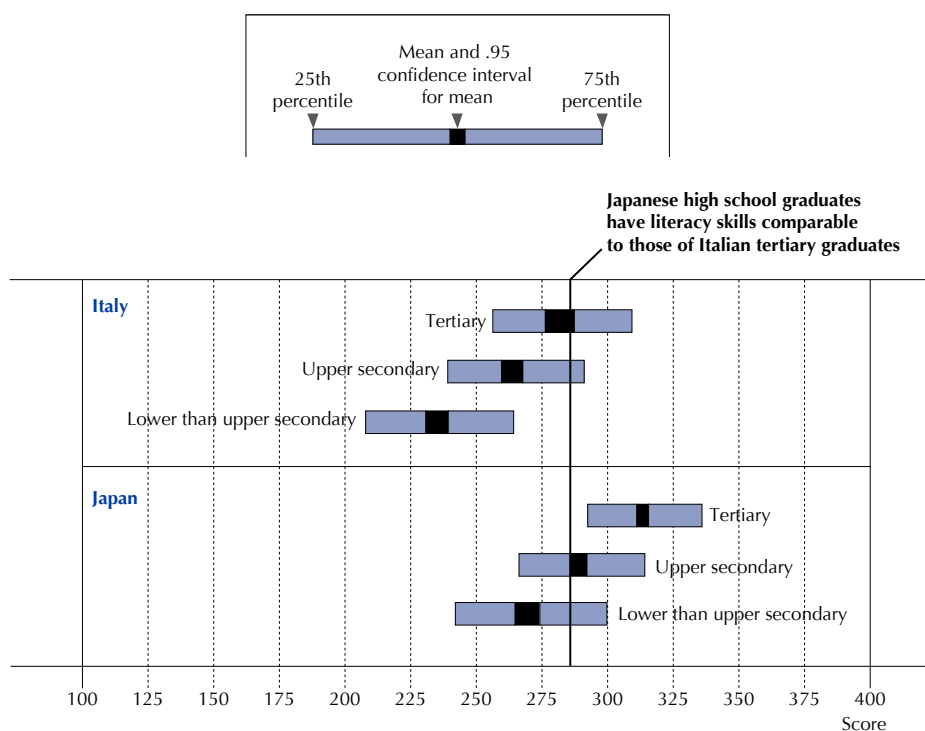
words, a 55-year-old's experience in formal education is likely to have less of a direct impact on his or her proficiency than that of a 26-year-old. The quality of education may also have changed considerably over the decades, even within the same country, so that individuals with ostensibly the same qualifications or level of attainment may have had very different experiences in education.

### But the survey results may also imply real differences in the relevance and quality of education in different countries.

Still, the data from the Survey of Adult Skills raise questions about the relevance and quality of formal education in some countries, at least when these are compared internationally. This is important because the level and type of formal learning completed, and the qualifications earned, are indirectly related to individuals' proficiency in information-processing skills: they determine access to the jobs and further education and training that could help individuals maintain and develop their skills.

#### ■ Distribution of literacy proficiency scores and education in Italy and Japan ■

Mean literacy proficiency and distribution of literacy scores, by educational attainment



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

StatLink  <http://dx.doi.org/10.1787/888932903690>



## SUCCESS IS INCREASINGLY ABOUT BUILDING SKILLS BEYOND FORMAL EDUCATION

### Much of learning takes place outside formal education.

Beyond formal education, learning occurs in a range of other settings, including within the family, at the workplace and through self-directed individual activity. For skills to retain their value, they must be continuously developed throughout life. Lifelong learning opportunities are relevant for workers in both high-skilled and low-skilled occupations. In high-technology sectors, workers need to update their competencies and keep pace with rapidly changing techniques. Workers in low-technology sectors and those performing low-skilled tasks must learn to be adaptable, since they are at higher risk of losing their job as routine tasks are increasingly performed by machines, and since companies may relocate to countries with lower labour costs.

### Proficiency levels are closely related to age.

The Survey of Adult Skills shows proficiency in literacy, numeracy and problem-solving skills to be closely related to age in all countries, reaching a peak at around age 30. While this survey simply compares different age groups at the same point in time, a longitudinal survey following Canadian students who participated in PISA in 2000 also showed significant gains being made in literacy and numeracy proficiency between the ages of 15 and 24, even for those without post-secondary education. But skills proficiency falls off steadily for those in their 30s and older.

And yet, while older adults generally have lower proficiency than their younger counterparts, the gap between generations varies considerably across countries. To some extent this may reflect differences in the quality of education, but it may also reflect the

opportunities available to pursue further training or to engage in practices that help to maintain and develop proficiency over a lifetime.

### Participation rates in adult education exceed 60% in Denmark, Finland, the Netherlands, Norway and Sweden, while in Italy they remain well below half that rate.

Participation in adult education and training is now common in many countries, but the Survey of Adult Skills indicates major differences across countries. Countries showing higher levels of participation in organised adult learning activities also demonstrate higher literacy and numeracy skills. The large variation among countries at similar levels of economic development suggests major differences in learning cultures, learning opportunities at work, and adult-education structures.

### The survey results show a strong positive relationship between participation in adult education and skills proficiency...

