Better Skills
Better Jobs
Better Lives

A STRATEGIC APPROACH TO SKILLS POLICIES

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and turning them into better jobs and better lives

OECD

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Better Jobs
Better Lives

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OECD
BETTER POLICIES FOR BETTER LIVES

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Foreword

Skills have become the global currency of the 21st century. Without proper investment in skills, people languish on the margins of society, technological progress does not translate into economic growth, and countries can no longer compete in an increasingly knowledge-based global society. But this "currency" depreciates as the requirements of labour markets evolve and individuals lose the skills they do not use. Skills do not automatically convert into jobs and growth.

The global economic crisis, with high levels of unemployment, in particular among youth, has added urgency to fostering better skills. At the same time, rising income inequality, largely driven by inequality in wages between high- and low-skilled workers, also needs to be addressed. The most promising solution to these challenges is investing effectively in skills throughout the life cycle; from early childhood, through compulsory education, and throughout a working life.

The OECD Skills Strategy provides an integrated, cross-government strategic framework to help countries understand more about how to invest in skills in a way that will transform lives and drive economies. It will help countries to identify the strengths and weaknesses of their existing national skills pool and skills systems, benchmark them internationally, and develop policies for improvement. In particular, the strategy provides the foundations upon which governments can work effectively with all interested parties – national, local and regional government, employers, employees, and learners – and across all relevant policy areas to:

- **Develop the right skills to respond to the needs of the labour market.** The Skills Strategy supports governments in gathering and using better intelligence about changing skills demand. It also helps them work more closely with the business sector in designing and delivering curricula and training programmes.
- **Ensure that where skills exist they are fully utilised**. People with disabilities, chronic health problems, women and older people are more likely to be inactive in the labour market. The Skills Strategy helps governments to identify inactive individuals and understand the reasons for their inactivity. This includes creating intelligent financial incentives that make work pay, and dismantling barriers to participation in the labour force.
- **Tackle unemployment and help young people to gain a foothold in the labour market in a way that makes best use of their skills.** The Skills Strategy brings together successful policies and practices to achieve this. It encourages employers to align their business strategies with human-resource practices and skills development in their workforce. It also highlights how quality career guidance is a critical feature of effective skills policies.
- **Stimulate the creation of more high-skilled and high value-added jobs to compete more effectively in today's global economy**. Labour markets are not static, and policies can "'shape'" demand, rather than merely respond to it. The Skills Strategy can help governments to develop skills policies that foster innovation, competition and the spirit of entrepreneurship.
- **Exploit linkages across policy fields.** The Skills Strategy supports governments in creating linkages between relevant policy areas, including education, science and technology, family, employment, industrial and economic development, migration and integration, social welfare, and public finance, to help identify policy trade-offs and synergies, while ensuring efficiency and avoiding duplication of effort.

Investing in the right skills requires a strategic approach. This OECD Skills Strategy, which we have developed by bringing together expertise from across the entire Organisation, guided by an Advisory Group from five OECD Committees, is designed to provide a basis on which governments can begin converting "better skills policies" into jobs, growth, and "better lives".

The preparation of the report was steered by the OECD Skills Strategy Advisory Group, which brought together delegates from the Education Policy Committee, the Employment, Labour and Social Affairs Committee, the Centre for Educational Research and Innovation, the Co-operative Action Programme on Local Economic and Employment Development and the Committee for Fiscal Affairs. Members of the Skills Strategy Advisory Group were Anders Kristofferson, Aviana Bulgarelli, Enrique Roca Cobo, Gábor Halász, Jørn Skovsgaard, Jürgen Horschinegg, Lesley Giles, Michael Justesen and Mike Campbell

as well as representatives from the Business and Industry Advisory Committee to the OECD and the Trade Union Advisory Committee to the OECD. The Advisory Group was chaired by Andreas Schleicher.

The report was drafted by the OECD Directorate for Education in collaboration with the Directorate for Employment, Labour and Social Affairs, the Centre for Tax Policies and the Centre for Entrepreneurship, SMEs and Local Development, with contributions from Aspasia Bisopoulou, Bert Brys, Queralt Capsada, Richard Desjardins, Francesca Froy, Sylvain Guigère, Kathrin Höckel, Thomas Liebig, Mark Keese, Georges Lemaitre, John Martin, Cristina Martinez, Michela Meghnagi, Glenda Quintini, Stefano Scarpetta, Andreas Schleicher, Lisa Schulze, Carolina Torres. Advice and contributions were also provided by Andy Green, Francis Green, Friederike Behringer, Normann Müller and Hessel Oosterbeek. The work was co-ordinated by Kathrin Höckel and Andreas Schleicher.

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Angel Gurría
OECD Secretary-General

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Introduction

Skills transform lives and drive economies 10
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SKILLS TRANSFORM LIVES AND DRIVE ECONOMIES

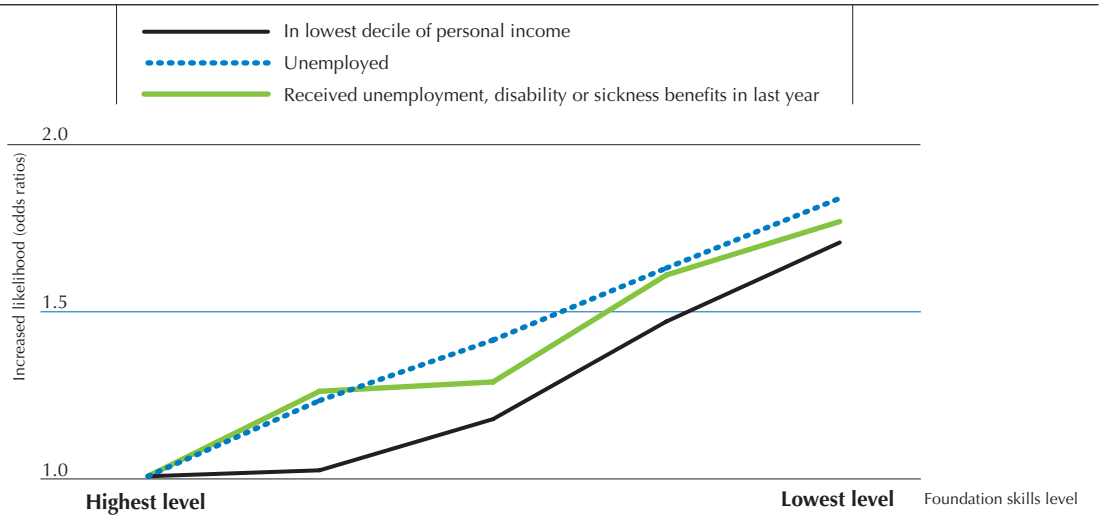
Without adequate investment in skills, people languish on the margins of society, technological progress does not translate into economic growth, and countries can no longer compete in an increasingly knowledge-based global society. As Figure I.1 illustrates, people with poor skills face a much greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits. Conversely, according to one estimate, if student performance in the OECD area is raised by just half a school year, that would add USD 115 trillion to the economy over the working life of the generation born this year.[1]

In short, skills have become the global currency of 21st-century economies. But this "currency" can depreciate as the requirements of labour markets evolve and individuals lose the skills they do not use. For skills to retain their value, they must be continuously developed throughout life. Getting the best returns on investment in skills requires the ability to assess the quality and quantity of the skills available in the population (Box I.1), determine and anticipate the skills required in the labour market, and develop and use those skills effectively in better jobs that lead to better lives. Working towards achieving this is everyone's business. Governments, employers, employees, parents and students need to establish effective and equitable arrangements as to who pays for what, when and how.

■ Figure I.1 ■

Foundation skills and economic disadvantage

The increased likelihood[1] of experiencing economic disadvantage, by foundation skills[2] level, individuals aged 16 to 65, country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
1. Adjusted for age, gender, education, parents' education and immigrant status.
2. Foundation skills are defined as problem solving in technology-rich environments (the ability to use technology to solve problems and accomplish complex tasks); literacy (the ability to understand and use information from written texts in a variety of contexts to achieve goals and further develop knowledge); numeracy (the ability to use, apply, interpret and communicate mathematical information and ideas); and reading components (including word recognition, decoding skills, vocabulary knowledge and fluency).
Source: PIAAC field trial data (2010).

How to read this graph

This figure shows that, for example, individuals with the lowest level of foundation skills are 1.8 times more likely to be unemployed as individuals with the highest level of foundation skills. Odds ratios reflect the relative likelihood of an event occurring for a particular group compared to a reference group. An odds ratio of 1 represents equal chances of an event occurring for a particular group vis-à-vis the reference group; odds ratios of less than 1 indicate that there is less chance of the event occurring; and those with a value of more than 1 represent greater chances.

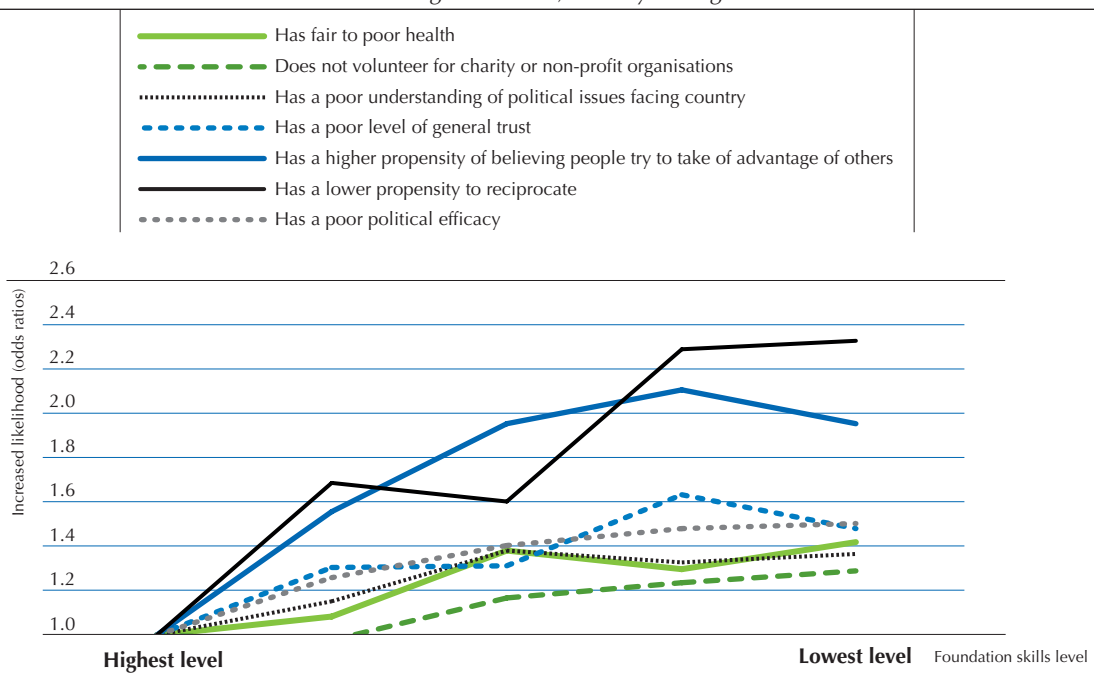
Skills affect people's lives and the well-being of nations in ways that go far beyond what can be measured by labour-market earnings and economic growth. For example, the benefits of skills to an individual's health are potentially great. Skills also relate to civic and social behaviour as they affect democratic engagement and business relationships. Institutional trust, for example, is vital for the functioning of democracies; and without trust in the rule of law and in others, business

relationships function less efficiently. Figure I.2 suggests that, even if the causal nature of these relationships cannot be firmly established from these data, adults with low levels of foundation skills have a higher likelihood of reporting poor health and participate much less in community groups and organisations. Adults with high levels of foundation skills are much more likely to feel that they have a voice that can make a difference in social and political life. These results are consistent across a wide range of countries, confirming that skills have a profound relationship with economic and social outcomes across a wide range of contexts and institutions.

■ Figure I.2 ■

Foundation skills and social disadvantage

The increased likelihood[1] of experiencing social disadvantage, by foundation skills level, individuals aged 16 to 65, country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
1. Adjusted for age, gender, education, parents' education and immigrant status.
Source: PIAAC field trial data (2010).

How to read this graph

This figure shows that, for example, individuals with the lowest level of foundation skills are 1.4 times more likely to report health problems and 1.5 times more likely to have low levels of general trust as individuals with the highest level of foundation skills. For an explanation of odds ratios see Figure I.1.

Skills are also key to tackling inequality and promoting social mobility. In three-quarters of OECD countries, and many non-member countries too, income inequality has deepened over the past two decades. Investing in human capital is the single most effective way of not just promoting growth but also of distributing its benefits more fairly. And investing in skills is far less costly, in the long run, than paying the price of poorer health, lower incomes, unemployment and social exclusion – all of which are closely tied to lower skills.

There is ample evidence that countries can do better in developing and using the skills available to them. Even at the height of the economic crisis in 2009, more than 40% of employers in Australia, Japan and Mexico reported difficulties in finding people with the appropriate skills.[2] At the same time, unemployment rates were at a record high in many countries, meaning that many people were not using their skills productively. In several countries with large populations of young people, those just completing education and training have been having great difficulty finding their first job, even if they have a formal qualification or diploma; and the recent crisis has only exacerbated the problem.[3]

Box I.1 **Towards a direct measure of skills as a basis of effective skills policy making**

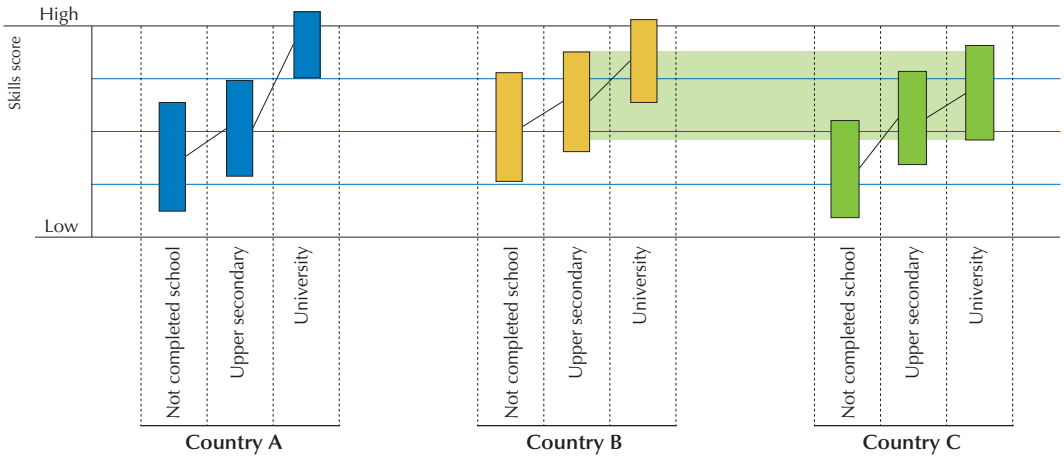
The OECD Skills Strategy shifts the focus from traditional proxies of skills, such as years of formal education and training or qualifications/diplomas attained, to a much broader perspective that includes the skills people acquire, use and maintain – and also lose – over a whole lifetime. People need both hard and soft skills that help them to succeed in the labour market and a range of skills that help them to contribute to better social outcomes and build more cohesive and tolerant societies. The concepts of "skill" and "competence" are used interchangeably in the Skills Strategy. Skills (or competences) are defined as the bundle of knowledge, attributes and capacities that can be learned and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning. The sum of all skills available to the economy at a given point in time forms the human capital of a country.

The proxies used in past studies of skills have limitations, as they do not account for skills that were acquired after formal education or training or for the loss of skills. The OECD Survey of Adult Skills (a product of the Programme for the International Assessment of Adult Competencies or PIAAC) represents a significant improvement by measuring adults' skills directly. It assesses key skills (literacy, numeracy, problem solving in technology-rich environments) and the use of skills in the workplace, and collects information on the antecedents, outcomes and context of skills development and use. This document refers to preliminary results from a field trial of that survey; the full data set will be available from October 2013.

The figure below illustrates the relationship between traditional proxies for human capital and directly measured skills. Results are based on preliminary data from the Survey of Adult Skills. Since these are not based on representative samples they are only illustrative. The figure shows that the skills individuals with similar qualifications have attained vary widely, which underlines that formal qualifications and diplomas cannot be equated with foundation skills (here, literacy skills). This suggests both that these types of skills can be acquired from various sources, and that the quality of education systems, as measured by students' proficiency when they leave formal education, varies. This also suggests that direct measures of skills are a much more reliable basis for policy development than indirect proxies such as qualifications attained.

Comparing skills against education levels, across countries

Skills scores on a scale of foundation skills, by qualification levels, individuals aged 16 to 65



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative. See footnote 2 in Figure I.1 for a definition of foundation skills.
Source: PIAAC field trial data (2010).

How to read this graph

The bar represents the middle portion (from the 25th to the 75th percentile) of the skills distribution for the corresponding level of qualification or diploma. The distribution of skills and the extent of overlap by level of formal education vary significantly across countries. On the one hand, in Country A there is a clear distinction in the distribution of skills between individuals who hold a university degree and those who do not. However, most high school graduates in Country B are about as highly skilled as university students in Country C. This illustrates the value of having a direct measure of foundation skills in addition to formal qualifications.

Moreover, employees are often mismatched with the work they do. On average, 30% of workers in European countries report that they have the skills to cope with more complex tasks at work, while about 13% report they need more training to meet the demands of their job.[4] The skills of migrants, particularly those skills acquired abroad, also tend to be under-used. In addition, skills are unequally distributed in societies. The OECD's Programme for International Student Assessment (PISA) shows that, in some countries, relatively large proportions of 15-year-olds do not reach even the lowest level of foundation skills and remain without a minimum of foundation skills considered necessary to succeed in today's societies and economies. At the same time, the data also show that these problems are not immutable or intrinsic. Variations across countries and over time show that they can be successfully tackled by applying informed and balanced policies.[5]

THE OECD SKILLS STRATEGY OUTLINES A SYSTEMATIC AND COMPREHENSIVE APPROACH TO SKILLS POLICIES

What kinds of skills are needed in an advanced economy? How can today's students and workers prepare themselves for an unpredictable labour market? How can countries ensure that available skills are used productively? To answer these questions, countries must consider various facets of skills policies in concert. The OECD Skills Strategy suggests that countries adopt a systematic and comprehensive approach to skills policies that can:

- ***Help to prioritise investment of scarce resources:*** It is costly to develop a population's skills; therefore skills policies need to be designed so that these investments reap the greatest social and economic benefits. All governments face difficult choices when allocating scarce resources; and the global crisis has only exacerbated these difficulties. An approach to skills policies that considers how demand for, activation of and the effective use of skills influence each other can improve efficiency in spending. The Skills Strategy offers guidelines on how to prioritise spending on skills over an individual's lifetime.
- ***Strengthen the case for lifelong learning:*** By seeing skills as a tool to be honed over an individual's lifetime, the Skills Strategy allows countries to assess the relative impact of different institutional and informal settings for skills development – from early childhood education through formal schooling to formal and informal learning throughout a lifetime – with the aim of balancing the allocation of resources to maximise outcomes.
- ***Foster a whole-of-government approach:*** If skills are to be developed over a lifetime, then a broad range of policy fields are implicated, including education, science and technology, family, employment, industrial and economic development, migration and integration, social welfare, and public finance. Creating linkages between different policy fields is essential for ensuring efficiency and avoiding duplication of effort. A co-ordinated approach to skills policies allows policy makers to detect policy trade-offs, such as between immigration and labour-market integration, or between spending on early education or investing in welfare programmes later on.
- ***Combine short- and long-term considerations:*** Skills policies cover both ad hoc policy responses to emerging or cyclical challenges, such as rapidly rising numbers of unemployed people when economies contract, or acute skills shortages when sectors boom, and longer-term strategic planning for how an economy and society should evolve and the structural changes that might be required. The strategic view offered by the Skills Strategy can help countries to maintain a long-term vision while becoming more responsive to immediate challenges at the same time.
- ***Align different levels of government:*** Considering significant local variations in the demand for and supply of skills within a country, the Skills Strategy integrates national, regional and local dimensions of skills policies.
- ***Include all relevant stakeholders:*** 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, sector councils, trade unions, education and training institutions and, of course, individuals must also be involved.
- ***Provide a global perspective:*** Given the growing interdependence among countries' economies, a global perspective on how the talent pool of skills is developing and deployed is essential.

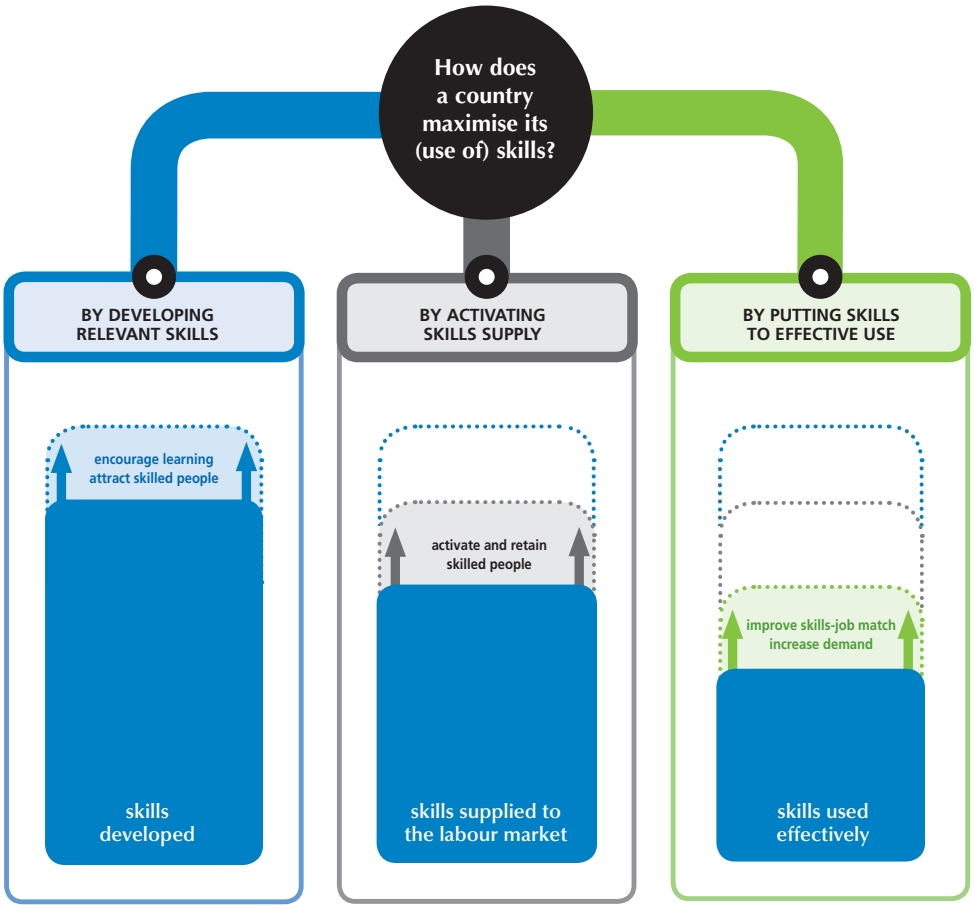
Recognising both the complexity of skills policies and the potential for peer learning, the OECD has developed a Skills Strategy that helps countries to identify the strengths and weaknesses of their national skills systems, benchmark them internationally, and develop policies that can transform better skills into better jobs, economic growth and social inclusion. To this end, it addresses three inter-related policy levers (Figure I.3):

- ***Developing relevant skills:*** Ensuring that the supply of skills is sufficient in both quantity and quality to meet current and emerging needs is a central goal of skills policies. Supply can be ensured by developing the right mix of skills through education and training, and influencing the flow of skills by attracting and retaining talent. Supply is not only responsive to demand, it can also have an important influence on demand.

- ***Activating skills supply:*** People may have skills, but for a variety of reasons may decide not to offer them to the labour market. In all OECD countries, many individuals are out of the labour force by choice, because of their personal/family circumstances, or because there are financial disincentives to work. Integrating under-represented groups into the labour force can increase the skills base in an economy. However, this requires identifying inactive individuals, possibly re-training them, ensuring that the benefit system offers them financial incentives to enter or return to the labour market, and removing demand-side barriers to hiring.
- ***Putting skills to effective use:*** Investing in skills is just the first step; successful skills policies also need to ensure that available skills are used effectively so that no investment is wasted. Moreover, the match between the skills demanded in a job and the skills of the person doing the job has an impact on further skills development: unused skills tend to atrophy, while new skills are, to a large extent, developed informally, often through work experience.

Figure I.3

The OECD Skills Strategy framework



Source: De Argumentenfabriek.nl.

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Key policy lessons on developing relevant skills

ENCOURAGE AND ENABLE PEOPLE TO LEARN THROUGHOUT LIFE:

- **Gather and use information about changing skills demand to guide skills development**. As the nature and structure of employment has changed markedly in recent decades, so has the demand for skills. More high-level skills are needed than ever before. These changes in skills demand have to be identified, articulated and translated into up-to-date curricula and relevant programmes. A strategic approach to skills policies also needs to consider local differences, particularly in emerging economies where these differences can be large. Sectoral differences in skills needs can be equally important and need to be taken into consideration when designing skills strategies.
- **Engage social partners in designing and delivering curricula and education and training programmes**. Skills development is more effective if the world of learning and the world of work are linked. Compared to purely government-designed curricula taught exclusively in schools, 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 smooths the transition from education into the labour market. Trade unions can work together with employers to develop curricula that also include broader, transferable skills and to ensure that good-quality training is available to all.
- **Ensure that education and training programmes are of high quality.** Governments can help to foster quality in education and training from early education through school and beyond. Education and training institutions need to be governed by a clear quality-assurance framework that serves both accountability and improvement purposes, and that combines internal and external evaluation without imposing an excessive administrative burden. Workplace training should also be subject to quality control, in the form of contractual arrangements, inspections and self-evaluations.
- **Promote equity by ensuring access to, and success in, quality education for all.** Investing in high-quality early childhood education and initial schooling, particularly for children from socio-economically disadvantaged backgrounds, can be an efficient strategy to ensure that children start strong in their education careers and first skills beget future skills. Later in life, financial support targeted at disadvantaged students and schools can improve the development of skills. 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.
- **Ensure that costs are shared and that tax systems do not discourage investment in learning.** Employers can create a climate that supports learning, and invest in learning, and individuals must be willing to develop their skills throughout their working lives. Governments can design financial incentives and favourable tax policies that encourage individuals and employers to invest in post-compulsory education and training. Individuals can be encouraged to shoulder more of the financial burden of tertiary education, while disadvantaged individuals should be assured access to education opportunities through grants and loans.
- **Maintain a long-term perspective on skills development, even during economic crises.** 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 usually a strong case to be made for maintaining public investment in skills.

FOSTER INTERNATIONAL MOBILITY OF SKILLED PEOPLE TO FILL SKILLS GAPS:

- **Facilitate entry for skilled migrants.** To close skills gaps it might be necessary to establish formal recruitment channels, including for low-skilled migration. Issuing sufficient numbers of visas and processing them quickly; providing efficient ways to verify residence and immigration status; and implementing effective border-control and workplace-enforcement procedures can facilitate this process.
- **Design policies that encourage international students to remain after their studies.** The advantage of international students for host-country employers is that they have a qualification or diploma that can be easily evaluated. They also often have established ties with the host-country society and labour market and can find a job more easily. To make better use of this important source of skills, several OECD countries have eased their immigration policies to allow international students to work during their studies and encourage them to remain after their studies to work.

- **Make it easier for skilled migrants to return to their country of origin**. Migration flows can have a positive impact on the stock of human capital in countries of origin: returning migrants bring back knowledge and experience as well as business links that are of use to their home country. To reap these advantages, countries can facilitate and encourage return migration. One approach can be to provide financial support to municipalities that invite returnees and provide them with housing; another option is to provide income tax concessions, particularly to highly skilled nationals returning to their home country.

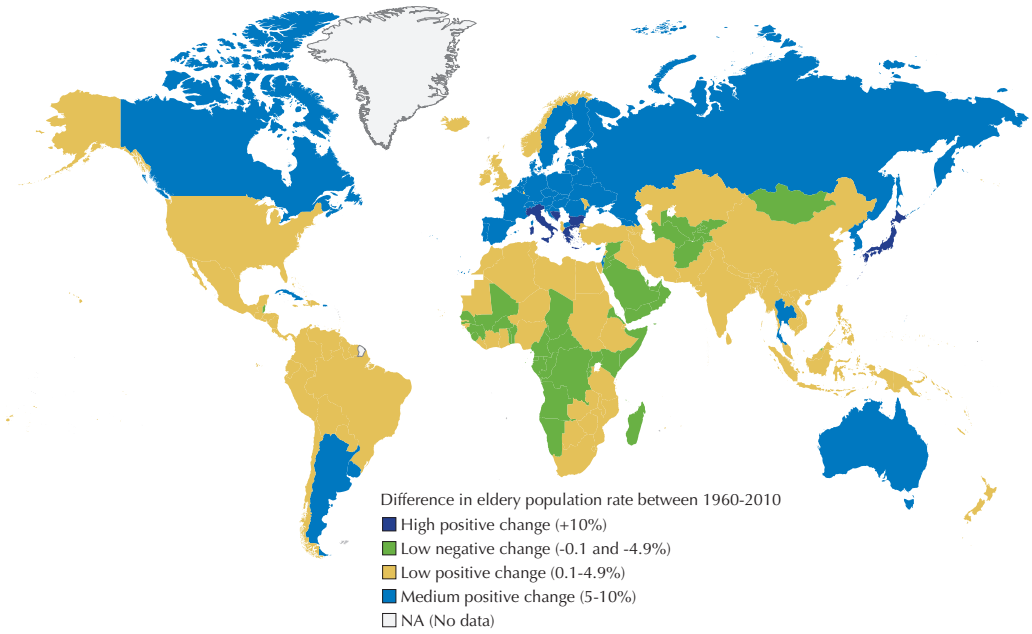
PROMOTE CROSS-BORDER SKILLS POLICIES:

- **Invest in skills abroad and encourage cross-border higher education.** An increasing number of employers operate internationally and must derive their skills from both local sources and a global talent pool. Some countries have started to consider skills policies beyond their national borders and have begun to invest in the skills of people in other countries. This has the double advantage of providing well-trained workers to branches of firms located abroad and reducing the incentives to emigrate, especially among highly skilled individuals. Another way to encourage skills development globally is to design policies that encourage cross-border tertiary education. This can help a country to expand its stock of skills more rapidly than if it had to rely on domestic resources alone.

Box 1.1 Demographic shifts between 1960 and 2010

Most OECD countries have shown a fall in fertility rates between 1970 and 2008. This fall was particularly pronounced in Mexico (-4.76%) and South Korea (-3.34%). Over a similar period (1960 to 2009) OECD countries also recorded a rise in the proportion of elderly people, which was most pronounced in Japan (17.4%), Italy (11.2%), Greece (10.8%) and Finland (10%).

Change in the elderly* population rate from 1960 to 2009



All OECD member countries saw a drop in the population of young people between 1960 and 2010. South Korea recorded the largest change (-26.1%) followed by Poland (-19.1%), Canada (-17.24%) and Japan (-17.2%). Among G20 countries, China saw a decline of 20.2% during the same period. Shrinking youth populations in most OECD countries and some emerging economies stand in sharp contrast to the growth of those populations in other regions of the world. For example, more than 60% of Africa's population is under the age of 25, and this proportion it is expected to increase to 75% by 2015.

*Elderly: aged 65 and over.

Source: OECD/African Development Bank/United Nations Economic Commission for Africa (2010); Martinez-Fernandez, et al. (forthcoming).

HOW CAN COUNTRIES IMPROVE THE QUALITY AND QUANTITY OF RELEVANT SKILLS?

Developing the skills potential of a country is at the heart of skills policies. This requires designing curricula and education and training systems that are responsive to the needs of the labour market and society at large, and that are equitable and of good quality. It also involves encouraging and enabling individuals to participate in learning. External sources of skills can also be tapped by inviting skilled people to enter the country or by investing in knowledge transfer and skills development beyond national borders.

The stock of skills available in the economy at any given time is a function of the size of the working-age population and the level of skills these people possess. Hence, demographic variables, such as aging societies or burgeoning youth populations, need to be taken into consideration when designing forward-looking skills policies (Box 1.1).

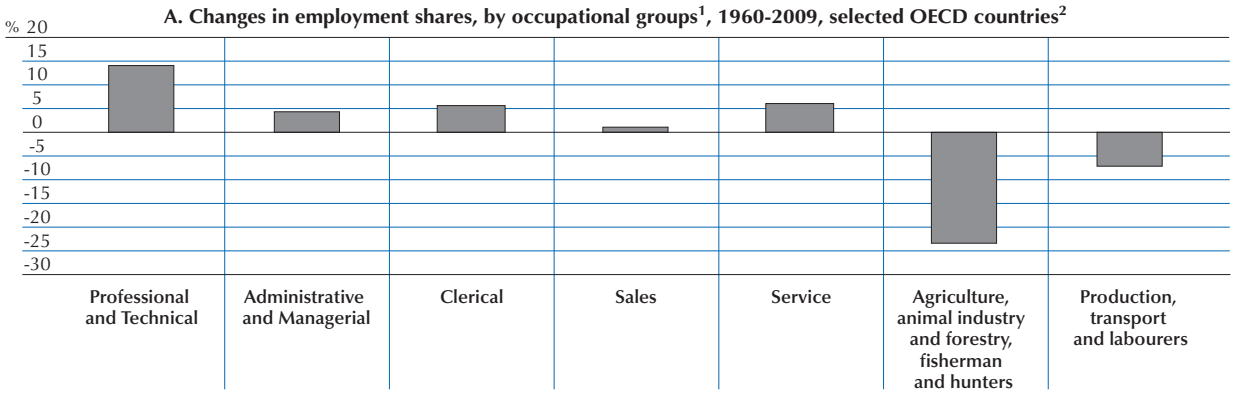
COUNTRIES CAN ENCOURAGE AND ENABLE PEOPLE TO LEARN THROUGHOUT THEIR LIVES

The development of skills through education should be informed by the needs of the labour market, and should be effective, efficient and equitable. Investing in skills is a joint responsibility and should reflect the benefits to individuals, employers and society.

■ Figure 1.1 ■

Change in employment structure

A. Changes in employment shares, by occupational groups[1], 1960-2009, selected OECD countries[2]

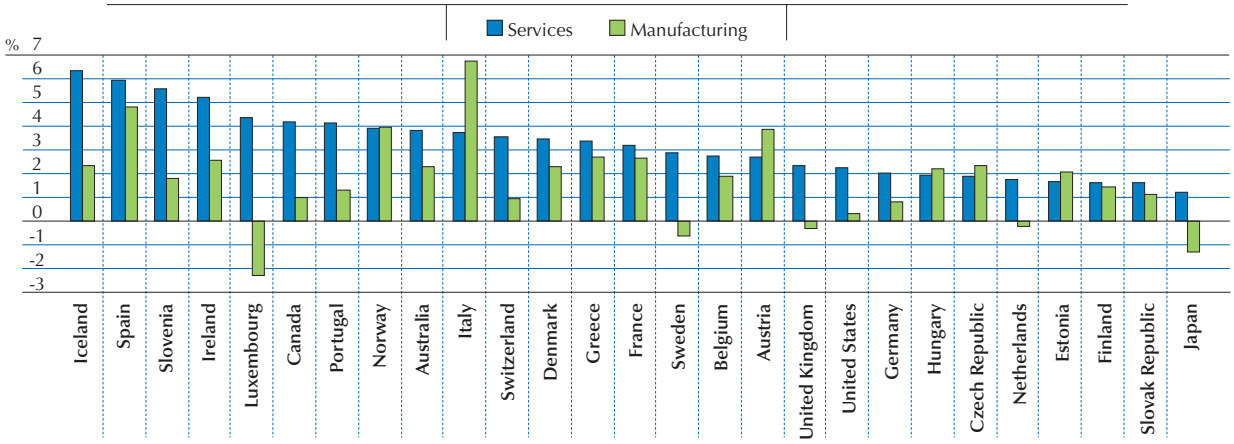


1. International Standard Classification of Occupations (ISCO-1968).
2. Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

Source: Handel (forthcoming).