The skills adults already have explain some of the differences in participation patterns. The survey results show a strong positive relationship between participation in adult education and skills proficiency. On average, an adult with Level 4 or Level 5 in literacy proficiency is around three times more likely to participate in adult education than someone who is at or below Level 1. Participation in adult learning helps to develop and maintain literacy and numeracy skills, especially when the learning programmes require participants to read and write, and confront and solve new problems.

**As individuals age and spend more time out of education, other factors, such as participation in adult learning activities, the tasks they perform at work, and engagement in activities involving the use of literacy, numeracy and problem-solving skills outside of work, become increasingly important for enhancing and maintaining these skills.**

...but those whose skills are already weak are less likely to improve their skills through adult education and training.

Yet, in most countries, adults with already-high levels of literacy and numeracy skills tend to participate the most, while those with lower levels of skills participate less – and often much less. In all countries except Norway, participation rates in job-related education and training are at least twice as high among adults who attained at least Level 4 in literacy than they are among those who attained at most Level 1. In Austria, Flanders (Belgium), Japan, Poland and Spain the odds are larger than three to one, and in Italy, Korea and the Slovak Republic, highly literate adults are between four and five times as likely to benefit from such training as people with poor literacy skills.

Higher levels of literacy and numeracy facilitate learning; therefore people with greater proficiency are more likely to have higher levels of education and be in jobs that demand ongoing training. They may also have the motivation and engagement with work that encourage individuals to learn and/or their employers to support them. All this can create a virtuous cycle for adults with high proficiency – and a vicious cycle for those with low proficiency.

Low-skilled adults risk getting trapped in a situation in which they rarely benefit from adult learning, and their skills remain weak or deteriorate over time – which makes it even harder for these individuals to participate in learning activities. This presents a formidable policy challenge for countries such as Canada, England/Northern Ireland (UK), Ireland, Italy, Spain and the

United States, where significant shares of adults are at or below Level 1 on the literacy and numeracy scales. Helping low-skilled adults to break this vicious cycle is crucial. Many countries offer subsidised adult literacy and numeracy programmes, designed to upgrade the skills of low-skilled adults. In addition, policies may aim specifically to increase the participation of low-skilled adults in adult learning, for example through targeted subsidies. Results from the Survey of Adult Skills suggest that Denmark, Finland, the Netherlands, Norway and Sweden have been most successful in extending opportunities for adult learning to those adults who score at or below Level 1.

Using skills, particularly outside of work, is closely related to proficiency.

Adults who engage more often in literacy- and numeracy-related activities and use ICTs more both at and outside of work show higher proficiency in literacy, numeracy and problem solving. Notably, engagement in relevant activities outside of work has an even stronger relationship with the skills assessed than engagement in the corresponding activities at work. While reading often is likely to aid in developing and maintaining reading skills, having better reading skills is also likely to result in greater enjoyment of reading and, thus, in reading more frequently. Beyond instruction, the opportunity to engage in relevant practices is important both for developing proficiency and preventing its loss. Within the workplace, for example, redesigning work tasks to maximise engagement in activities that require the use of literacy, numeracy and ICT skills should be considered in conjunction with providing training.

## Key points for policy

- **Develop links between the world of learning and the world of work.** Skills development can be more relevant and effective if the world of learning and the world of work are linked. Learning in the workplace allows young people to develop “hard” skills on modern equipment, and “soft” skills, such as teamwork, communication and negotiation, through real-world experience. Hands-on workplace training can also help to motivate disengaged youth to stay in or re-engage with the education system and makes the transition from education into the labour market smoother.
- **Provide training for workers.** Employers have an important role in training their own staff; but some, particularly small and medium-sized enterprises, might need public assistance to provide such training.
- **Ensure that the training is relevant.** Employers and trade unions can also play an important role in shaping education and training, to make it relevant to the current needs of the labour market but also to ensure that workers’ broader employability is enhanced.
- **Allow workers to adapt their learning to their lives.** Programmes to enhance adult information-processing skills need to be relevant to users and flexible enough, both in content and in how they are delivered (part-time, flexible hours, convenient location) to adapt to adults’ needs. Distance learning and the open educational resources approach have also allowed users to adapt their learning to their lives.
- **Identify those most at risk of poor skills proficiency.** The most disadvantaged adults need to be not only offered, but also encouraged, to improve their proficiency. This means identifying low-skilled adults who require support, particularly foreign-language immigrants, older adults and those from disadvantaged backgrounds, and providing them with learning opportunities tailored to their needs. This is likely to require innovative approaches and significant community engagement.
- **Show how adults can benefit from better skills.** More adults will be tempted to invest in education and training if the benefits of improving their skills are made apparent to them. For example, governments can provide better information about the economic benefits, including wages net of taxes, employment and productivity, and non-economic benefits, including self-esteem and increased social interaction, of adult learning.
- **Provide easy-to-find information about adult education activities.** Less-educated individuals tend to be less aware of education and training opportunities, and may find the available information confusing. A combination of easily searchable, up-to-date online information and personal guidance and counselling services to help individuals define their own training needs and identify the appropriate programmes has often made a real difference
- **Recognise and certify skills proficiency.** Providing recognition and certification of competencies can facilitate and encourage adult learners to undertake continued education and training. Transparent standards, embedded in a framework of national qualifications, and reliable assessment procedures are important instruments to this end. Recognising prior learning can also reduce the time needed to obtain a certain qualification and, thus, the cost in foregone earnings.

# Trends in employment in selected industrial sectors in OECD countries

Percentage change from 1980 to 2007, OECD average

Finance, insurance, real estate and business services  
percentage change: +94%



Community, social and personal services  
percentage change: +19%

Communication services  
percentage change: -16%



Total manufacturing  
percentage change: -31%





## ACTIVATING THE SUPPLY OF SKILLS

### Unused skills can become obsolete or atrophy.

Skills are only of value when they are used – whether in the labour market or in other non-market settings, such as voluntary work, home production or even in leisure activities. Unused skills represent a waste of skills and of initial investment in those skills. As the demand for skills changes, unused skills can also become obsolete; and skills that are unused during inactivity are bound to atrophy over time. Conversely, the more individuals use their skills and engage in complex and demanding tasks, both at work and elsewhere, the more likely it is that skills decline due to ageing can be prevented. Some inactivity might be voluntary and temporary, such as that among young people who are still engaged in full-time education or skilled women who are caring for family members.

### Only around one in two adults who have low literacy proficiency is employed.

To the extent that workers' productivity is related to the knowledge and skills they possess, and that wages reflect such productivity, individuals with more skills should expect higher returns from labour market participation and would thus be more likely to participate. That is also what the results from the Survey of Adult Skills suggest: average literacy proficiency is generally higher among employed adults than among unemployed and inactive individuals. Just over half of adults scoring at or below Level 1 in literacy proficiency are employed in contrast to four out of five adults scoring at Level 4 or 5. Employed adults also tend to have higher mean proficiency scores in literacy and numeracy than unemployed adults, who score higher, in turn, than those outside the labour force. But these overall results hide

some striking variations across countries. Unemployed Japanese adults, for example, outperform employed individuals in every other country.

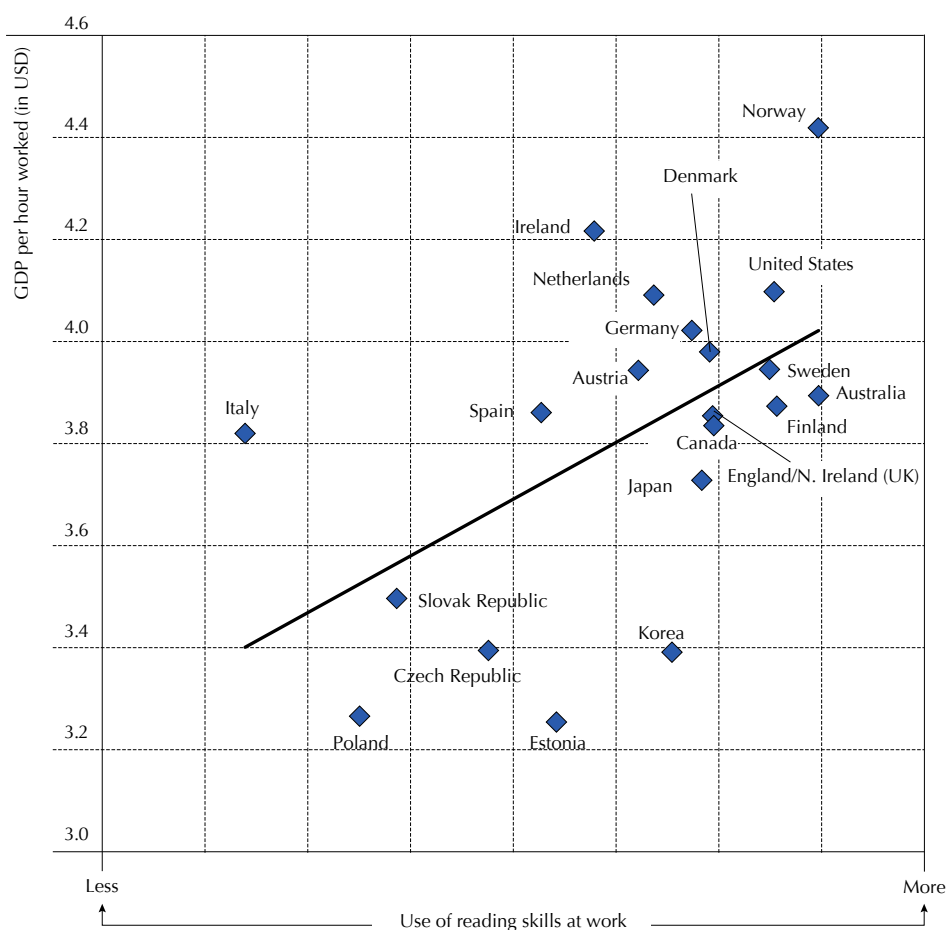
### Some countries make greater economic use of their highly skilled talent pool than others.

Some countries have been far more effective in activating their more highly skilled adults – those at proficiency Levels 4 and 5. In Norway around 9% of adults at proficiency Level 4 or 5 do not participate in the labour force; in Korea, 32% of adults who score at those levels do. In the Czech Republic, Italy, Japan, Poland and the Slovak Republic more than 20% of the most proficient adults are out of the labour force. This represents a relatively large pool of skills that could be activated. In many cases, the underuse of highly skilled workers is a reflection of the general under-use of labour.