StatLink http://dx.doi.org/10.1787/888932607062

B. Human resources in science and technology[1] growth, by industry, 1998-2008, average annual growth rate



Note: Slovenia: 1997-2007; Sweden: 1997-2007; the United States: 2003-08; Japan: 2003-08.

1. Human resources in science and technology (HRST) are defined according to the Canberra Manual (OECD and Eurostat, 1995) as persons having graduated at the tertiary level of education or are employed in a science and technology occupation for which a high qualification is normally required and the innovation potential is high.

Source: OECD, *ANSKILL Database* (internal use only), (June 2011).

StatLink http://dx.doi.org/10.1787/888932607081

Gather and use intelligence on the demand for skills

The demand for higher-level skills has grown over the past 50 years

As the nature and structure of employment has changed markedly in recent decades, so has the demand for skills in OECD countries and beyond. Between the 1960s and 2009, jobs in OECD countries have shifted from the farm to the factory floor to the professional office. The number of managerial jobs rose during the period, while the number of medium- and low-skilled white-collar jobs in the clerical and service occupations remained more stable (Figure 1.1).

These fundamental changes in employment imply a rise in the demand for non-routine cognitive and interpersonal skills and a decline in the demand for routine cognitive and craft skills, physical labour and repetitive physical tasks.[1] Over the past decades, the increase in highly-skilled workers has generally not led to a decline in their pay, as happened among workers with lower qualifications; and in most countries, the earnings advantage for university graduates has increased despite the fact that there are significantly more such graduates in the labour force.[2] At the same time, there are indications of a trend towards greater polarisation of skills: highly skilled workers are needed for technology-related jobs; low-skilled workers are hired for services that cannot be automated, digitised or outsourced, such as personal care; and mid-level skills are being replaced by smart robotics.[3]

While these broad trends are clear-cut, more direct measures of skills requirements by occupation are less conclusive, suggesting no clear trend in cognitive skills requirements within occupations.[4] These detailed sources only suggest a positive trend in computer use at work between 1990 and 2005. Another study, based on the survey of European Working Conditions, reveals that while most workers are employed in "learning" environments that require higher-order skills, there are still workers who carry out routine jobs. Along the same lines, there appears to be only a modest rate of decline in the physical intensity of work.[5] While most observers agree that the long-term trend has been towards jobs requiring more education and cognitive skills, the rate and timing of changes, the levels and kinds of skills in demand, and the drivers of change are matters for debate. Given these differences, it is clear that more and better information is needed about recent and ongoing changes to skills demands. The OECD Survey of Adult Skills provides first-of-its kind instruments to monitor and analyse changes in the demand for skills within an internationally comparative framework.

Projections for the demand of skills provide important insights but need to be interpreted with care

The perception that the demand for cognitive skills is rapidly changing across OECD countries has spurred attempts to predict which industrial sectors and occupations are most likely to expand in the years to come. Current projections suggest that the trends in employment shares by occupation described above will continue for the foreseeable future,[6] suggesting a continuing rise in employers' need for better cognitive and interpersonal skills (see Box 1.2). However, it is more difficult to make detailed projections at the occupational/industrial level. So such projections are best used to provide additional information to education and training systems rather than serve as a basis for detailed manpower planning. With this caveat in mind, projections can play an important role in guiding skills strategies.

An analysis of skills shortages can help determine their causes

Skills shortages, such as those that result from changes in demand, can affect growth through their adverse effects on labour productivity. Shortages increase the hiring cost per skilled worker, leading firms to employ less-productive unskilled workers instead. Shortages may also put workers in a stronger bargaining position to demand an easier pace of work.

Box 1.2 **Methods of forecasting skills needs**

Occupational and educational forecasting has a long tradition in many OECD countries, including **Australia**, **Canada**, **France**, **Germany**, **Italy**, **the Netherlands**, **the United Kingdom**, **the United States** and, more recently, **Finland**, **New Zealand** and **Israel**. Forecasting is conducted by academic and government organisations, the private sector and increasingly at the multinational (e.g. European) level.

Most forecasts rely on dynamic macroeconomic models and use a "top-down" approach to forecasting labour demand. Dynamic macroeconomic modelling has been labelled "best practice" in international skills forecasting, but there are limits to its effectiveness. These macroeconomic models require the specification of a large set of external parameters related to the development of the world economy, such as oil prices and exchange rates. A problem common to many of the reviewed forecasts is that it is difficult to forecast future migration and its skills composition.

In **England**, the UK Comission for Employment and Skills conducted a National Strategic Skills Audit in 2010, combining quantitative and qualitative methods, in order to incorporate a broader "scenario-based" approach to assess future skills needs. The overall intention of the project is to provide insights to government, employers, individuals and providers on England's strategic skills needs, reporting information on key issues and periodically updating the results.

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The project includes three main instruments:

- *Working futures*: consists of quantitative forecasts of employment prospects for industries and occupations, qualification/level of diploma, gender and employment status for the UK, individual nations and English regions. It aims to provide a comprehensive picture of the labour market for 2020.
- *Horizon scanning and scenario development*: identifies key issues and changes taking place in the UK and globally that may affect employment and skills over the long term. It uses a range of horizon-scanning techniques, including scenario development, and a series of interviews with key experts to debate scenarios for 2020.
- *Targeted skills assessment reports*: in-depth skills assessments conducted in key emerging sectors to enhance understanding of important developing areas of the economy, such as low-carbon industries, digital economies and advanced manufacturing.

Despite the different methodologies in forecasting, the results are often similar. In general, employment among low-skilled workers will decline, while employment among highly skilled workers is projected to increase. Some projections indicate a future excess supply of highly skilled workers in some fields. The trend is for employment to continue to shift from primary industries towards more service-based economies.

Employers, too, can be involved in forecasting skills needs, for example:

In **Finland**, *The Oivallus Project.* Oivallus - literally "Insight" – was launched by the Confederation of Finnish Industries (EK) in 2008 and ran until December 2011. The project, financed by EK, the European Social Fund and the Finnish National Board of Education, focused on future competence needs of businesses. Representatives from companies, academics, teachers and other experts examined the underlying premise that working life in 2020 will be even more networked. Oivallus found that competence needs are changing because the ways of working are changing, as jobs are becoming less and less routine and fewer jobs can be done "by the book". The future working life resembles filmmaking: work is increasingly done on a project basis in collaboration with various contributors. There is also a tendency for tasks to become more variable. The ability to apply network skills is the foundation of future work, and network skills find their application in the ability to find, use and disseminate knowledge. A learning network can identify new opportunities and find solutions to problems, where the key to success is the ability of people with different competencies to work together. Working as a network, learning from one another and building on existing ideas are skills that require practice and that should be developed from early on throughout education. For more information, see *http://ek.multiedition.fi/oivallus/en/index.php*

Israel's *Elbit Systems Electro-optics (Elop)*, an electro-optics company, employs more than 12 000 people in 13 countries. In an effort to encourage Israel's decision makers to invest in electro-optics training to cover the forecasted need of high-skilled engineers and technicians, the firm teamed up with two education institutions in 2009 and developed two new formal electro-optics courses. The first, based at ORT Braude College, is a programme for engineers in optical engineering that was designed jointly by Elop and the college. An internship programme was also introduced to meet local demand. The second, based at the ORT Rehovot School, is a new programme in electro-optics that is integrated in the existing practical engineering programme. In addition to helping design the curriculum, Elop also supplied research labs, provided its scientists and engineers as teachers and tutors in specific areas, trained teachers, hosted students' visits to the company's facilities, and supported the college's management in its request for recognition of the programme by the Ministry of Education. Three years after these initiatives were launched, the local industry already employs more than 100 technicians who graduated from ORT Rehovot.

Source: Lüdemann (forthcoming); Business and Industry Advisory Committee to the OECD (BIAC).

According to one study, the increase in shortages of skilled labour in the United Kingdom during the mid-1980s reduced productivity growth by around 0.7% per year, after controlling for other labour and product-market effects, while shortages of unskilled workers had no significant effect.[7] Another study finds that skills shortages have had a negative impact on the labour productivity (current value-added per employee) of small- and medium-sized Canadian firms.[8] Similarly, hard-to-fill and unfilled vacancies have appeared to slow the output of individual workers in high-tech firms in Northern Ireland.[9] Some analyses suggest that skills shortages may affect productivity because they hinder the adoption of new technologies. For example, a shortage of craft workers in the United Kingdom meant that new technologies were not introduced to the extent they could have been, and the rate of productivity declined.[10] Another study finds that skills shortages cost an average of 7% of GDP, calculated by combining the cost of vacancies, measured as the loss of production while job posts remain unfilled, and the cost of unemployment, measured as the sum of workers' foregone earnings, unemployment benefits and activation costs.[11]

Skills shortages can be both cyclical and structural. Shortages that occur during periods of rapid economic growth, when unemployment is low and the pool of available workers is reduced to a minimum, are less of a problem during periods of economic slowdown. Some structural changes, such as the adoption of new technologies, may increase the demand for certain skills that are not immediately available in the labour market. This can create shortages even when unemployment is high.

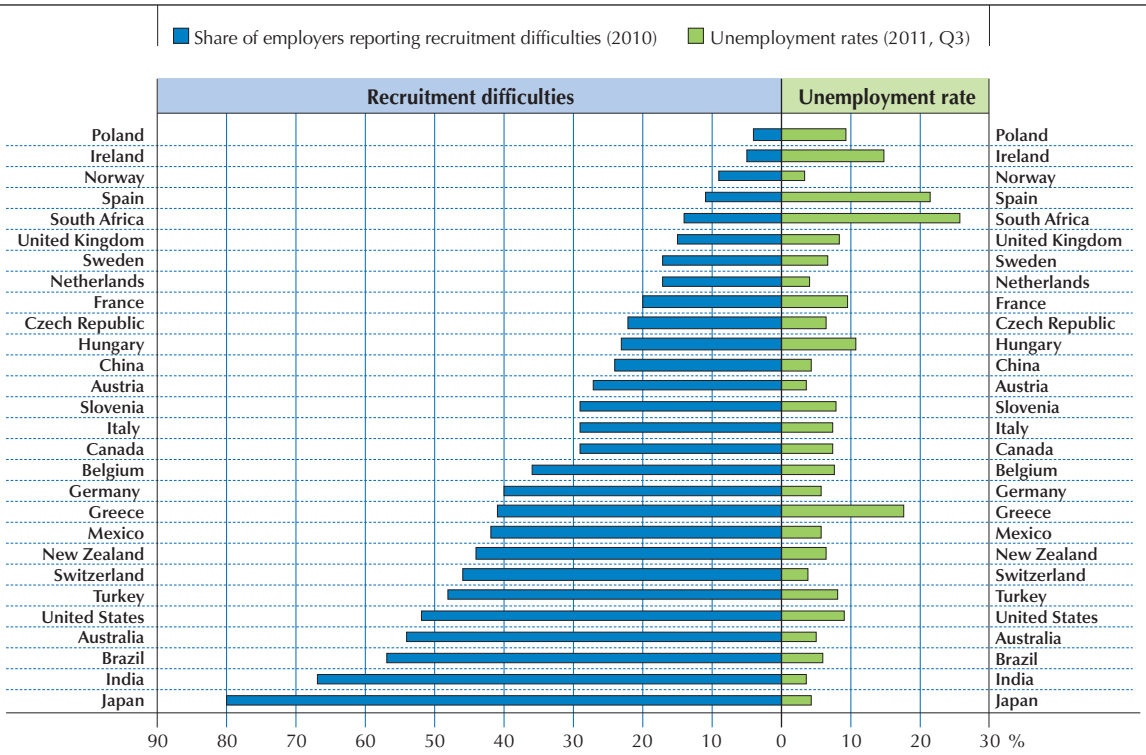
Figure 1.2 shows unemployment rates in 2011 resulting from the global economic crisis. It also presents the share of employers who reported having difficulties filling positions due to a lack of suitable skills in 2010.[12] It suggests that shortages are widespread and co-exist with unemployment in many countries. Some studies show that the share of firms concerned about the availability of adequately trained workers averages about 40% in sub-Saharan Africa and 50% in East Asia and the Pacific, compared to about 25% in OECD countries.[13]

Labour shortages can arise because of a lack of workers with the skills needed, but also for various other reasons, including working conditions and pay rates that are unattractive to workers; a lack of workers in countries with very low unemployment rates, referred to as labour shortage; geographical imbalances in supply, where there are sufficient numbers of skilled people in the labour market, but they do not have easy access to available jobs, referred to as geographical mismatch; or a shortfall in the number of appropriately skilled individuals. Some of these reasons are associated with education and training.

■ Figure 1.2 ■

Share of employers reporting recruitment difficulties and unemployment rates

Selected countries, 2010 and 2011



Note: Brazil: Urban areas only; China: Registered unemployment rate in rural areas in 2009; India: 2009/10; Indonesia: 2011Q1.
Source: Self-elaboration, from OECD (2011b; 2011), Talent Shortage Survey.
StatLink http://dx.doi.org/10.1787/888932607100

These types of shortages, as well as those due to cyclical factors in specific sectors, tend to adjust over time through market mechanisms. However, as the figure above suggests, having a large pool of unemployed people provides no guarantee that employers can find appropriately skilled individuals to fill their vacancies. In such cases, policy makers need to encourage rapid adjustments in education and training systems and address the causes of geographical mismatch to meet employers' skills requirements. Box 1.3 illustrates promising policies to respond to skills shortages.

Box 1.3 **A co-ordinated approach to addressing skills supply and demand in Queensland, Australia**

In Queensland, Australia, shortages are seen to be as much about work organisation and turnover as about problems with the supply of skilled people from education and training institutions. Rather than responding automatically to labour shortages by creating new training courses, Queensland first seeks to assess the causes of those shortages: Is there a skills shortage because of a lack of training, or is it rather that local jobs are unattractive and therefore cannot retain staff? Three core features define the approach:

- Recruitment and retention problems are not defined as "skills shortages", but rather are treated as problems involving the structure of jobs on offer, and therefore often defined as a shortage of decent jobs.
- The response involves groups of employers accepting joint responsibility for overcoming the problem.
- The crucial factor behind successful innovation is the existence of highly competent brokers or facilitators capable of dealing with issues of business development and not just the development of the workforce.

On the basis of these principles, the state government in Queensland has developed over 60 skills-formation strategies in 20 different industry sectors, including the public sector. For example, in the health and community-services sector, skills shortages and long waiting lists were reduced by changing work organisation and the definitions of roles. This was accomplished in conjunction with local unions. Skills-formation strategies are generally funded for two years at AUD 120 000 a year.

Source: Froy and Giguère (2010a); Eddington (2012).

Design efficient and effective education and training systems

Consider both national aspirations and local needs

Education and training systems need to have adequate access to information on the demand for skills and the drivers of changes in skills demand. Contrary to what some national or even supra-national targets for educational attainment suggest,[14] there is generally no "right" proportion of certain education qualifications in specific occupations. What is "right" depends on a range of context-specific factors, the structure and skills needs of the economy, and the country's overall aspirations. And it can change over time. Changes in earnings differentials, and the private and public rate of return associated with different education programmes, provide some indication as to the extent to which additional investments in education are warranted. At the same time, it is widely recognised that education also serves a consumption function in the sense that individuals seek to develop skills beyond those that they use in the workplace. Even if those skills are not associated with immediate earnings advantages, they may be related to significant social benefits.

All skills needs have to be identified, articulated and translated into up-to-date curricula and relevant programmes; and systems need to allow individuals to move flexibly between pathways, including between vocational and academic tracks and other non-formal learning pathways. Governments, especially those of emerging countries whose skills needs are changing particularly fast, can reach national aspirations through targeted education programmes. An example of this are the new skills needs emerging from a move towards low-carbon economies (Box 1.4).

A strategic approach to skills policies also needs to take into consideration local differences, particularly in emerging economies where these differences can be large. In China, for example, the demand for skills in metropolitan areas is driving large-scale internal migration from rural areas, which can have significant economic and social consequences. In some OECD countries, local stakeholders have voiced concerns about the lack of flexibility of national skills policies to adapt to their needs and the slowness in reacting to changing skills requirements.[15]

National policy goals can be better achieved by allowing greater differentiation locally. Collaboration among education bodies, employers and economic-development officials should be supported to ensure that the training provided meets the needs of the economy as a whole and of different local labour markets in particular (Box 1.5). Sectoral differences in skills needs can be equally important and need to be taken into consideration when designing skills strategies.

Box 1.4 **Responding to emerging skills needs in low-carbon economies**

There is now wide agreement that economic growth needs to be decoupled from unsustainable environmental practices, such as those leading to global climate change. A successful transition to a low-carbon economy could reshape the labour market and skills requirements. For example, employment in the renewable-energy sector is likely to increase, as it declines among firms specialising in the extraction and combustion of fossil fuels. Skills policies have to adapt to this demand and new programmes of study in secondary and tertiary schools will also need to be developed.

Just as ICT technology spread across the entire economy, turning much of the workforce into "knowledge workers", green technologies and work practices will also diffuse across the economy, giving a progressively greener tint to all occupations. For example, increasing numbers of construction workers are being trained to use the building materials and construction techniques that are required for energy-efficient buildings and to retro-fit existing structures for greater energy efficiency. Experience to date suggests that the greening of existing occupations is an incremental process: workers already trained in, say, carpentry, can easily learn the new green skills they will require, provided that they have access to the right types of "top-up" training. However, the transition to a green labour market has only just begun, and it is difficult to predict how skills requirements will evolve as the process continues.

Indeed, results from an OECD survey of small and medium-sized enterprises (SME) indicates that firms are often not sufficiently aware of the need for green skills for the future, and their investment in green training or green knowledge-intensive activities is often limited, as is their awareness of the impact of regulations on their industry. Green vocational education and training programmes (formal training) are just emerging, while knowledge-intensive green activities (informal learning) are more frequently used by firms to help their workers to acquire the knowledge they need and to upgrade their skills. Those SMEs with potential to grow are more likely to invest in developing green skills as part of their productivity- and innovation-enhancing skills repertoire.

As the environmental policy framework needed to support green growth develops, it will become clearer how governments can best ensure that students and workers acquire the green vocational skills they will need in the workplace. OECD data show that about 60% of the countries surveyed had implemented at least one labour-market measure targeting green growth, with training being the most common. While that is an encouraging start to addressing emerging green skills demands, most of these programmes are small and have yet to be subjected to rigorous evaluations. Case studies suggest that it is particularly important that these training programmes co-ordinate closely with employers and trade unions to assure that the training offered corresponds to evolving labour-market needs.