The economic implications of this inactivity can be significant. For example, less than 5% of Italy's workforce attains Level 4 or 5 in literacy proficiency, and yet close to one in four Italian adults with that level of proficiency does not participate in the labour market at all – and another 5% are unemployed. In contrast, the Netherlands not only has a more highly proficient workforce overall, it also does much better at activating its most highly skilled workers: only 11% of adults with that level of proficiency are outside the workforce.

Similarly, many adults who perform at Level 3 proficiency are also outside the labour force, although the proportions vary significantly across countries. In Ireland and Japan, for example, around one in four adults with Level 3 proficiency is outside

■ Correlation between labour productivity and the use of reading skills at work ■



Notes: The bold line is the best linear prediction. Labour productivity is equal to the GDP per hour worked, in USD current prices (Source: OECD.Stat).

Source: Survey of Adults Skills (PIAAC) (2012), Table A4.4.

StatLink  <http://dx.doi.org/10.1787/888932903709>

the labour force, while in the United States, fewer than one in five adults at this proficiency level does not participate in the labour market.

### Many adults with low skills proficiency are outside the workforce.

The survey results show that low-skilled adults are less likely to participate in the labour force, although here, too, there are significant differences across countries. Two out of three Korean adults who score at or below Level 1 are employed, while in the Slovak Republic, only two in five adults with this level of proficiency are employed. These patterns may be affected by the extent of jobs available for those with very low skills; they may also reflect weak financial rewards for working, especially if

interactions between the tax and benefit systems mean that low-skilled adults face high marginal effective tax rates.

The large shares of low-skilled adults outside the labour force present additional challenges to policy makers because these adults' lack of skills is likely to be closely linked to their prospects for employment. Indeed, on average 7% of those at or below Level 1 in literacy proficiency are unemployed, compared with less than 4% of those performing at Level 4 or 5. As noted above, employment is both a source of economic independence and an environment where skills can be maintained and developed. Yet a lack of skills presents a formidable obstacle to employment for these adults; tackling these skills deficits will be important to enhance their longer-term employment prospects and to expand the overall supply of skills.



### Earnings increase with proficiency, but to very different degrees across countries.

Hourly wages are strongly associated with reading proficiency. The median hourly wage of workers who score at Level 4 or 5 on the literacy scale is more than 60% higher than that of workers who score at or below Level 1. But again, these differences vary significantly across countries. In the Czech Republic, Estonia, Poland, the Slovak Republic and Sweden, differences in wages are much narrower than those in Canada, Germany, Ireland, Korea and the United States. There is also significant overlap in the distribution of wages by skills proficiency. For example, the top 25% of best-paid Japanese and Korean workers who score at Level 2 in literacy earn more than the median hourly wage of those who score at Level 4 or 5.

There is also significant overlap in the distribution of wages for each skill level within countries, even in countries where the overall returns for proficiency do not differ widely. For instance, a Finn with skills at or below Level 1 and wages at the 75th percentile earns half as much again as a Finn with this proficiency level but who earns only at the 25th percentile, and earns around 20% of what a quarter of Finnish workers at Level 4 or 5 earns. This may be because some of the higher-scoring individuals with poorer employment or earnings outcomes may lack other key skills – such as job-specific or generic skills – needed to get a job. It may also reflect how wages are set in a country or occupational structures that do not adequately capture these proficiencies.

Indeed, both education, whether measured in years or in attainment level, and proficiency levels are independently related to wages.

## Key points for policy

- **Provide high-quality early childhood education and childcare at reasonable cost.** Ensuring the availability of high-quality early childhood education and care and after-school care at reasonable cost makes it easier for parents of young children to bring their skills to the labour market.
- **Encourage employers to hire individuals who temporarily withdrew from the labour force.** Labour market arrangements and hiring practices that make it easy for those who have withdrawn from the labour force for a period of time to re-enter and put their skills to use will help countries to mobilise their untapped economic potential.
- **Encourage older workers to remain in the labour market.** This may require re-examining the factors that lead these workers to withdraw, including the age of retirement, early-retirement policies, the interaction among financial incentives to remain or withdraw, as well as company practices in human-resource management. Lifelong learning and targeted training, especially in mid-career, can improve employability in later life and discourage early withdrawal from the labour market. A rise in the pensionable age lengthens the period of time over which employers could recover training costs; hence, it is likely to prompt more employers and older employees to invest in training.
- **Create more flexible working arrangements to accommodate workers with care obligations and disabilities.** Inflexible working conditions can make it difficult for people with care obligations and individuals with disabilities to participate in the labour force. For people with disabilities, incentives to withdraw from the labour force largely depend on their access to full disability-benefit schemes.
- **Tax policies should encourage workers to make their skills available to the labour market.** High marginal effective tax rates undermine the economic returns to supplying skills to the labour market. For parents of young children, the financial returns to work may be further undermined by the cost of childcare and after-school care.
- **Take stock of the skills held by unemployed adults.** This can help public employment services to identify the most appropriate course of action for each job-seeker, particularly at the start of a period of unemployment.
- **Offer economic rewards for greater proficiency.** Economic rewards for greater proficiency provide an incentive for investing in developing and maintaining skills. Greater proficiency in information-processing skills appears to be more generously rewarded in some countries than others, where wage-setting and other labour market arrangements may limit those incentives.
- **Continue to promote educational attainment.** The skills measured in this survey only tell part of the story. Employers still rely on qualifications when deciding whom to hire because proficiency in information-processing skills is less transparent or because qualification play a large role in wage negotiations. However, over-reliance on qualifications and years of education may make it harder for those with higher proficiency, but who did not have the same access to education as others, to gain entry into jobs where those skills can be put to full use.



## PUTTING SKILLS TO MORE EFFECTIVE USE

### Skills will only translate into better economic and social outcomes if they are used effectively.

All this being said, developing skills and making them available to the labour market will not translate into better social and economic outcomes if those skills are not used effectively on the job. Ensuring a good match between the skills acquired in education and on the job and those required in the labour market is essential if countries want to make the most of their talent. A mismatch between the two has potentially significant economic implications. At the individual level, the under-use of skills in specific jobs in the short to medium term may lead to skills loss. Workers whose skills are under-used in their current jobs earn less than similarly-skilled workers who are well-matched to their jobs. This situation tends to generate more employee turnover, which is likely to affect a firm's productivity. Under-skilling is also likely to affect productivity and, as with skills shortages, slow the rate at which more efficient technologies and approaches to work are adopted. By implication, it increases unemployment and reduces GDP growth at the macro-economic level. The fact that employers in some countries report skills shortages during times of high unemployment indicates that a population's stock of skills – and the investment made to develop those skills – may be partly going to waste.

### Using information-processing skills at work is closely linked to labour productivity.

The Survey of Adult Skills shows that countries where a large proportion of the workforce is employed in jobs requiring greater use of reading skills have higher output per hour worked,

a standard indicator of labour productivity. Differences in the average use of reading skills explain around 30% of the variation in labour productivity across countries. The positive link between labour productivity and reading at work remains strong even after adjusting for average proficiency scores in literacy and numeracy. In other words, how workers use the skills they have makes a difference to labour productivity.

Interestingly, skills-use indicators correlate weakly with measures of skills proficiency: the distributions of skills use among workers at different levels of proficiency overlap substantially. As a result, it is not uncommon that more proficient workers use their skills at work less intensively than less-proficient workers do. This is usually the result of significant mismatch between skills and how they are used at work, particularly among some socio-demographic groups.

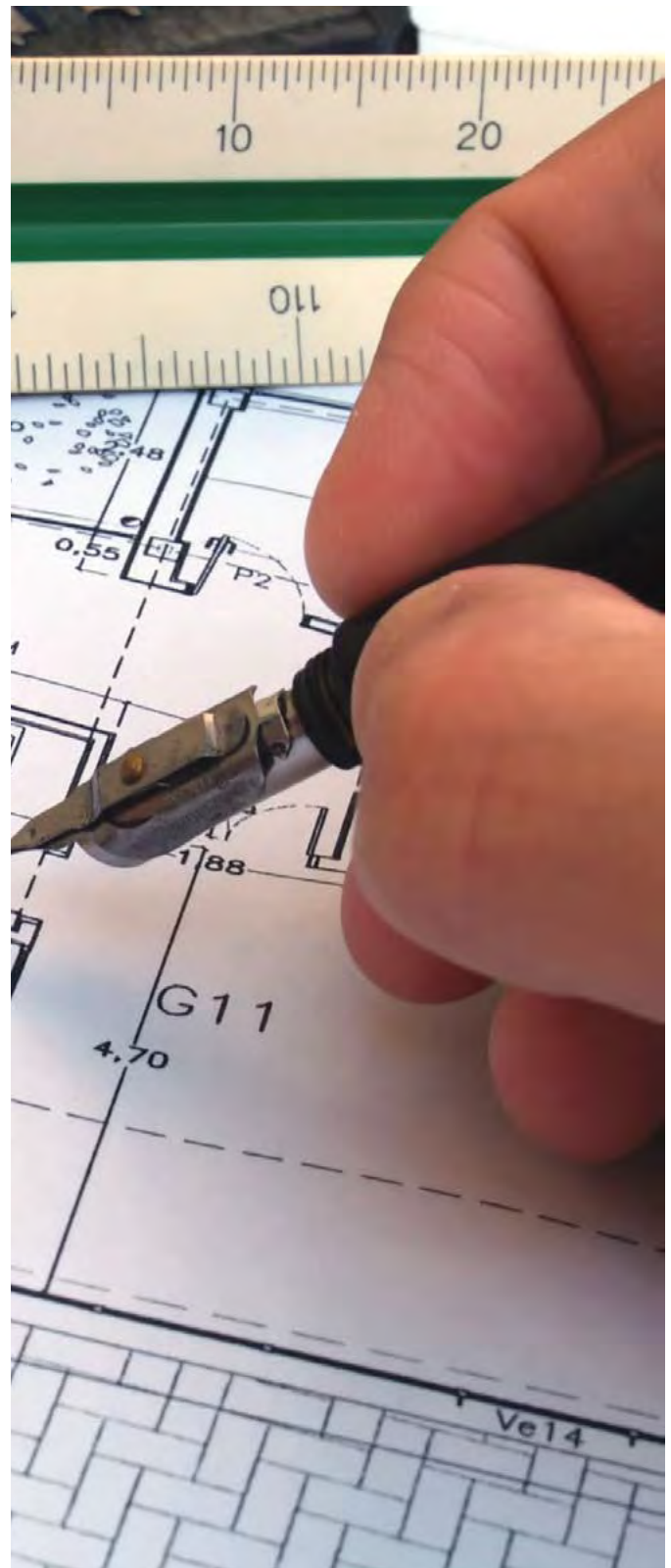
The results also show that under-use of qualifications is particularly common among young and foreign-born workers and those employed in small establishments, in part-time jobs or on fixed-term contracts. This has a significant impact on their wages, even after adjusting for proficiency, and on workers' productivity. The Survey of Adult Skills shows that mismatches in skills proficiency have a weaker impact on wages than qualifications mismatch. This can either be because labour market mismatch is more often related to job-specific or generic skills than to the literacy, numeracy and problem-solving skills measured by the Survey of Adult Skills, and/or because employers succeed in identifying their employees' real skills, irrespective of their formal qualifications, and adapt job content accordingly.