Source: OECD (2011b); ILO (2011a); ILO (2011b); OECD (forthcoming), *OECD Employment Outlook*; OECD (forthcoming), *Leveraging Skills and Training in SMEs*; OECD (2012a).

Box 1.5 **Lessons from the OECD's work on local skills strategies**

The OECD's Local Economic and Employment Development (LEED) programme has studied a range of local skills strategies. One successful strategy is used in the region of Mackay in Queensland, **Australia**. This region has enjoyed unprecedented growth since the mid-2000s, putting significant pressure on company development. In response, manufacturing companies in Mackay have formed an industry cluster named Mackay Area Industry Network (MAIN) with the aim of addressing skills shortages quickly and effectively. A skills partnership forum, which grew out of the network approach, allowed all stakeholders involved in skills policies, including public organisations, industry clusters, community organisations and education providers, to come together to discuss their skills needs and initiatives, and to integrate their knowledge into strategic plans.

In **China**, the Shanghai Highland of Talent Initiative is a good example of a balanced, bottom-up, city-wide skills strategy that developed specific targets for the organisations involved. The municipal government launched its first skills-development initiative in 1995 to transform Shanghai into a "highland of talent" in mainland China.

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However, efforts to implement a concerted strategy were not made until the municipality launched a detailed action framework in 2004. The framework defined ten priorities to be addressed between 2004 and 2010 based on attracting high-skilled Chinese returnee emigrants. The priorities included providing specialised training programmes to train highly skilled scientists and managers, and wider programmes to reform the vocational training system and upgrade the skills in Shanghai's labour force. In 2006, these priorities were consolidated into five key tasks, the most urgent being to train migrant workers and surplus rural labourers arriving in the city. Training is now delivered on the basis of an annually reviewed Training Development Catalogue, which lists skills in demand. Outcomes of such a balanced and targeted approach have been encouraging.

Ensuring close collaboration among the many different actors involved in skills development and use is the basis of many local skills strategies. The **US** state of New Jersey established a series of Talent Networks (New Jersey Department of Labor and Workforce Development) in 2011. Six networks were set up to focus on the specific needs of key industries in the state that, collectively, provide more than half of the jobs in the state: advanced manufacturing, financial services, health care, life sciences, technology and entrepreneurship, transportation, logistics and distribution. The networks connect employers, job-seekers, one-stop career centres, government and community groups and educational institutions. A Talent Development Advisory Group was created to obtain feedback on employers' workforce needs in order to guide future development initiatives.

Sources: Froy, Giguère and Hofer (2009); Martinez-Fernandez (2009); Zhang (2009); Stoller (2011).

Evidence from the OECD Reviews of Higher Education and Regional and City Development also shows that, in many cases, higher education is often geared more towards national skills needs or to the global aspirations of higher-education institutions than to local needs or realities.[16] This illustrates the importance of developing education and training systems that are flexible enough to be adapted to the needs of different labour markets, including through rapid-approval procedures of local training programmes.[17] In some countries, university training is skewed away from technical subjects that are needed for the economy. For example, despite high unemployment rates among college-educated workers, firms in Egypt identified inadequate skills and education as among the top five constraints to business.[18] Although educational reforms and incentives to study technical subjects are needed, these kinds of policies have limited support because a humanities or law degree are important credentials for securing a government job.[19]

Skills supply and demand are dynamically inter-related. Fostering science, technology and innovation in education supplies certain skills to the economy that, in turn, could lead to innovation, job creation and changes in secotoral composition and production and, as a consequence, also in the demand for skills. Recognising this interaction, Turkey has developed a National Science, Technology and Innovation Strategy that, in conjunction with Turkey's Science and Technology Human Resources Strategy and Action Plan for 2011-16 aims to both increase the number of R&D personnel and improve sectoral and occupational distribution. This is achieved by directing young people to R&D-related fields and improving the research environment, and researchers' skills and experience.

Provide an appropriate mix of general and occupation-specific skills

Much is expected from initial education and training systems in the 21st century. State-of-the-art skills in a discipline remain important and innovative and creative people generally have specialised skills in a field of knowledge or a practice. As much as "learning-to-learn" skills are important, people always learn by learning something. But the dilemma for educators is that routine cognitive skills that involve reproducing subject-matter content – in other words, the skills that are easiest to teach and easiest to test – are also the skills that are easiest to digitise, automate and outsource. Education is increasingly expected to develop new ways of thinking, involving creativity, critical thinking, problem-solving and decision-making; new ways of working, including communication and collaboration; new tools for working, including the capacity to recognise and exploit the potential of new technologies; and, the capacity to live in a complex world as active and responsible citizens (Box 1.6).

For any education and training programme, decisions need to be taken about the right mix of knowledge, skills and even behaviour, attitudes and values that it should impart to serve desired economic and social outcomes. Since skills requirements change and people need to adapt and learn new skills over their working lives to ensure occupational mobility, compulsory education is where people should master foundation skills and where they should develop the general desire and capacity to engage in learning over an entire lifetime. The fact that PISA shows large proportions of students leaving compulsory education with a poor command of these foundation skills demonstrates that these goals are still elusive in many countries.[20]

Box 1.6 **Redesigning curricula for the 21st century**

The last major changes to curriculum and related expectations to the education system were effected in the late 1800s as a response to the sudden growth in human capital needs brought about by the Industrial Revolution in many European countries and North America. Clearly, the world of the 21st century bears little resemblance to that of the late 1800s, so education curricula are overdue for a major redesign. Curricula worldwide have often been tweaked, of course, sometimes to a large extent; but they have never been deeply redesigned at the level of knowledge, skills, and character, while also considering the meta-layer/fourth dimension that includes learning how to learn, interdisciplinarity, and personalisation. Adapting to 21st-century needs means revisiting each dimension and how they interact:

Knowledge – relevance required: Students' lack of motivation, and often disengagement, reflects the inability of education systems to connect content to real-world experience. This is also critically important to economic and social needs, not only students' wishes. There is a profound need to rethink the significance and applicability of what is taught, and to strike a far better balance between the conceptual and the practical. Questions that should be answered include: Should engineering become a standard part of the curriculum? Should trigonometry be replaced by more statistics? Is long division by hand necessary? What is significant and relevant in history? Should personal finance be taught to everyone - and starting in which grade? Should entrepreneurship be mandatory? Should ethics be re-valued? What is the role of the arts – and can they be used to foster creativity in all disciplines?

Skills – necessity for education outcomes: Higher-order skills ("21st-Century Skills"), such as the "4 C's" of Creativity, Critical thinking, Communication, Collaboration, and others are essential for absorbing knowledge as well as for work performance. Yet the curriculum is already overburdened with content, which makes it much harder for students to acquire (and teachers to teach) skills via deep dives into projects. There is a reasonable global consensus on what the skills are, and how teaching methods via projects can affect skills acquisition, but there is little time available during the school year, given the overwhelming amount of content to be covered. There is also little in terms of teacher expertise in combining knowledge and skills in a coherent ensemble, with guiding materials, and assessments.

"Character" (behaviours, attitudes, values) – to face an increasingly challenging world: As complexities increase, humankind is rediscovering the importance of teaching character traits, such as performance-related traits (adaptability, persistence, resilience) and moral-related traits (integrity, justice, empathy, ethics). School is just one of the places where character is shaped. The challenges for public school systems are similar to those for skills, with the extra complexity of accepting that character development is also becoming an intrinsic part of the mission, as it is for private schools.

Meta-Layer – Essential for activating transference, building expertise, fostering creativity via analogies, establishing lifelong learning habits, and so on. It will answer questions such as: How should students learn how to learn? What is the role of interdisciplinarity? What is the appropriate sequencing within subjects and between subjects? How do we develop curiosity? How do we facilitate students' pursuit of their own passions in addition to the standard curriculum? How do we adapt curricula to local needs?

Sources: Fadel C., extract from the Center for Curriculum Redesign's foundational white paper *http://curriculumredesign.org/wp-content/uploads/CCR-Foundational-Whitepaper-Charles-Fadel2.pdf;* Trilling and Fadel (2009), "21st-Century Skills", *www.21stcenturyskillsbook.com/*

Beyond compulsory education, an effective way to ensure that young people are well-prepared to enter the labour market is to use the workplace as a place of learning, particularly for vocational education and training, but also for more academically oriented university programmes (Box 1.7). Figure 1.3, based on preliminary data from the OECD's Programme Programme for the International Assessment of Adult Competencies (PIAAC) field trial, shows mean foundation skills by age, education and work status. Foundation skills are better developed, on average, among older youth cohorts who are in education only, in work only, and among those who combine the two. This suggests that both work and studying may have a positive effect on the acquisition of skills, while being neither in employment nor in education and training (NEET) may have a negative effect.

Box 1.7 **Different forms of workplace learning**

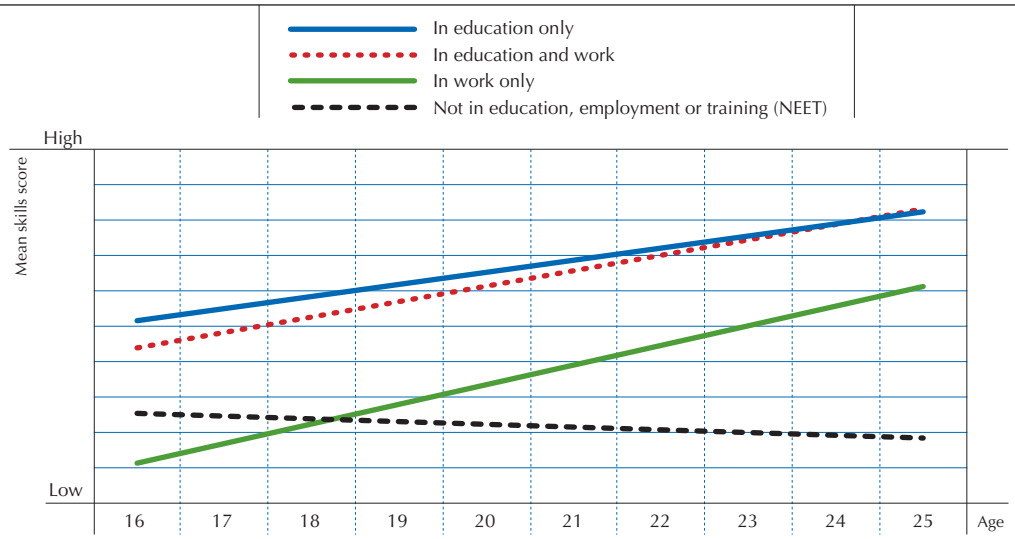
Workplace learning includes a diverse set of practices ranging from brief periods allowing the learner to observe a workplace, to structured, long-term apprenticeships leading to a qualification or diploma.

- Job shadowing: Very short periods of time – usually days – in which students "shadow" a worker to learn about the job. This often involves younger students and serves the purpose of exploring possible careers. In **Canada**, for instance, ninth-grade students shadow an adult close to them in real-life work settings (the "Take Our Kids to Work" initiative; *www.thelearningpartnership.ca/page.aspx?pid=250*). In **Italy**, vocational education and training (VET) secondary schools team up with local enterprises to set up "simulated learning enterprises" on school premises that encourage students to acquire the skills needed by those enterprises.
- Service learning: Voluntary work by students, usually in non-profit organisations, designed to provide a service while also offering students a learning opportunity. In the **Flemish Community of Belgium**, for example, some students in part-time VET programmes participate in such learning.
- Internships: Short periods of time – weeks or months – in which students work in actual workplaces, usually for no or nominal wages. They may be governed by a special contract. In various OECD countries, including **Austria**, the **Flemish Community of Belgium**, **Chile**, **Hungary**, **Italy** and **Mexico**, students in school-based upper secondary VET programmes may participate in internships, although not all VET students participate.
- Apprenticeships: More structured dual-track approach, combining part-time, workplace-based training in a company with classroom instruction in a vocational school, usually over a period of years, leading to a qualification. Well-developed apprenticeship systems can be found in the Germanophone countries, such as **Austria**, **Germany**, **Luxembourg** and **Switzerland**, and also exist in **Australia**, **the Flemish Community of Belgium**, **Denmark** and **the Netherlands**, among others.

Source: OECD (2010b).

■ Figure 1.3 ■

Young people in their mid-20s who are in education and work have higher average levels of foundation skills (country average)



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
Source: PIAAC field trial data (2010).

How to read this graph

Young people in their mid-20s who are only in education and those who are in education and work show higher levels of foundation skills, on average, than younger cohorts in comparable situations. The pattern is similar for young people who are only in work, albeit at a lower level. In contrast, older youth cohorts who are neither in work nor in education (NEET) show lower levels of skills, on average, than younger cohorts in comparable situations.

When employers are involved in designing curricula and delivering education programmes at the post-secondary level, students seem to have a smoother transition from education into the labour market.[21] Compared to purely government-designed curricula taught in school-based systems, learning in the workplace offers several advantages: it allows trainees 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. Workplace training also facilitates recruitment by allowing employers and potential employees to get to know each other, while trainees contribute to the output of the training firm. Workplace learning opportunities are also a direct expression of employers' needs, as employers will be ready to offer opportunities in areas where there is a skills shortage. Box 1.8 details how one city created a campaign to increase the number of apprenticeships.

Trade unions can work together with employers on skills policies, particularly on developing curricula and providing workplace-based training. Such collaboration can help to balance a focus on short-term and narrowly firm-specific skills, on the one hand, with attention to the future of the workforce and broader, transferable skills, on the other. Unions typically have incentives to protect the interests of existing workers, ensure that those in work use their skills adequately and have access to good-quality training, and see that investments in training are reflected in better-quality jobs and higher salaries. In the United Kingdom for example, the Trade Union Congress (TUC) established UnionLearn, a network of "learning representatives" who provide a high-profile strategic framework and support for union work on skills development and workplace learning. UnionLearn representatives provide information and advice and encourage employers to sign up to a "skills pledge" that commits them to training their staff to a specific level of qualification or diploma.

Box 1.8 **The Mayor's Apprenticeship Campaign in London**

London has one of the highest unemployment rates in the United Kingdom and, until recently, particularly low take-up of training opportunities, such as apprenticeships. London's economy is overwhelmingly service-based; therefore there is relatively little employment in the kinds of sectors that traditionally supported apprenticeships, such as manufacturing. Following, and accelerating, the momentum established by the previous Labour Government, the new coalition government has adopted a more market-based approach to skills. Employers are seen as the leaders of the skills-development system. Funding has been shifted to support greater use of apprenticeships, which are seen as employer-driven and an approach that can boost individuals' skills. The London government has established the Mayor's Apprenticeship Campaign to boost engagement in this type of training. The campaign has included:

- a focus on boosting apprenticeships at the upper secondary level, while prior growth had been at the lower secondary level;
- ensuring greater coverage of apprenticeship frameworks in "non-traditional" sectors, such as finance, which dominate London's economy;
- setting targets for London's local authorities and the Greater London Authority group, which comprises four municipal organisations, to increase their use of apprenticeships, both to increase numbers and show leadership;
- supporting greater use of public procurement to require contractors to create a given number of apprenticeship places (for example, one apprenticeship created for every GBP 1 million value of work awarded); and
- engagement with non-public sector employers.

The campaign has benefited from collaboration among various stakeholders, including: employers, the London Development Agency (currently being disbanded), the Greater London Authority, London councils, a number of sector-skills councils, the Young Person's Learning Agency, the Skills Funding Agency and National Apprenticeship Services.

As a result of the campaign, the number of apprentices in London doubled in one year alone: from 20 000 in 2009-10 to 40 000 in 2010-11. Growth over the past few years has been significantly stronger in London than in England as a whole, with London rising from bottom of the league table to 6th out of the nine English regions.

Nationally, there have been concerns that increases in the quantity of training may have come partly at the expense of quality, both in terms of the level and duration of training. While this is an ongoing challenge, evidence suggests that the quality of apprenticeships has been maintained in London. Apprenticeship completion rates have risen from one in three to two in three, the fastest growth rate in England. The greatest rise has been in the upper secondary level rather than the lower secondary level.

Source: Evans (2012).

Use funding instruments that help to steer skills development

A central objective of skills policies should be to ensure that the costs of effective and equitable education and training are shared among individuals, employers and government in accordance with the expected benefits. The appropriate balance between the costs borne by individuals (in the form of tuition fees, but also living expenses and foregone earnings), by employers (by providing or funding workplace training) and those borne by the public budget implies difficult trade-offs (Figure 1.4). However, effective funding instruments exist that address objectives of efficiency and equity.

Tax policy, including both the overall design and structure of the tax system and the specific treatment of investment in human capital relative to other types of investment, can help to set the right incentives for individuals and employers to invest in post-compulsory education and training (Box 1.9). The incentive to invest in skills can be strongly influenced by the tax treatment of the costs of education and training, as well as the taxation of returns. Perceived disincentives to work, resulting from the interaction between tax and benefit systems, can also influence the decision to invest in skills. However, it is the net impact of spending subsidies, taxes (or tax subsidies) and benefits that ultimately affects the expected private return on education and training. Since tax and spending policies might interact with each other, collaboration across government levels and departments is essential. For example, the impact of an increase in tuition fees on the incentive to invest in education is magnified by the tax system if personal tax relief is not provided for the cost of tuition fees.

Box 1.9 **The design of tax systems influences investment in skills development**

Both the general design of the tax system and the design of targeted tax measures related to education and training influence the net private returns on education.

For **taxes on individuals**, governments in OECD countries almost invariably rely on progressive taxes on income to raise a significant share of total tax revenues. Tax progressivity implies that the higher salaries resulting from skills investments are taxed at higher rates than earnings in the absence of up-skilling. Thus, some disincentive to invest in skills is inevitable. But even in the absence of tax progressivity, a proportional tax system can create a disincentive for marginal human capital investment when the costs of investment are not deductible in the personal income tax calculation. Although tax disincentives for skills formation may be partly or fully offset by public-spending subsidies for higher education, the impact of taxes on the return on investment in human capital is important. The disincentives for individuals to invest in education and training that are created by the general design of the tax system can be mitigated with targeted tax concessions. These include:

- allowing taxpayers to deduct the costs of education and training for personal income tax purposes; and
- taxing education and training services at a 0% rate for value added tax (VAT) purposes.