## Some skills mismatch is inevitable and even positive for the economy.

Requirements regarding skills and qualifications are never fixed. The task content of jobs changes over time in response to technological and organisational change, the demands of customers, and in response to the evolution of the supply of labour. Young people leaving education and people moving from unemployment into employment, for example, may take jobs that do not necessarily fully match their qualifications and skills. Thus, for a number of reasons, some workers are likely to be employed in jobs that do not fully use their qualifications; others may be in jobs, at least temporarily, for which they lack adequate qualifications. Skills mismatch on the job can also be a temporary phenomenon. Sometimes, for example, the demand for skills takes time to adjust to the fact that there is a larger pool of highly skilled workers available. Thus, not all types of skills mismatch are bad for the economy.

## More could be done to address the match between demand for and supply of skills.

Mismatch on the job, where it adversely affects economic and social outcomes, can be tackled in various ways. In the case of under-skilling, public policies can help to identify workers with low levels of information-processing skills and offer incentives to both employees and employers to invest in skills development to meet the requirements of the job. When the skills available aren't adequately used, better management practices can make a difference. For example, employers can grant workers some autonomy to develop their own working methods so that they use their skills effectively. As workers assume more responsibility for identifying and tackling problems, they are also more likely to "learn by doing", which, in turn, can spark innovation. Trade unions can also play an important role in improving the match between skills demand and supply.





**Under-skilling, the under-use of skills and unemployment can also reflect lack of information and transparency.**

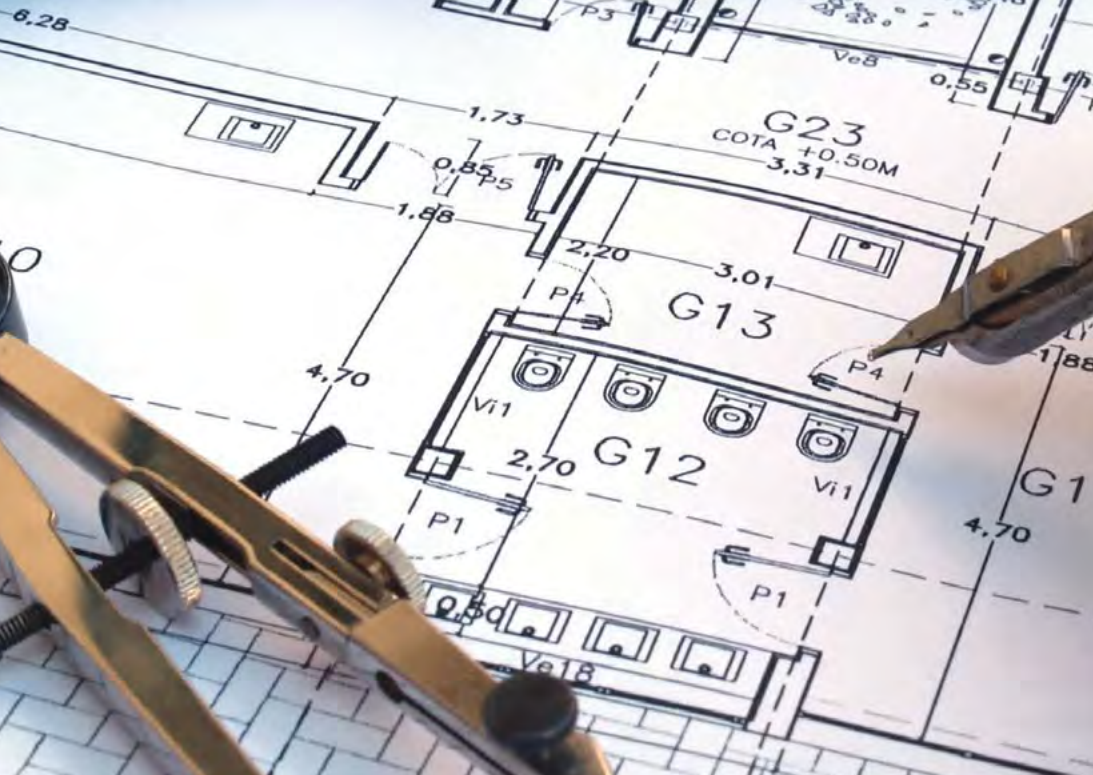
The under-use of skills is often related to field-of-study mismatch, whereby individuals work in an area that is unrelated to their field of study and in which their qualifications are not fully valued. Under-skilling could be the result of skills shortages that force employers to hire workers who are not the best fit for the jobs on offer.