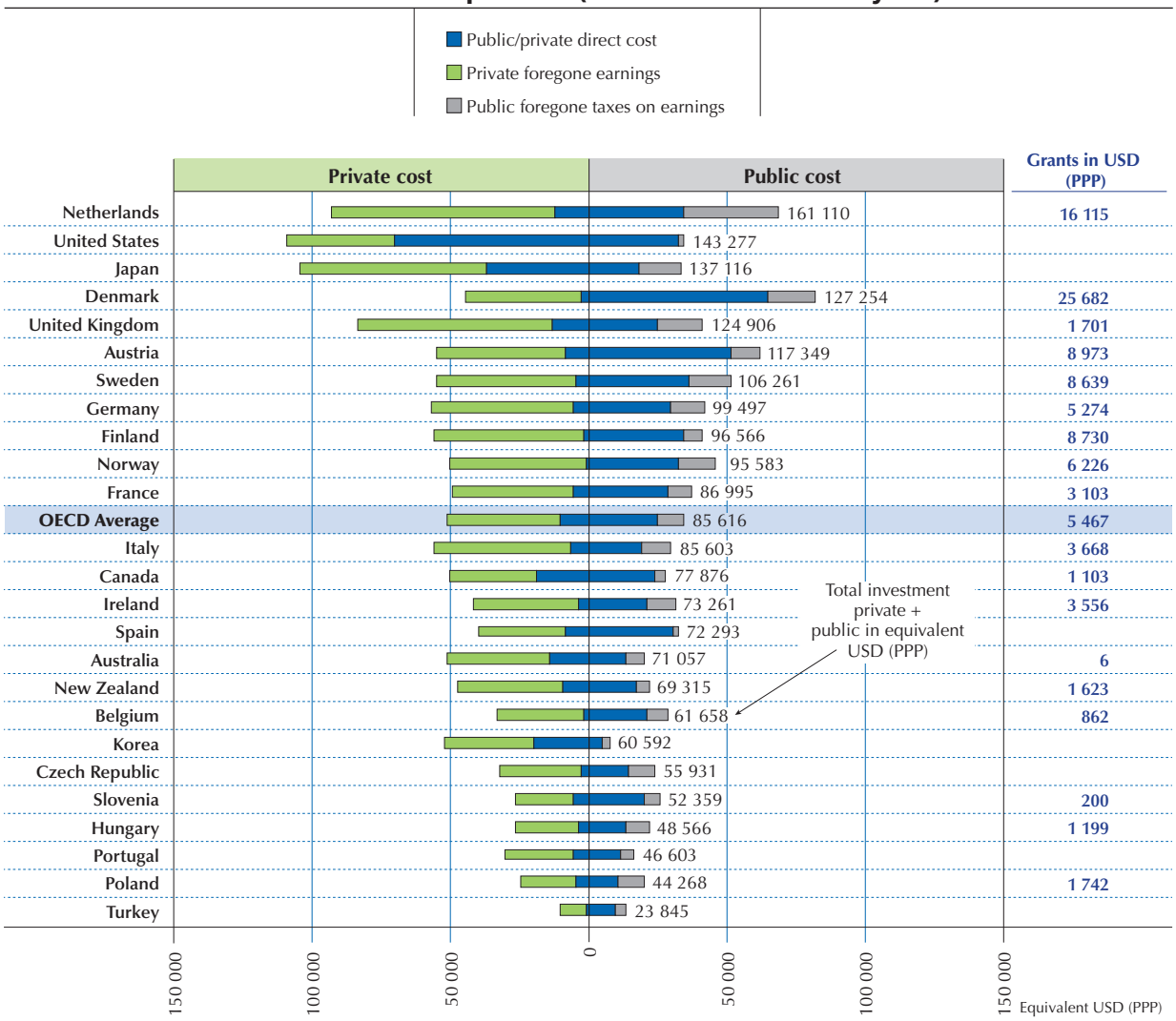
In contrast, the general design of **taxes on businesses** tends to be neutral, if not favourable, towards investment in employer-sponsored training. In most OECD countries, employers may fully deduct the costs of employer-sponsored training for income-tax purposes in the year the costs are incurred. This is a relatively favourable tax treatment, as most such training is an investment that is likely to add value for a business over a number of years, and depreciate only gradually. Such "expensing" is similar to business expenditure on intangibles, such as advertising and R&D, but more generous than investment in buildings and machinery where tax relief is spread over time, in line with the assumed rate of depreciation of assets. Some countries, including Austria, Belgium, Canada, Chile, Italy, Japan, the Netherlands and Spain, also provide explicit tax incentives for training, over and above the standard deductibility of training costs and of wages paid to trainees and apprentices.

Empirical evidence about the economic impacts of tax incentives for education and training or, more generally, about the overall impact of the tax system on decisions related to investing in human capital is limited. Lessons from recent evaluations show that the effectiveness of tax incentives depends on their design. For example, a highly complex design can reduce take-up rates, result in sub-optimal tax-relief claims, or lead to high non-compliance rates. Furthermore, tax incentives offered for a particular purpose may create perverse incentives – for example, to shift the allocation of investments in education and training, over time or across employees, rather than to increase overall investment levels.

Source: Torres (forthcoming).

■ Figure 1.4 ■

Public vs. private investment for a man[1] in university-level education or the vocational equivalent (2007 or latest available year[2])



Notes: Cashflows are discounted at a 3% interest rate. Countries are ranked in descending order of the total public + private cost.
1. The calculations are done separately for men and women to account for differences in earnings differentials and unemployment rates.
2. Australia, Belgium and Turkey refer to 2005; Italy, the Netherlands, Poland, Portugal and the United Kingdom refer to 2006. All other countries refer to 2007.
Source: OECD (2011d.)
StatLink http://dx.doi.org/10.1787/888932607138

Governments can also directly subsidise some post-compulsory education and training (Box 1.10); however, they should ensure that their scarce resources earmarked for skills development are allocated and spent efficiently. Deadweight losses, whereby the government subsidises forms of higher education and vocational training that would have been paid for from private sources anyway, should be avoided. Governments should therefore rely on financial incentives only when there is compelling evidence that private parties under-invest in post-secondary education and training or job-related training, and that this under-investment cannot be compensated for in any other way. However, surprisingly few of the financing measures used by countries have been subject to a systematic evaluation of their effectiveness and impact. As a result, policy makers are working largely in the dark regarding what does or does not work. Developing a strong information base on issues such as deadweight losses, the return on investment for participants, and possible spillover effects would help governments considerably in deciding whether and how to provide incentives for skills development.

Box 1.10 **Funding instruments: Types and country examples**

There are two main types of government funding instruments for individuals: loans and grants. The extent to which these instruments are used depends mainly on the cost-sharing distribution among the main actors involved in skills funding. Although these two funding instruments may take many forms, the main difference between them is that while money provided by loans is borrowed and has to be repaid, grants are direct cash or service transfers that do not have to be refunded.

Loans: Even when there is a high expectation of a future return, one of the main barriers to investment in skills development by individuals and firms is the absence of liquidity. When this constraint is alleviated, individuals and firms have more incentives to invest in education and training to develop their skills. Nevertheless, loans by themselves are constrained by risk- and debt-averse individuals, and they usually have to be combined with other government measures in order to be successful.

Interest-free loans or loans at reduced interest: Although loans to invest in education and training have traditionally been directed to individuals, there have also been some interest-free loans directed to enterprises in order to facilitate skills investment. Bank loan conditions and guarantees are arranged with governments. Governments are advised to intervene when there is evidence of underinvestment in education and training.

Income Contingent Loans (ICL): ICLs are more attractive to students than regular bank loans with government guarantees or mortgage-type loans for several reasons. Repayments are not required in periods of low income and the costs of investment are repaid when the returns materialise. Moreover, equity benefits of this system are provided, since low earners make low or no repayments, and graduates with low lifetime earnings end up not repaying their loans in full. A good example is the Higher Education Loan Programme (HELP) offered by the Australian government for resident students. Spain, New Zealand, South Africa and the United Kingdom also have successful schemes.

Grants: The main aim of grants is to provide direct funding to firms and individuals in order to develop skills through education and training. This direct funding is justified by the benefits that skills development brings to society. Most grants are directed to a specific target population, to attain a more equitable distribution of education and training.

Supervision and management training in Ireland: Grants under the Industrial Development Act in Ireland, dating from 1986, have been provided as an instrument to support investment in training for supervision and management positions, as well as instructors, technical advisers and consultants. Grants cover 100% of training expenses, favouring technology intensive projects over others. In order to receive this financial support, training projects must prove the need for financial assistance, viability, and the ability to generate or maintain employment in Ireland. Evaluations of the programme have shown that medium-sized enterprises are the ones relatively receiving the highest public contribution. Evidence also shows that grants were able to stimulate private expenditure on training among domestic Irish firms, but foreign-owned multinational firms would have sponsored this training anyway.

Training cheque in North Rhine-Westphalia (NRW, Germany): The German federal state of NRW introduced training cheques to cover 50% of training fees up to a maximum of EUR 500. These vouchers are available either for employers or employees of small and medium-sized enterprises (SME) with up to 250 employees. Before receiving the cheque, the candidate (employer or employee) must undergo compulsory counselling at approved agencies where vouchers are available. The cheques can be used either for general or firm-specific training.

	PROS	CONS
LOANS	▪ Government recovers the economic investment ▪ Reduces liquidity constraints ▪ Promotes investment ▪ Broadens access to education and training ▪ Alleviates reliance on family support ▪ Alleviates part-time working hours	▪ Risk- and debt-averse individuals (usually from lower socio-economic backgrounds) use loans to a lesser extent ▪ It is not a measure of equity by itself; it must be combined with other system policies ▪ Loan schemes usually apply only for tertiary education ▪ Access to information is asymmetric
GRANTS	▪ Allows targeting specific groups to apply equity measures ▪ Reduces liquidity constraints ▪ Alleviates reliance on family support ▪ Alleviates part-time working hours	▪ Government does not directly recover the economic investment ▪ Access to information is asymmetric

Other instruments: Individual Learning Accounts (ILA). ILAs are a base amount of resources that an individual can use to develop knowledge, skills and abilities. The aim is to encourage savings for education, while providing vouchers to people interested in pursuing training. An ILA initiative in the Netherlands includes contributions from learners, employers and the state, constituting a good example of cost-sharing funding.

Source: OECD (2008b); OECD (2012b); Müller and Behringer (forthcoming).

Despite shrinking budgets, governments still spend considerable portions of their national wealth on education and training. They should therefore ensure that investments in education and training are effective. Cost-effectiveness in post-compulsory education, particularly tertiary education, can be enhanced by linking funding more closely to graduation rates, creating incentives to reduce non-completion rates and the length of study time, reducing public subsidies to students who remain in the system too long, eliminating duplicated programmes, rationalising low-enrolment programmes by consolidating teaching staff across programmes, downsising faculty to respond to falling student enrolments, increasing the use of shared facilities, and expanding student mobility among institutions.[22]

Funding systems that aim to encourage individuals to engage in learning should be designed in such a way that they do not inadvertently limit student choice. This can happen when different funding regimes are offered for different types of programmes, for example, when student loans are available for academic programmes but not for vocational programmes (Box 1.11). A whole-of-system perspective also helps to determine how resources should be shared across different sectors of education and training: investing early on to foster equity can be particularly efficient as it has an impact on later education outcomes. Similarly, tackling the problem of school dropout by targeting at-risk students is also generally efficient, as it is more costly to assist poorly educated adults who may or may not be in work later on.

Box 1.11 **Funding structures with a system-wide perspective**

Australia. In 2008 the Australian Government introduced an income-contingent loan scheme in the Vocational Education and Training (VET) sector for students pursuing higher-level VET qualifications (diploma level and above). These places are not fully subsidised, so to increase participation in tertiary education to support the government's skills policy, an income-contingent loan scheme called FEE-HELP was introduced. Students repay loans through the tax system once their income is above the compulsory repayment threshold set by the Australian Taxation Office. Since this scheme already existed for university students (HECS), it was relatively easy to implement.

Singapore. In an attempt to differentiate itself from other East Asian economies, Singapore is making clear that students can learn at different stages in their lives and that the academic track is not the only pathway to successful outcomes in the labour market. VET also reports enviable outcomes, with up to 90% of graduates from the Institute of Technical Education (ITE) finding jobs in their chosen fields. In order to promote and facilitate VET graduation, Singapore has invested the same amount of public money for each student, regardless if he or she is a vocational student or a high school student going to the most prestigious university. By subsidising both higher education and VET students in the same way, Singapore is raising the profile of VET programmes and attracting high-performing students to these programmes.

Source: Hoeckel, et al. (2008); OECD (2010b); Schleicher (2011).

Policy makers need to evaluate the extent to which their funding systems are sustainable and which factors might influence the cost of skills development in the future. These could include demographic changes, whether participation in education is likely to grow or decline, and the likelihood of whether the unit cost of higher education will rise. Maintaining a longer-term perspective can help countries to adopt reforms that may not have immediate impact. For example, even in tight fiscal and recessionary/recovery economic conditions, governments tend to emphasise policies that support job creation and protection, rather than skills supply. However, cutting investment in skills in times of crisis and fiscal consolidation is inefficient in the long term. Rather, governments should ensure that fiscal-stimulus packages leverage benefits for skills development and demand for skills, as well as achieving other objectives. When governments do have to cut budgets, they should do so in a way that minimises the impact on future skills supply, and on vulnerable groups within this system. Certain measures might be particularly helpful in critical times, and strategic approaches that combine emergency measures with longer-term investments could turn a crisis into an opportunity.

Remove barriers to investing in further learning

Preparing young people for their entry into the labour market with up-front education and training is only one facet of skills development; working-age adults also need to develop their skills so that they can progress in their careers and meet the changing demands of the labour market. Moreover, there is strong evidence that foundation skills rapidly depreciate as individuals age, making continued learning of particular importance in countries with aging populations.[23]

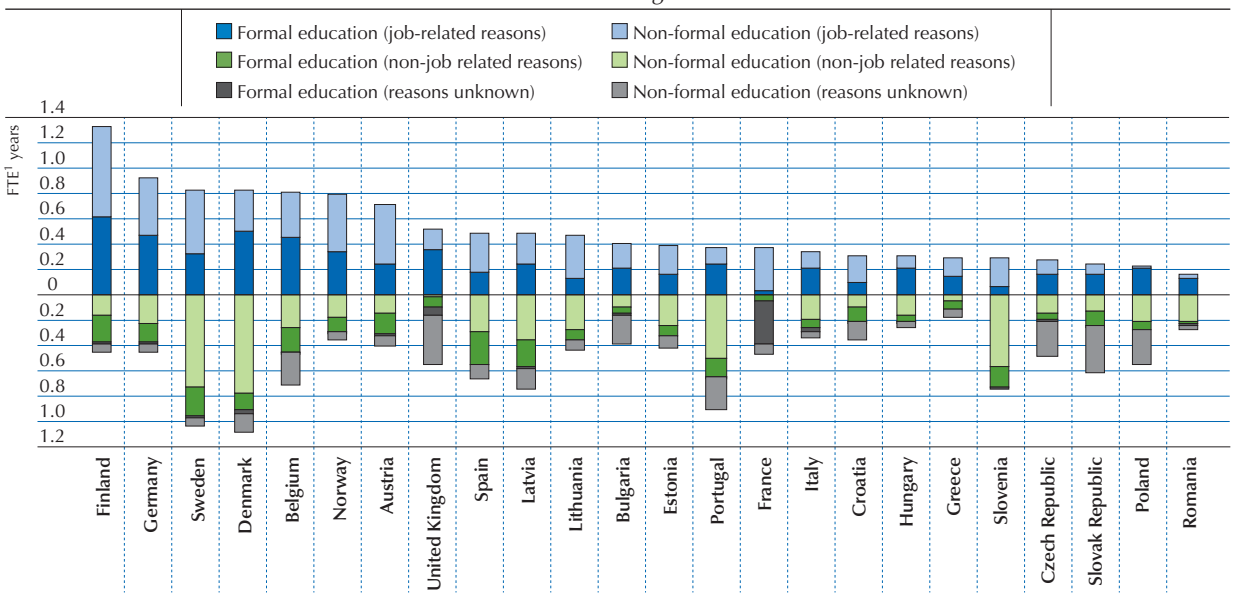
A wide spectrum of full- or part-time adult-learning activities is offered by a variety of providers to cater to different learning needs. These activities range from work-related employee training, formal education for adults, second-chance courses to obtain a minimum qualification or basic literacy and numeracy skills, language training for immigrants, and labour-market training programmes for job-seekers, to learning activities for self-improvement or leisure. Learning can also take place informally and through experience in the workplace.

Some countries are more successful than others in encouraging participation in further education and training (Figure 1.5). Differences across countries are also apparent when focusing on the type of education and training provided. In Finland, participation is mainly focused on job-related education and training, both formal and non-formal, while Denmark and Sweden report higher participation rates in education and training that are not job-related.[24]

■ Figure 1.5 ■

Expected number of years of work-related formal and non-formal education and training over a working life

Per adult between the ages of 25 and 64



1. Full-time equivalent (FTE) years indicates the length of time a person attends formal and non-formal education and training on a full-time basis.
Source: EU Adult Education Survey (2005-08).
StatLink http://dx.doi.org/10.1787/888932607157

There are a number of factors that determine the propensity of individuals to engage in adult learning. Skills policies on adult education and training need to identify and dismantle the institutional and situational barriers that prevent individuals from participating in education and training. A survey conducted in several European countries shows that lack of time is cited most frequently as a reason for not participating (Table 1.1).