**Skills mismatches may be the result of geographical constraints.**

Another reason why the skills shortages frequently reported by employers can co-exist with high unemployment is that people with the relevant skills are not in same geographical location as the jobs that require those skills. Reducing costs and other barriers associated with internal mobility helps employees to find suitable jobs and helps employers to find suitable workers. Importing skills from outside a country without first considering the potential for skills supply through internal mobility can have adverse consequences for overall employment and skills use in the country.

**Linking skills with economic-development strategies can help countries to move towards greater skills-driven prosperity.**

A perfect match between available skills and job tasks is not always a positive situation: people can be matched with their jobs, but at a very low level. Such low-skills equilibria can adversely affect the economic development of a local economy or region, or indeed an entire country. To tackle such a situation, policies can “shape” demand, rather than merely respond to it. Government programmes can influence both employer-competitiveness strategies (how a company organises its work to gain competitive advantage in the markets in which it is operating) and product-market strategies, which determine in what markets the company competes. As companies move into higher value-added product and service markets, the levels of skills that they require, and the extent to which they use these skills, tend to increase. By fostering competition in the market for goods and services, policy makers can promote productive economic activities that contribute to stronger economic growth and the creation of more productive and rewarding jobs. While such policies primarily fall into the realm of economic-development actors, educational institutions focusing on new technologies and innovation can also be involved in developing the skills that will shape the economies of the future.



## Key points for policy

- **Collect timely information about demand for and supply of skills.** Better information and greater transparency about skills demand and supply across economies is essential for addressing skills mismatch.
- **Create flexible labour market arrangements.** Labour market arrangements, including employment protection, can facilitate or hinder the effective use of skills and address skill mismatches. These can have a particularly pernicious effect on young people making the transition into the labour market as well as others, such as displaced workers or those seeking to re-enter the workforce. They may also discourage workers from moving from one job to another that would offer them a better skills match but also expose them to greater risk.
- **Provide quality career guidance.** Competent personnel who have the latest labour market information at their fingertips can steer individuals to the learning programmes that would be best for their prospective careers. Public employment services can also play a crucial role in facilitating skill matching especially at local levels working closely with local employers as well as education and training providers.
- **Ensure that qualifications are coherent and easy to interpret.** In order to match prospective employees to a job, employers need to be able to identify a candidate's skills. Qualifications should thus not only be clear, but consistently awarded. Continuous certification that incorporates non-formal and informal learning over the working life is also essential, as is recognition of foreign diplomas. One of the biggest obstacles immigrants face when looking for work is that their qualifications and foreign work experience may not be fully recognised in the host country. As a result, many immigrant workers hold jobs for which they are over-qualified.



## EQUAL SKILLS DON'T ALWAYS IMPLY EQUAL OPPORTUNITIES

### Women and men have very similar proficiency levels.

The Survey of Adult Skills shows little variation in proficiency between men and women. On average, men have higher scores on the numeracy and problem solving in technology-rich environments scales than women, but the gap is not large and is further reduced when other characteristics, such as educational attainment and socio-economic status, are taken into account. In literacy, the gap in proficiency in favour of men is even narrower. Moreover, in half the countries surveyed, there is no difference between young men and young women in their proficiency in numeracy, and they are equally proficient in literacy, with young women slightly more proficient in some countries.

### On average, men and women use their skills in different ways, partly because of their jobs.

With only a few country exceptions, the survey shows that men use literacy and numeracy skills at work more frequently than women, on average. Differences in skills use between men and women may be the result of gender discrimination, but they can also be due to differences in literacy and numeracy skills and/or in the nature of the job. For instance, if literacy and numeracy skills were used less frequently in part-time jobs than in full-time jobs, this may explain part of the difference in skills use between