Table 1.1

Main obstacles to participating in adult education and training

Percentage

	Austria	Denmark	Finland	France	Germany	Netherlands	Norway	Portugal	Spain	Sweden	United Kingdom
No obstacles	34.6	45.7	32.9	22.7	29.6	35.2	22.8	24.8	35.1	38.2	27.6
Time-related obstacles	28.3	27.7	31.5	36.1	35.8	33.9	36.8	31.9	35.2	27.8	39.4
Job-related obstacles	15.2	16.7	16.9	19.7	18.7	14.4	16.9	17.9	19.8	13	15.7
Family-related obstacles	17.9	17.3	16.5	19	21.6	17.2	17.8	19.9	17.4	15.6	26.2
Perception of being too old	10.8	5.3	16	13.9	14.5	14.9	10.8	13.9	10.6	11.2	11.8

Note: Percentages do not add to 100 because respondents could select more than one item from a list of 16. The items included in this table are grouped under aggregate categories.
Source: Chisholm, L. et al. (2004).
StatLink http://dx.doi.org/10.1787/888932607480

When asked what would help people to overcome obstacles to training, the most common responses were: flexible working hours (21%), individualised programmes of study (20%), and access to good information and advice (14%).[25] Generally, situational barriers, such as time constraints related to work or family life, tend to be indirectly linked to a broader range of welfare or labour-market policies, such as those related to childcare; whereas institutional barriers, such as inflexible hours or geographically remote locations, high user fees, or entry requirements are more directly linked to how adult education is provided. These need to be addressed in conjunction with other policy interventions. The OECD identifies a number of policy approaches that can help to dismantle some of these barriers.[26] These include:

- **Greater transparency**: Making the returns on adult education and training more transparent helps to increase the motivation of users to invest in adult education and training. 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.
- **Information and guidance for potential learners**: Less-educated individuals tend to be less aware of education and training opportunities or 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 is needed, as is information about possible funding sources.
- **Recognising learning outcomes**: Clear certification of learning outcomes and recognition of informal learning are also incentives for training. Transparent standards, embedded in a framework of national qualifications, should be developed alongside reliable assessment procedures. Recognition of prior learning can also reduce the time needed to obtain a certain qualification or diploma and thus the cost of foregone earnings.
- **Flexible delivery of relevant programmes**: It is essential to ensure that programmes are relevant to users and are flexible enough, both in content and in how they are delivered (part-time, flexible hours) to adapt to adults' needs. A number of countries have recently introduced one-stop-shop arrangements, with different services offered in the same institution. This approach is particularly cost-effective as it consolidates infrastructure and teaching personnel and makes continuing education and training more convenient. Distance learning and the open educational resources approach (Box 1.12) have significantly improved users' ability to adapt their learning to their lives.

Box 1.12 **Open Educational Resources (OER)**

The term "Open Educational Resources" (OER) was coined by UNESCO more than a decade ago to denote digital learning resources that are freely available (mostly on line, but sometimes in print) to teachers, educators, institutions, students and independent learners. In January 2007, the OECD identified over 3 000 open courses available from over 300 universities worldwide. Since the Massachusetts Institute of Technology (MIT) launched its OpenCourseWare (OCW) initiative in 2011, more and more institutions are developing and using OER. Licensing arrangements, such as Creative Commons, offer appropriate intellectual property protection for such resources. Given its benefits in access, quality and cost-efficiency, the OER approach will undoubtedly change not only the business model of many education institutions, but also the education system itself. MIT announced plans for a new initiative, MITx, that essentially combines the open courseware concept with opportunities for credentialing.

OECD work on OER offers some policy recommendations to be followed at the international, national, intermediate and institutional levels:

- Copyright legislation has to be harmonised and standardised at the international level to move towards a more generous way of looking at the use of digital materials for education. Copyright legislation has been identified as one of the main barriers to OER.
- The OECD recommends the use of open standards and open-source software licensing.
- Public-private partnerships can effectively promote OER, because they combine the know-how and resources from both sectors, while sharing and reducing risks.
- Since many of OER's users are independent and use it for informal learning, OER offers a way to encourage lifelong learning and wider participation in higher education, and to bridge the gap between formal, non-formal and informal learning.
- A holistic approach to all kinds of digital-learning resources and to all parts of the education system should be promoted to maximise benefits.
- Institutions, particularly those of higher education, should be encouraged to participate in OER, with a well-reasoned information-technology strategy, including e-learning issues.

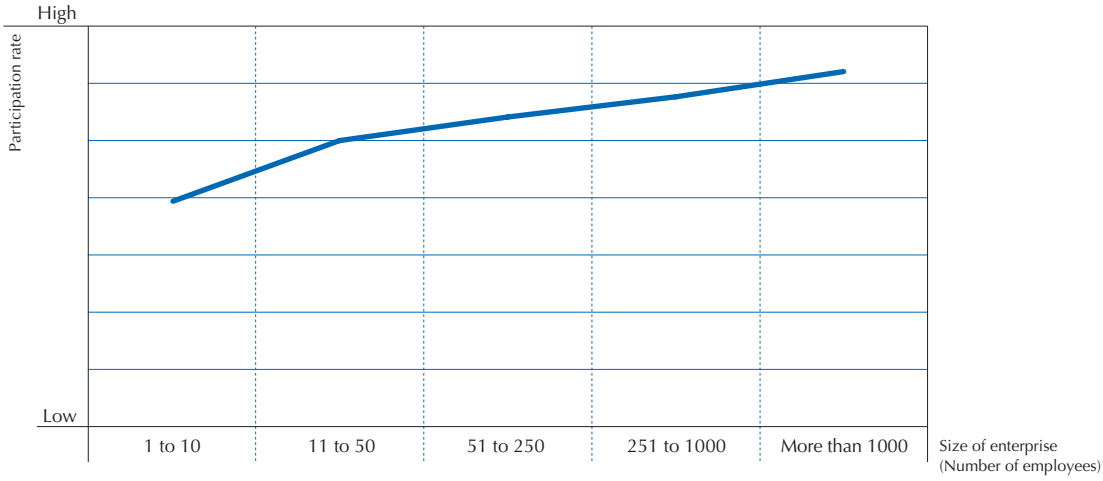
Source: OECD (2007).

Workplace or employer characteristics also have an impact on the decision whether or not to participate in later learning (Figure 1.6). Skills development is most often provided by large firms: participation in training activities is 50% lower in small and medium-sized enterprises (SME) than in large firms, especially because on-the-job training provided by SMEs is often not formally recognised.[27] Trade unions often encourage the availability of workplace training and help to redress age-, skill-, and gender-related inequalities in access to training.[28]

■ Figure 1.6 ■

Rates of participation in formal and non-formal education and training

25-65-year-olds, by size of enterprise, country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
Source: PIAAC field trial data (2010).

All firms, but particularly SMEs, need to overcome various obstacles to investing in employee training. These obstacles include lack of time, workload pressures, resources and cost; complicated paperwork/red tape; lack of enterprise/managers' skills, experience, data and support; an operational culture that does not include training; learning needs that are not met by the training offered; lack of awareness; and market position.[29] Recent analysis in selected OECD countries confirms that one of the greatest obstacles to SMEs participating in skills development and training activities is the lack of customised training.[30] Companies report that available training is often generic, and the more sophisticated management and technical training they require is either not available or too expensive.[31] SMEs are much more likely to use informal rather than formal skills development; and they are seeing better outcomes from informal activities than from formal ones.[32] Policies could thus focus on offering incentives for formal training organisations and providers to recognise informal skills development with appropriate qualifications or diplomas (Box 1.13).

Since SMEs have a finite amount of resources that they can devote to training activities, pooling resources and partnership arrangements among SMEs should be encouraged.[33] Policies could also encourage co-investments, both financial and in-kind, by the companies receiving publicly funded training advice and activities. Policy interventions, such as designing and disseminating skills audits and other assessment tools, are needed to help SMEs systematise their training practices (Box 1.14). Public policy should be co-ordinated across local, regional and national levels to help SMEs identify their training needs and determine the best options for their businesses.

Some countries establish levy schemes to increase employers' financial contributions to training and ensure that there is a reliable training budget that is independent of public resources.[34] Payments into these schemes are compulsory in some countries; in others, the private sector initiates these schemes. Such schemes attempt to address situations where employers "poach" trained workers from competing employers instead of investing in the skills of their own staff. This often leaves other employers unwilling to provide training, too, and can result in an overall underinvestment in skills development.[35]

Box 1.13 **Australian accredited-training initiative**

The Australian Government has put in place funding models where the purchasing power rests with clients. This includes industry- and enterprise-driven models where the purchasing power rests with the industry sector, enterprise or business. These "client-" or "demand-driven" models differ from "input-driven" models, where training providers are funded directly. A key policy aim of these models is to encourage take-up of accredited training by ensuring the training is relevant to the workforce development and training needs of the client.

An example of one such model is the National Workforce Development Fund. Under this model funding is provided by both the enterprise and the Australian government to support the workforce development and business needs identified by the enterprise. Co-funding is based on a sliding scale of contributions ranging from 33% to 66%, depending on the size of the enterprise. The funding is provided to the enterprise or a consortia of enterprises that enters into a partnership arrangement with a training provider to deliver the training required.

Funding support is only available for nationally accredited training courses. These cover a wide range of competency-based programmes and qualifications (over 2 000 courses and nearly 20 000 modules) that are developed by Industry Skills Councils. These courses are accredited by the National Skills Standards Council and comply with the Australian Qualifications Framework. Under the National Workforce Development Fund model, Industry Skills Councils provide assistance during the application process, including advice on nationally accredited training that is relevant to the indentified workforce development needs of the enterprises.

By supporting accredited training only, the government is, in effect, "purchasing" a benefit that is of use to the employee and his or her next employer as much as to his or her current employer. This addresses an important market failure, namely a potential lack of incentives for employers to fund the development of general or transferable skills because another employer might reap the benefits of their investment. Still, far more government funding is given to individuals than to enterprises.

Source: National Workforce Development Fund; *www.deewr.gov.au/Skills/Programs/SkillTraining/nwdf.*

Box 1.14 **Encouraging training in SMEs**

In **Korea**, a private or public training provider can receive public subsidies if it forms a partnership or consortium with SMEs in which the providers' facilities or equipment are used to develop skills. Subsidies can cover the costs of the facilities, equipment and salaries for training personnel. Government spending on this programme has steadily increased since 2003. In 2009, 78.3 billion *won* (about USD 69 million) was spent under this programme to train 231 000 employees at 111 000 SMEs.

Separately, SMEs can receive public subsidies to cover part of the costs associated with organising learning in the workplace. Specific activities that are eligible for the funding include study-group activities, creation of study spaces, high-quality learning programmes, development of learning networks, and on-the-job training programmes. This initiative started in 2006. In 2009, subsidies were applied to organised learning activities at 307 SMEs. In other cases, when SME employees participate in training offered by private providers, and the Ministry of Employment and Labour deems the activities to be core or central to the tasks of SMEs, then training costs and part of the labour costs may be subsidised.

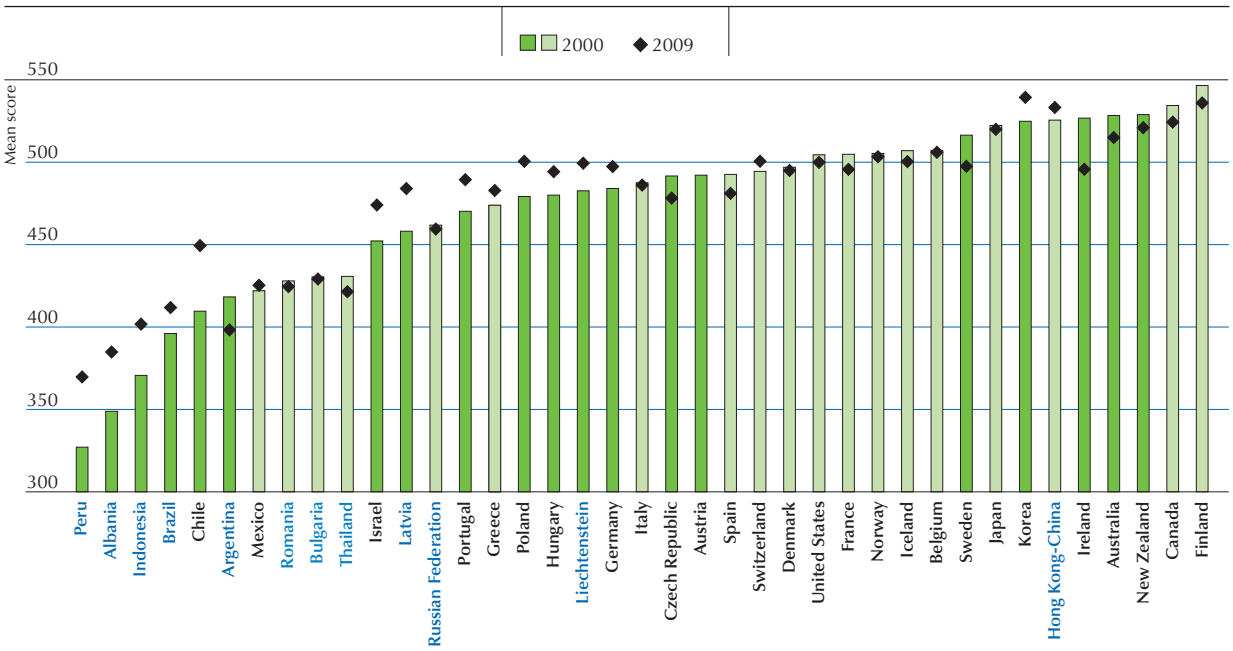
The government provides enhanced employment and training services to help SME employees and non-regular workers to develop job skills on their own and move on to better jobs. Under "JUMP" (Job Upgrading and Maturing Programme), SME employees and non-regular workers may take a module-based training course on weekends or weeknights. In 2009 alone, 13.8 billion won (about USD 12.1 million) was spent on this programme, benefiting more than 52 000 people.

Source: Korean Research Institute for Vocational Education and Training (KRIVET), *http://eng.krivet.re.kr/eu/index.jsp.*

The design of these schemes varies in coverage (universal, sectoral or regional), collection method, and obligation to contribute.[36] In France, for instance, since 1925 enterprises have been obliged to pay an equivalent of 0.5% of wages and salaries as an apprenticeship tax. Brazil imposes a 1% payroll levy on all industrial enterprises, with extra contributions for companies with more than 500 employees. Québec uses a "train-or-pay" system in which employers must contribute a certain sum to a training fund. Levy schemes are not new, and given their variety, it is difficult to evaluate levies in general. However, one study[37] concludes that levies tend to be accepted by employers more readily if they are targeted (sectoral or regional, rather than universal) and if the levy is managed locally. Given these findings, employers should be actively engaged in designing these kinds of schemes.

■ Figure 1.7 ■

Changes in the reading skills of 15-year-old students between 2000 and 2009, as measured by PISA



Notes: Due to a boycott of PISA in some Austrian schools it was not possible to ensure the comparability of the 2009 data with those from earlier assessments. Therefore, data for Austria have been excluded from trend comparisons.
Bars in darker colour show statistically significant changes from 2000 to 2009.
OECD countries are indicated in black and partner countries and economies are marked in blue.
Source: OECD, *PISA 2009 Database,* Table V.2.1.
StatLink http://dx.doi.org/10.1787/888932607195

Raise the quality of education

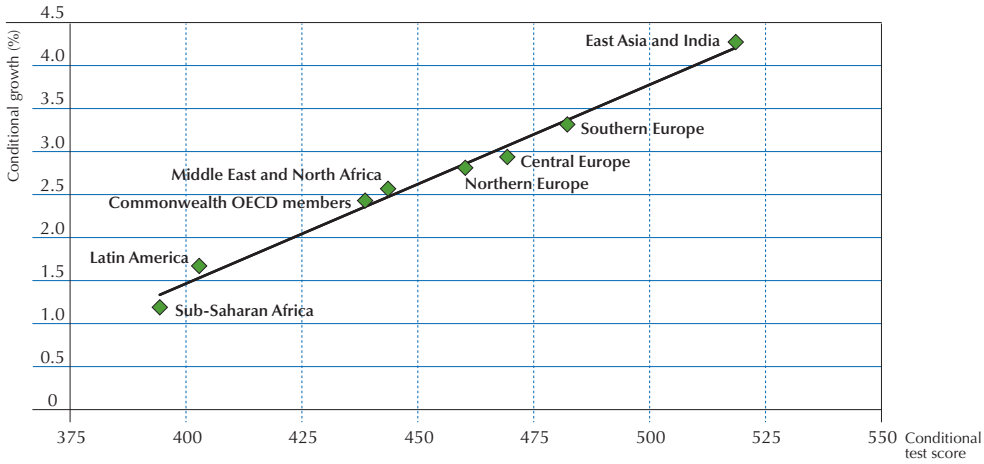
Governments need to raise the quality of education and training at all levels so that investment in skills development is effective and people leave education not only with a qualification/diploma, but also with the corresponding skills. For initial schooling, PISA results gathered over the past decade show that while some countries improved the skills of students significantly between 2000 and 2009, others stagnated or even declined (Figure 1.7).[38] In some countries, substantial numbers of students have not acquired the most basic skills by the end of compulsory education. Yet research shows a strong link between higher skills and economic growth (Box 1.15).

The demands placed on teachers to improve student skills cannot be underestimated.[39] Of course, teachers need to be well-versed in the subjects they teach in order to be adept at using different methods and, if necessary, changing their approaches to optimise learning. They also need a rich repertoire of teaching strategies, the ability to combine approaches, and the knowledge of how and when to use certain methods and strategies. Teachers have to be able to work collaboratively with other teachers and professionals or para-professionals within the same organisation, or with those in other organisations, in networks of professional communities and in different partnership arrangements, including mentoring other teachers. They also need to acquire strong technology skills and the skills to use technology both as teaching tools and as information-management systems to track student learning.[40]

Box 1.15 **The relationship between education and economic growth**

Research based on the premise that people with better skills continuously add value to an economy through new ideas suggests that the higher economic outcomes that result from improved skills dwarf the magnitude of the impact of economic cycles. One estimate puts the long-term economic value of improving student performance in PISA by 25 score points, or around a half a year of formal schooling, over the next 20 years – which is what countries like Brazil, Chile, Indonesia, Israel, Mexico Poland, Portugal or Turkey have achieved, at least in selected subjects, over the past decade alone – at USD 115 trillion over the working life of individuals born this year. Even if the estimated impact of skills were twice as large as its true effect on growth, the resulting present value of successful school reform still far exceeds any conceivable costs of improvement.

Educational performance and economic growth across world regions



Notes: Added-variable plot of a regression of the average annual rate of growth (in percentage) of real GDP per capita in 1960-2000 on the initial level of real GDP per capita in 1960 and average test scores on international student achievement tests (mean of the unconditional variables added to each axis). Depiction based on the database derived in OECD (2010d).

StatLink http://dx.doi.org/10.1787/888932607214

The figure above plots regional growth in real GDP per capita between 1960 and 2000 against average test scores, after allowing for initial differences in GDP per capita in 1960. Regional annual growth rates, which vary from 1.4% in sub-Saharan Africa to 4.5% in East Asia, fall on a straight line. When added to this model, school attainment is unrelated to growth-rate differences. The figure implies that, after accounting for initial income levels, regional growth over those four decades was associated with observed cognitive skills.

Source: OECD (2010d).

Many education systems face a daunting challenge in recruiting the teachers needed to ensure that participation in education leads to the desired learning outcomes, particularly in shortage areas, and retaining them once they are hired. This is of particular concern in many low- and middle-income countries with growing youth populations and rising participation rates. And yet there are a number of countries that have successfully improved the match between teacher demand and supply, even in difficult contexts (Box 1.16).

The issue of teacher demand and supply is both complex and multi-dimensional, as it reflects several challenges: how to expand the pool of qualified teachers, how to address shortages in specific subjects, how to recruit teachers to the places where they are most needed, how to distribute teachers in equitable and efficient ways, and how to retain qualified teachers over time. Policy responses are needed at two levels. The first concerns the nature of the teaching profession itself and teachers' work environment. Such policies should seek to improve the profession's general status and competitive position in the job market. The second involves more targeted responses and incentives for particular types of teacher shortage, recognising that that there is not a single labour market for teachers, but a set of them, distinguished by school type and characteristics, such as subject specialisation. Competitive compensation and other

incentives, career prospects and diversity, and giving teachers responsibility as professionals are important parts of strategies to attract the most talented teaches to the most challenging classrooms. Active recruitment campaigns can emphasise the fulfilling nature of teaching as a profession, and seek to draw in groups that might not otherwise have considered teaching.

Box 1.16 **Rise in enrolments and improving quality in Brazil**

Brazil provides a good example of a country where the logic of economic development has led to substantial improvements in education quality. The Brazilian economy could no longer depend on cheap labour if the country wanted to move to a value-added-based and globalised economy.

Although the constitution of 1988 ensured the right to free public education for children from ages 7 to 15 (8 mandatory years), with a decentralised structure and a small part of the budget spent on education, schools continued to provide only three to four hours of instruction a day.

By 1995, 90% of all children were enrolled in primary school at age 7, but just half of them completed the eighth grade. Students took 12 years, on average, to finish compulsory education, mainly because of grade repetition and dropping out. According to Simon Schwartzman, a leading political scientist in Brazil, what drives students to drop out is not the lure of jobs, but rather the poor quality of teaching and the irrelevant curriculum.

President Cardoso, who was elected in 1994, started an educational reform programme that was continued by subsequent presidents. The reform combined quality and equity measures to cope with the rise in enrolment in all regions of the country. The focus of the reform was on improving teacher quality and quantity, providing a relevant curriculum, and encouraging poor families to enrol their children in school and complete compulsory education.

Resources invested in education have increased markedly: from 4% of GDP in 2000 to 5.2% of GDP in 2009. High school completion rates have also increased; and in 2006, 11 years of schooling became mandatory (although not all students complete compulsory education). Brazil now provides basic public education to over 95% of the population. The reforms included:

- establishing assessment systems using an internationally benchmarked index;
- encouraging states and municipalities to take actions to improve education;
- applying student-based funding formulas that distribute funds fairly within states; and
- providing conditional cash transfers to lift poor families out of poverty through education.

Source: OECD (2011c).

Where teaching is seen as an attractive profession, its status can be further enhanced through selective recruitment that makes teachers feel that they will be going into a career sought after by accomplished professionals. Initial teacher education is another important part of the equation to ensure the supply of high-quality teachers in the longer term. Yet, no matter how good the pre-service education for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. High-quality professional continuing development is necessary to ensure that all teachers are able to meet the demands of diverse student populations, effectively use data to guide reform, engage parents, and become active agents of their own professional growth.

Beyond the quality of teachers, PISA has identified a number of other factors that are associated with better performance in schools.[41] First, the data suggest that schools and countries that expect all their students to perform well and be willing to work at learning, and that enjoy good student-teacher relations and high teacher morale tend to achieve better results. PISA data also show that schools that have more autonomy in determining their curricula and allocating resources tend to show better student performance, provided that those schools also have effective knowledge-management and accountability mechanisms. Second, in virtually all high-performing education systems, it is the responsibility of schools and teachers to work with all students and their diverse interests, capacities and socio-economic backgrounds, without having the option of making students repeat a school year, or transferring them to a different educational track or type of school with lower performance requirements. Some countries have successfully experimented with innovative learning environments (Box 1.17).

Box 1.17 Innovative learning environments

OECD analysis finds that high quality learning environments need to: make learning central and encourage engagement; ensure that learning is social and often collaborative; be highly attuned to the motivations of learners; be acutely sensitive to individual differences, including in prior knowledge; use assessments that emphasise formative feedback; and promote connections across activities and subjects, both in and out of school.

Europaschule in Linz (Austria). This pilot secondary school is affiliated with a university college of teacher education and functions both as a centre for practical in-school training of teacher-students and as a school that offers, and empirically investigates, ideal learning conditions. The school emphasises language learning and international contacts, but students can also choose a science, arts or media programme. Students learn in flexible, heterogeneous groups. Teaching methods include open teaching, during which students work according to weekly schedules. Individual feedback on student performance and behaviour is given in the form of portfolios that include teachers' reports and student self-assessments. Based on the feedback, students can prepare remedial instruction and a resource plan. The ultimate aim of the approach is for students to self-manage their learning and be intrinsically motivated to learn.

John Monash Science School (Australia). This secondary school is devoted to the teaching of mathematics and science to selected high-achieving 15-18-year-olds. The school, located on the Clayton campus of Monash University, works with university staff to develop cutting-edge, research-inspired curricula and weekly co-curricular activities, and to give students access to university-level enhancement subjects. Students are almost exclusively taught in large groups by several teachers, and supported in small tutorials and via close monitoring of student performance. The physical environment can be flexibly configured and allows ready access to many ICT resources. All students have an individual tablet computer that is both a chief learning tool and used for electronic communication between students and staff. Professional learning and staff development are emphasised.

Instituto Agrícola Pascual Baburizza (Chile). This school is an agricultural VET school primarily attended by students from rural areas and socio-economically disadvantaged backgrounds. It aims to provide students with a cross-disciplinary balance of general education subjects (math, languages, science), agricultural subjects (horticulture, watering and cattle management), and hands-on work using sustainable agricultural practices. Learning "soft" skills, such as a sense of command, initiative and honesty, is also emphasised. Teachers act as mentors by providing guidance and support for groups of ten students. National evaluations reveal that language and mathematics scores among these students have steadily improved, as have graduation rates.

Source: OECD, Innovative Learning Environment Project.

A recent OECD study also underlines that the benefits of early childhood education and care can be substantial, but they depend on the quality of the services provided.[42] Quality at this level of education can be assured by establishing goals and regulations; designing and implementing curricula and standards; improving the qualifications, training and working conditions for staff; and involving families and communities.

Governments can also help to foster quality in education and training beyond early education and schools. Post-secondary and tertiary education institutions need to be governed by a clear quality-assurance framework that serves both accountability and improvement purposes, and that combines internal and external evaluation without becoming an excessive administrative or cost burden.[43] In the absence of quality control, which can take the form of contractual arrangements, inspections and self-evaluations, workplace training opportunities for young people can degenerate into simply cheap labour for the firm.[44] Similarly, governments can help to improve the quality of these programmes by setting standards for the quality of adult education and training programmes, establishing performance assessments and evaluation mechanisms, and disseminating information about the provider (Box 1.18).[45]

While in the industrialised world and most emerging economies issues of educational quality are now at the forefront of skills-related policies, a global perspective on skills supply needs to take into account that large parts of the world still struggle with the UN Millennium Development Goal of achieving universal primary education by 2015. In West Africa, the primary enrolment rate is barely 70% and in Southern, East and Central Africa, it is only slightly above 80%. Moreover, regional averages mask inequalities within regions. In East and Central Africa, for example, Eritrea and Djibouti have primary enrolment rates of 34% and 44%, respectively, compared with 98% in both Burundi and Madagascar.

Box 1.18 **Promoting quality in adult learning: The Austrian quality seal**

The process of awarding quality seals (*Qualitätssiegel*) was introduced in the 1990s in the Land of Upper Austria as an initiative of the Adult Education Forum, an umbrella organisation of all non-profit providers operating in the region. The Forum developed a catalogue of criteria related to the nature of training, the qualifications of management and instructors, the curriculum, physical facilities, and feedback from students. Based on these criteria, certified auditors examine different aspects of any organisation seeking a quality seal. All 15 original members of the Adult Education Forum have passed these audits, as have 260 regional and local institutions affiliated with the 15. Since the pass rate has been almost 100%, the quality seal operates less by denying seals of approval than by providing criteria that organisations should meet. Since 2000, profit-oriented private adult-education institutions that are not members of the Adult Education Forum can also take these audits and earn the quality seal, as 75 non-member institutions in upper Austria have done. The criteria for awarding the seal are continuously updated.

Since the Land government wants to ensure that its newly created individual learning voucher, the *Bildungskonto*, is spent on education and training of appropriate quality, it requires that the vouchers only be used for training provided by organisations with the quality seal.

Source: OECD (2005a), *www.ibe.co.at/ebqs.html*.

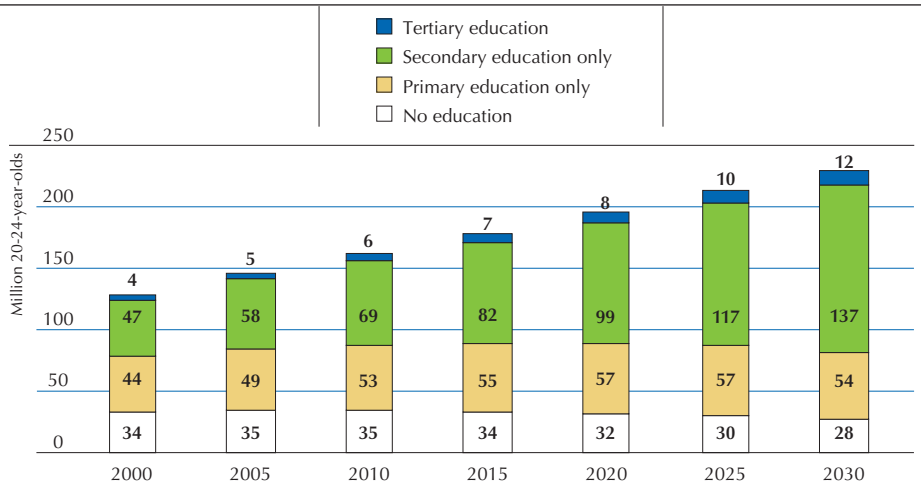
Far fewer children attend secondary education. In West, East and Central Africa, only 4 out of 10 children are enrolled in secondary education, even if significant progress has been achieved. Based on current trends, 59% of 20-24-year-olds in Africa will participate in secondary education in 2030, compared to 42% today. This will translate into 137 million 20-24-year-olds with secondary education and 12 million with tertiary education in 2030 (Figure 1.8) (OECD/African Development Bank/UNDP/UNECA, 2012).

In some of these countries, education and training programmes are hampered by weak infrastructure and administrative capacity, such as a lack of qualifications/diploma frameworks, teacher-training programmes, training equipment, career guidance, and labour-market information. In addition, responsibility for training is often divided among several agencies that operate in isolation, resulting in fragmented and inconsistent programmes. Centralising public-sector training may be impractical and could make training services more removed from the demand. However, greater effectiveness can often be achieved by ensuring that the agencies that provide training adopt common policies. Morocco's Human Capital Development Programme (Box 1.19) provides an example of how sustainable improvements can be achieved.

■ Figure 1.8 ■

Projected participation in education among 20-24-year-old Africans

By level of education, 2000-2030



Source: OECD/African Development Bank/UNDP/UNECA (2012).

StatLink http://dx.doi.org/10.1787/888932607233

Box 1.19 **Morocco's Human Development Programme**

The Moroccan authorities attach particular importance to the development of human capital and have put in place an impressive array of programmes, institutions and tax incentives to enhance capacities in education, improve vocational training, and promote employment so as to respond more effectively to the country's social and economic needs and create a better match between training and job opportunities. The principal text in this field is the National Education and Training Charter of 2000, which covers the entire education sector including basic education and vocational training.

There are specific programmes to help young graduates find employment, to adapt the profile of job-seekers affected by long-term unemployment, and to offer businesses financial support for job-creating projects. Several sector-specific training programmes have been set up to meet needs in agriculture, craft industries, and information and communication technologies. These programmes also offer direct subsidies to firms in support of their training efforts.

The main institutions responsible for implementing these various labour-market and training measures and assessing their impact are the National Employment and Skills Promotion Agency (ANAPEC) and the National Employment Observatory. Training programmes are guided by the Ministry of Education, assisted at the local level by the academic directors and co-ordinators for the sectoral programmes. These arrangements are supplemented by a system of tax advantages. Private education and vocational training establishments are eligible for reduced rates of income tax (20%) and corporate tax (15%) for the first five years, and a VAT holiday on equipment purchases during the first 24 months of operation. They do not pay the local business tax and municipal service taxes for premises devoted to instruction and student housing.

These programmes are carried out in partnership between the state and vocational-training firms. Since 1996 the state and business federations have been establishing Inter-Professional Consulting Groupings to help firms identify their training needs and adopt suitable strategies. The first in-house apprenticeship training centres were created in 2004 in the textiles and hotel sectors to organise recruitment and develop the required skills. There are now 48 such centres, and their number is expected to reach 150 by 2012. Since 2008 firms have been eligible for a government training grant in emerging industries such as automotive, aeronautics, electronics and offshore services, allowing firms to choose a public or private training provider operating in Morocco or abroad. The first evaluations of the various vocational training programmes and arrangements show that firms offering training to their employees have increased their turnover and achieved noticeable productivity gains.

Source: OECD (forthcoming), *Competitiveness and Private Sector Development in the MENA Region.*

Promote equity in educational opportunities

Inequality is deepening in many areas of life;[46] education and training can help to bridge this divide. Improving equity in skills development is both socially fair and economically efficient. Moreover, research has long confirmed that equity and quality in education are not mutually exclusive.[47]On the contrary: the highest-performing education systems across OECD countries are those that combine quality with equity (Figure 1.9).[48]

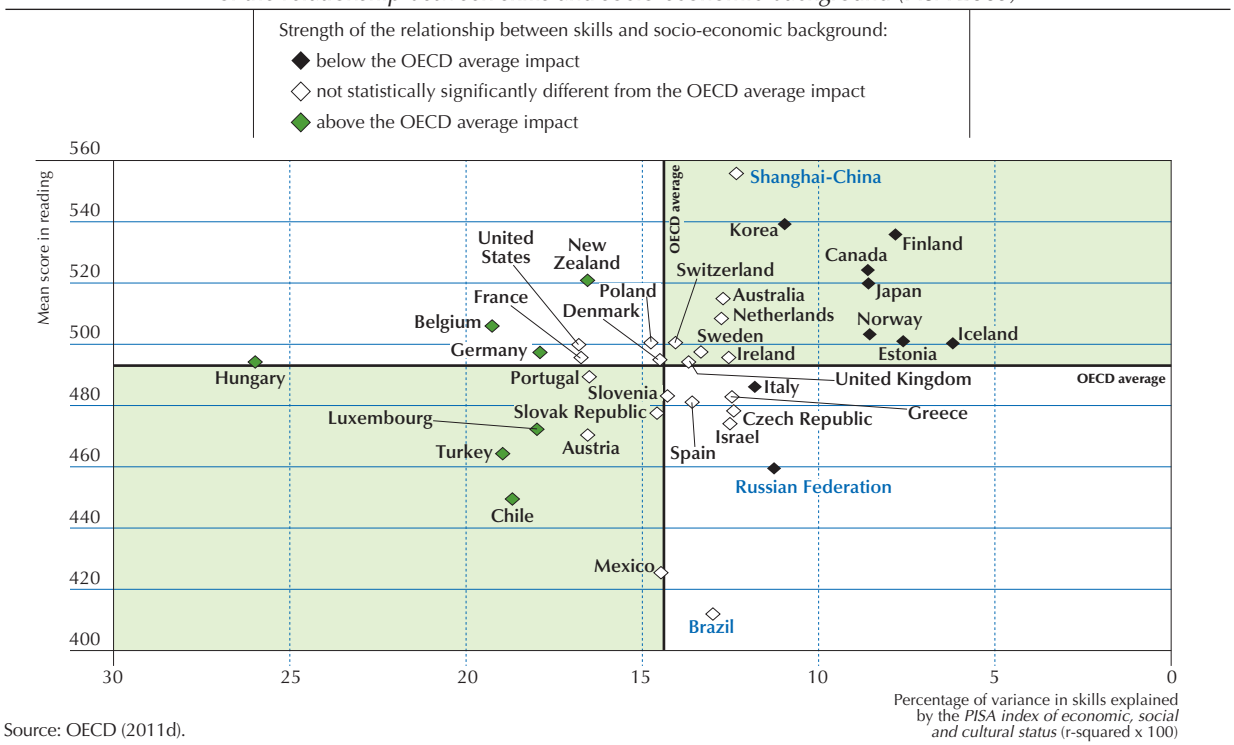
Individuals who have low levels of skills because they do not have access to high-quality education, because they fail to succeed in education or because they do not get a second chance to improve their skills later on are much more likely to have poor labour-market and social outcomes.[49] As Figures I.1 and I.2 in the Introduction illustrate, people with poor foundation skills face a greater risk of experiencing economic disadvantage, and a higher likelihood of unemployment and dependency on social benefits. Skills also influence civic and social behaviours in ways that can have significant impacts on democratic processes and business relationships. These results are consistent across a wide range of countries and hold even after adjusting for educational attainment and other background variables. The findings confirm that foundation skills have a profound relationship with economic and social outcomes in a variety of cultural contexts, and are related to those outcomes independent of the level of formal qualifications or diplomas. One reason for this is that direct measures provide a more up-to-date picture of an individual's skills because they reflect both the outcomes of skills gain and skills loss over a lifetime as well as the learning that has taken place in various contexts.