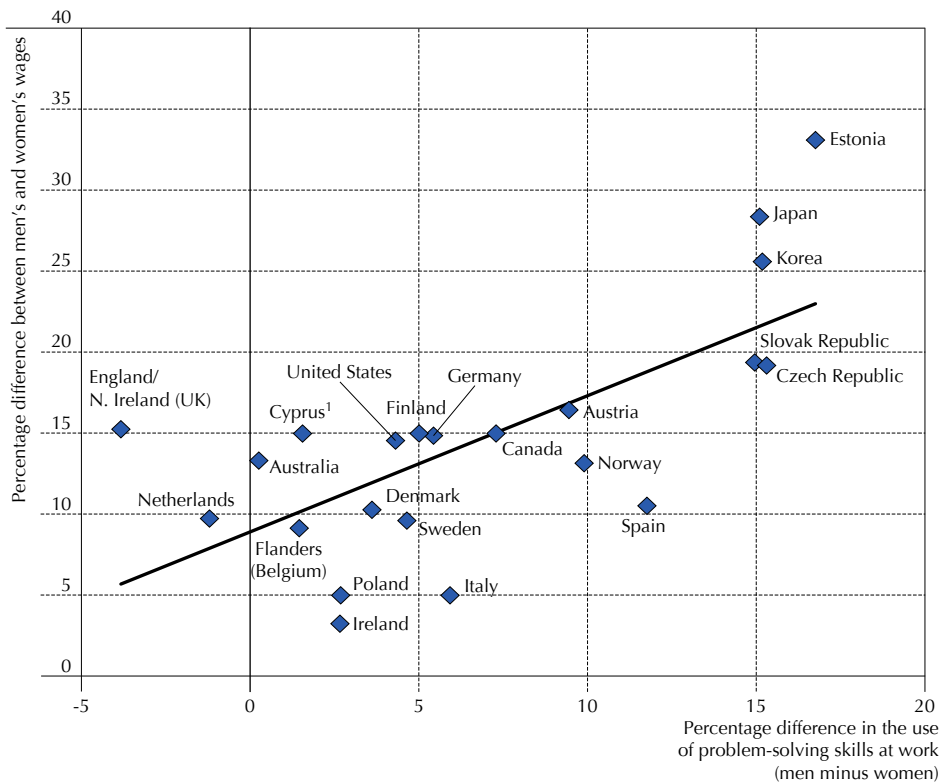
genders, as women are more likely to work part-time than men. This reasoning could apply to occupations as well, with women more likely to be found in low-level jobs that presumably require less intensive use of skills. When these factors are taken into account, differences in skills use by gender are smaller.

The results confirm that gender differences in the use of literacy and numeracy skills are partly due to the fact that men appear to be slightly more proficient but also that they are more commonly employed in full-time jobs, where skills are used more intensively. At the same time, this is not the case when the type of job is taken into account; when it is, the differences in how men and women use their skills at work are larger. One explanation is that while women tend to be concentrated in certain occupations, they use their skills more intensively than do the relatively few men who are employed in similar jobs.

The use of problem-solving skills at work explains about half of the gender gap in wages. In fact, about half of the cross-country differences in the gender gap in wages can be predicted by differences in the use of problem-solving skills at work. However, this relationship is no longer apparent once gender differences in a number of other factors, namely proficiency in literacy and numeracy skills, educational qualifications, occupation, and the industry of the jobs, are taken into account.



■ Correlation between gender gap in wages and in the use of problem-solving skills at work ■



1. See notes regarding Cyprus on page 2.

Notes: The gender gap in wages is computed as the percentage difference between men's and women's average hourly wages, including bonuses. The wage distribution was trimmed to eliminate the 1st and 99th percentiles. The bold line is the best linear prediction. The sample includes only full-time employees.

Source: Survey of Adults Skills (PIAAC) (2012), Table A4.7.

StatLink  <http://dx.doi.org/10.1787/888932903728>



## SOME POLICY CHALLENGES

Since it is costly to develop a population's skills, countries need to prioritise investment of scarce resources and design skills policies such that investments reap the greatest economic and social benefits. In doing so, they need to weigh short- and long-term considerations. Effective skills policies need to respond to structural and cyclical challenges, such as rising unemployment when economies contract or acute skills shortages when sectors boom, but also support longer-term strategic planning for the skills that are needed to foster a competitive edge and support required structural changes.

In periods of depressed economic conditions and when public budgets are tight, governments tend to cut investments in human capital first. But cutting investment in skills at such times may be short-sighted, as a skilled workforce will play a crucial role in generating future jobs and growth. If cuts to public spending have to be made, they should be based on the long-term cost/benefit ratios of alternative public investments. On these grounds, there is a strong case to be made for maintaining public investment in skills and in using them effectively.

The results from the Survey of Adult Skills also underline the need to move from a reliance on initial education towards fostering lifelong, skills-oriented learning. Seeing skills as a tool to be honed over an individual's lifetime will also help countries to better balance the allocation of resources to maximise economic and social outcomes. In turn, if skills are to be developed over

a lifetime, then a broad range of policy fields are implicated, including education, science and technology, employment, economic development, migration and public finance. Aligning policies among these diverse fields will be key for policy makers to identify policy trade-offs that may be required and to avoid duplication of efforts and ensure efficiency. Similarly, with major geographical variations in the supply of and the demand for skills within countries, there is a strong rationale for considering skills policies at the local level to align national aspirations with local needs.

Effective skills policies are everybody's business, and countries need to address the tough question of who should pay for what, when and how, particularly for learning beyond school. Employers can do a lot more to create a climate that supports learning, and invest in learning; some individuals can shoulder more of the financial burden; and governments can do a lot to design more rigorous standards, provide financial incentives, and create a safety net so that all people have access to high-quality education and training. Designing effective skills policies requires more than co-ordinating different sectors of public administration and aligning different levels of government. A broad range of non-governmental actors, including employers, professional and industry associations and chambers of commerce, trade unions, education and training institutions and, of course, individuals must also be involved.

## FURTHER READING

*OECD Skills Outlook 2013: First Results from the Survey of Adult Skills (2013)*

*The Survey of Adult Skills: Reader's Companion (2013)*

available at:

<http://skills.oecd.org/skillsoutlook.html>

For more on skills and skills policies around the world, visit:

<http://skills.oecd.org>

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