Providing good-quality early childhood education and schooling, particularly to children from socio-economically disadvantaged backgrounds, is an efficient way of ensuring that children start strong in their education careers[50] so that skills beget skills later on.[51] But most countries find it difficult to sustain high participation rates among disadvantaged students. On average, some 20% of young people in OECD countries leave school without completing upper secondary education.

■ Figure 1.9 ■

High-performing education systems combine equity with quality (PISA 2009)

Quality of learning outcomes, as measured by the reading skills of 15-year-olds, and equity, as measured by the strength of the relationship between skills and socio-economic background (PISA 2009)



Source: OECD (2011d).

StatLink http://dx.doi.org/10.1787/888932607252

The proportions range from 3% in Korea to a striking 62% in Turkey.[52] Some countries have developed mechanisms to identify and keep track of students at risk of failure, particularly at the crucial transition point between compulsory education and work or further education (Box 1.20).

Box 1.20 **Gathering information to identify and track students at risk**

In **the Netherlands**, the Personal Identification Number (PGN), which is issued to every child in the country over the age of 3½, is an important source of information for research and monitoring. Commonly referred to as the education number, it is the same as the tax and social insurance number. Schools share among themselves the PGN and other data on pupils as the child progresses through education. These data are increasingly used to monitor student performance, school attendance and the risk of dropping out. All secondary schools are expected to register absenteeism, disengagement and dropouts, and a monthly report is available to municipalities and schools to allow them to prioritise those at risk. This information is linked to socio-economic data, including immigrant status, minority status, unemployment and entitlement to benefits, by region, city and district, providing a wealth of information for implementing and adjusting policy.

In **Switzerland**, the VET Case Management Programme aims to help socially and/or academically disadvantaged students to stay in the education system and give them the opportunity to attain an upper-secondary VET qualification. The programme identifies, records and monitors at-risk youth. Socially and/or academically disadvantaged students considered to be at risk are usually identified at the age of 14 or 15. Young people who are not placed in an apprenticeship programme, have not completed it or fail to qualify and also have several social and/or academic disadvantages, are considered to be at risk and are contacted by an agency integrated in the programme. The agency is in charge of determining, together with the concerned young person, the measures needed to attain an upper-secondary qualification, and of co-ordinating those measures. Career orientation and other measures are provided.

Source: Akkerman, et al. (2011); Swiss Federal Office for Professional Education and Technology (OPET), Federal Department of Economic Affairs.

In addition, governments can prevent school failure and dropout by eliminating system-level practices that undermine equity, such as grade repetition and early tracking, by managing school choice to avoid segregation, which can exacerbate inequities, and by designing alternate upper secondary education pathways to ensure that students complete their education. Governments can also support those schools that have higher proportions of disadvantaged students by investing in the kind of school leadership that fosters a supportive learning environment, attracting and retaining high-quality teachers, and linking schools with parents and communities.[53] Some countries have developed effective strategies that support disadvantaged schools by linking them with the strongest-performing schools (Box 1.21).

Box 1.21 Supporting disadvantaged schools

Shanghai consortium of schools. Shanghai has adopted the strategy of converting "weaker schools" into strong ones as a way of improving the school system as a whole. The strategy consists of grouping strong and weak, old and new, public and private schools in a cluster, with a strong school at the core. An example of this approach is the Qibao Education Group. Qibao Secondary School, located in a suburb of Shanghai, is well-known for the high percentage of its graduates who are admitted to prestigious universities. In 2005, the Qibao Education Group was established around the Qibao Secondary School. Three other public schools and two private secondary schools were "adopted" by the Qibao Secondary School. All schools in the group have shown improvements since becoming members of the group.

Strengthening and distributing school leadership in Ontario. In 2003, the Ontario Ministry of Education launched a reform of secondary education called Student Success/Learning to 18 Strategy. The Student Success Strategy focuses on providing engaging, quality learning opportunities for all students and support for students at risk of not graduating. One of the main objectives of this reform was to promote strong leadership in schools and district school boards, with the aim of changing school culture and achieving long-term systematic improvement. New roles at the district and school levels were created in an effort to provide high-quality learning opportunities for all students and to support students who were at risk of not completing secondary education. At the district school-board level, a new role, Student Success Leader, was created to build leadership capacity. At the school level, the role of Student Success Teacher was created to provide support to students who were at risk of leaving school, while a Student Success Team (which includes school leaders, Student Success Teachers and staff) tracks and addresses the needs of disengaged students, and also works to establish quality learning experiences for all students.

Improving school climate in France. In September 2010, the ECLAIR programme (*Écoles, collèges et lycées pour l'ambition et la réussite*) was launched, aiming to improve the climate in schools with very high levels of disruptive behaviour and violence. The programme has two main objectives: ensure a better learning environment for all students, and retain and motivate teachers and other school staff. To attain these objectives, the programme tries to align educational needs and pedagogic resources, offering more – and higher-quality – human resources, more freedom in recruiting school leaders, and specific measures to improve school safety. ECLAIR ran for one year in 105 schools with the highest level of disruption; in September 2011, it was expanded to 324 lower secondary schools and 1 911 primary schools.

Source: OECD (2011c); OECD (2012b).

Financing mechanisms can be instrumental in mitigating inequities, particularly after compulsory education. Equal access to education can ultimately reduce income inequality, and public funding and tax relief can be leveraged to ensure that financial considerations are not a barrier to skills development. Countries should back their overall funding approach with a comprehensive student-support system to make it easier for disadvantaged students to participate in further education and training. A mixed system of loans and grants, available to students in the public and private sectors alike, can be particularly helpful. These schemes can assist disadvantaged students in covering tuition fees and living costs while obviating the need to spend excessive hours in part-time work and/or rely too much on family support. Means-tested grants help those with greater need and who might underestimate the net benefits of post-compulsory education.[54]

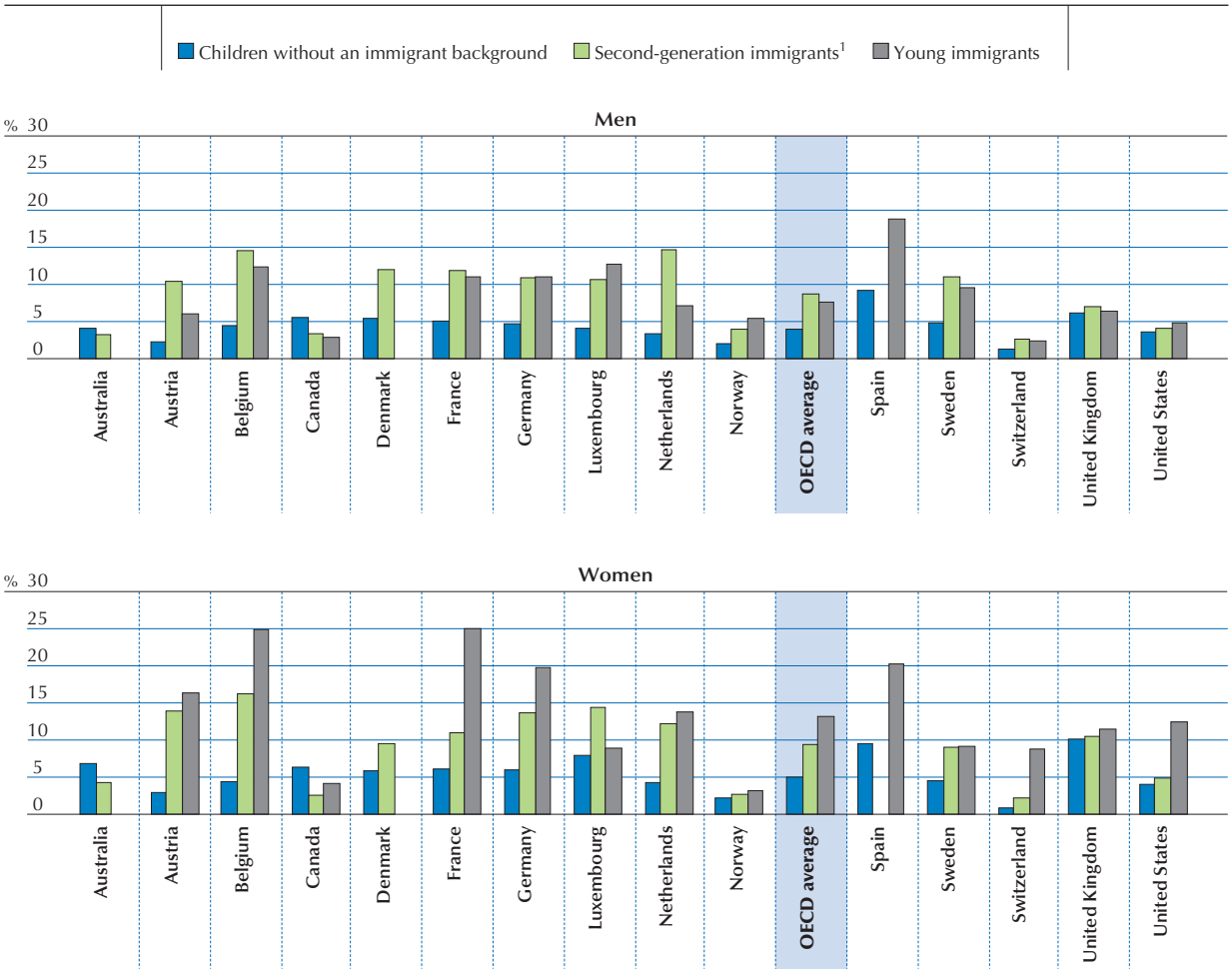
Some disadvantaged groups require special support to ensure that they have access to high-quality education and training and manage the school-to-work transition. In most countries, young people with an immigrant background do not perform as well in school as their peers who do not have an immigrant background, even after accounting for

their socio-economic status. They are over-represented among low-educated individuals who are not in employment, education or training (Figure 1.10). However, the differences in their performance across countries, as shown in PISA results, confirm that some countries are more successful than others in integrating children of immigrants into their education system and fostering a smooth school-to-work transition for them.

■ Figure 1.10 ■

Percentage of "population at risk" among children without an immigrant background and young immigrants, aged 20-29, by gender, 2007

"Population at risk" is defined as poorly educated (below upper-secondary) and neither in employment nor in education or training (NEET). Young immigrants are those who are foreign-born who arrived before the age of 18.



1. Second-generation students are those who were born in the country of assessment but whose parents are foreign-born.
Source: Liebig and Widmaier (2010).
StatLink http://dx.doi.org/10.1787/888932607271

Policies aimed at fully integrating immigrant families into host countries should focus on providing language instruction at all levels,[55] particularly for very young children. Yet, children at the critical age of 3 or 4 are usually under-represented in language classes.[56] Later at school, an inclusive environment and parental involvement are also important for sustainable integration. Some countries have been able to attract students with an immigrant background to teacher training[57] and have trained teachers to work with diverse student populations.[58] But proficiency in the language of instruction in addition to mastery of the mother tongue[59] is crucial if immigrant students are to participate fully and perform well in school, as can be seen in the success of targeted language policies in many countries. In addition, children of immigrants and their parents often need some additional counselling to inform them about the education choices available to them (Box 1.22).

Box 1.22 Denmark's "We Need All Youngsters" and "Retention Caravan"

The campaign "We Need All Youngsters" was launched in 2003 by the Danish Ministry of Refugee, Immigration and Integration Affairs with the aim of fostering equal opportunities in the education system and in the labour market. Since December 2011, the campaign has been transferred to the Ministry of Children and Education. The campaign also has a separate and independent branch, a so-called "Retention Caravan". The main objective of these two large-scale campaigns is to improve the integration of young immigrants, including second-generation immigrants, into the labour market by promoting their educational attainment, particularly in vocational education. In order to ensure a sustainable integration, a second objective is to encourage these young students to pursue training in areas where future shortages are predicted and where young people with a migrant background are under-represented.

We Need All Youngsters created a team of young role models with a migration background who have been successful in education and the labour market. These role models travel around the country discussing their experiences with other young people who have an immigrant background and giving advice on how to choose and successfully complete education programmes. A team of so-called 'parent role models' was also created to share experiences among parents.

Recruitment campaigns for various courses in vocational training schools and for courses in the social and healthcare fields, where there are expected to be shortages in human resources in the future, were also launched, targeting 16-20-year-old immigrant children. A similar campaign was conducted with the aim of recruiting young people for the police, armed forces, emergency and security services. Teachers in vocational training schools have been offered courses to improve their skills in teaching students whose mother tongue is not Danish. Among its other aims, the Retention Caravan develops new pedagogical tools and methods, in collaboration with vocational training schools, that are geared towards minority youth.

In response to a shortage of training places and apprenticeships, the Retention Caravan has also developed a user-friendly online guide for students looking for apprenticeships. The guide assists those seeking apprenticeships in writing applications and CVs and helps them to perform better in interviews.

The Retention Caravan is also recruiting a mentor team of retired skilled mechanics and blacksmiths to help vulnerable youth in vocational training courses. The mentor team will advise and support this group of students during the vocational programme.

Source: *www.brugforalleunge.dk.*

For individuals who leave education with very low levels of skills, second-chance options for education can provide a way out of a low skills/poor-economic-outcome trap. Surveys show that substantial numbers of adults have minimal levels of foundation skills: depending on the country, between one-third and two-thirds of the adult population lack the minimum core skills necessary to engage in further learning and function in modern economies.[60] For many low- and middle-income countries, the problem is significantly more serious.[61] These individuals are unlikely to engage in education and training on their own initiative, given their negative experience with the school system; and they are not likely to receive employer-sponsored training,[62] which means they face even greater difficulties in the labour market. Governments can offer second-chance foundation-skill courses for these individuals and incentives for employers to send their low-skilled employees to these courses (Box 1.23). Some countries have developed successful strategies to reach low-skilled adults by combining different modes and purposes of learning, often in non-school environments. Thus people who have been at the margins of or excluded from the labour market can work their way back in by developing their skills.

Box 1.23 Second-chance options for low-skilled adults

In a number of countries that have well-defined strategies to reach low-skilled adults, an approach that has proved successful is to move away from the school model and try to combine different modes and purposes of learning as often as possible. In **Germany**, for example, there are a range of second-chance opportunities for those at the lower end of the skills spectrum. Some focus on providing non-formal environments compatible with daily lives, with courses lasting only a few hours per week. These aim to support adults who are reluctant to participate in learning activities. In **the Netherlands**, some programmes also combine language teaching with work and, in certain cases, on-the-job training. The intergenerational approach has also been a success.

...

Korea has adopted alternative methods to reach and successfully train low-skilled adults. Literacy courses are delivered at the local level by social welfare centres, women's organisations and many non-governmental organisations. To reach and convince adults to enrol, for instance, the staff of the Anyang Citizens Adult Education Centre approaches women in places like supermarkets, beauty shops and bus stops. The teaching force is composed of volunteers, some of them former course participants. This Centre is networked with 25 other NGOs that also offer literacy courses. Special schools, called "paraschools", deliver adult basic education for low-skilled individuals that do not require all-day attendance. "Civic schools" offer basic education condensed into a three-year course, and "civic high schools" offer the equivalent of secondary education.

Some countries provide second-chance programmes that focus on combining school-based learning with on-the-job training, in a dual apprenticeship system for adults. In **Austria**, for example, "intensive apprenticeships" for adults last one year instead of three, with many adults likely to be interested in second-chance vocational preparation. The programmes are short as well as intensive, and lead to a qualification that carries the same currency as the conventional apprenticeship system. In 2002, 5 300 persons took the intensive apprenticeship exam and started a trade afterward; that represents more than 10% of the people starting a trade after finishing a regular apprenticeship. In **Poland**, the success of apprenticeship programmes for young people has raised interest in developing similar programmes for low-skilled adults.

Komvux, in **Sweden**, is a municipal institution for adult education at compulsory and upper secondary levels. It offers adults over the age of 20 the opportunity to improve and/or redirect their skills and to fulfil the general admissions requirement for studies at the tertiary level. Traditional subjects, such as social science, Swedish, English and mathematics dominate. Thanks to a high degree of "commonality", meaning that high proportions of students study the same general courses, less adult education is needed to switch from a profession requiring a vocational qualification to one requiring a general diploma (e.g. a bachelor's degree in business administration or computer science).

Source: OECD (2005a).

While gender parity in education has generally been achieved in much of the industrialised world, it remains an elusive goal in parts of the developing world. This also explains why aid from the OECD Development Assistance Committee often includes a focus on gender equality (Box 1.24).

While socio-economic background tends to have an impact on educational outcomes in virtually all countries, the problem is compounded in countries where the poorest households regard children as a source of income and where child labour remains a concern.[63] At the same time, some countries have addressed such challenges very successfully, often through changing incentive structures. One of the most successful school-payment programmes was created in Brazil in partnership with UNICEF (Box 1.25).

COUNTRIES CAN ENABLE SKILLED PEOPLE TO ENTER THEIR TERRITORY

In certain situations, developing the skills in the national population might not be enough. To avoid bottlenecks in production due to skills shortages, policies can enable skilled people to enter the country. Encouraging international students to stay on after their graduation can be another way to acquire high-level skills. However, one country's gain is naturally another country's loss, and losing highly skilled individuals through migration can create serious skills shortages in the source country. Encouraging return migration can be a way of providing skills to developing and emerging countries, as returnees bring with them the knowledge and skills acquired abroad. And, as described in the chapter on "activating skills" below, some countries have introduced retention policies aimed to staunch brain drain. Experience has shown that the best policies are those that provide incentives to stay rather than coercive measures to prevent migration. At the same time, the possibility of migrating to earn higher returns abroad can also create an incentive for people in source countries to invest more in education and training: since not all well-educated and well-trained people will leave, there is likely to be a net addition to the stock of human capital in the source country as a result.

Facilitate easy entrance for skilled migrants

Countries may have skills shortages because they have booming emerging sectors and not enough people trained in those fields, because they have aging societies and too few young people to replace retiring workers, or because they want to move major parts of the economy to higher value-added production, which requires a better-trained workforce.

Box 1.24 **Aid focused on gender equality in education**

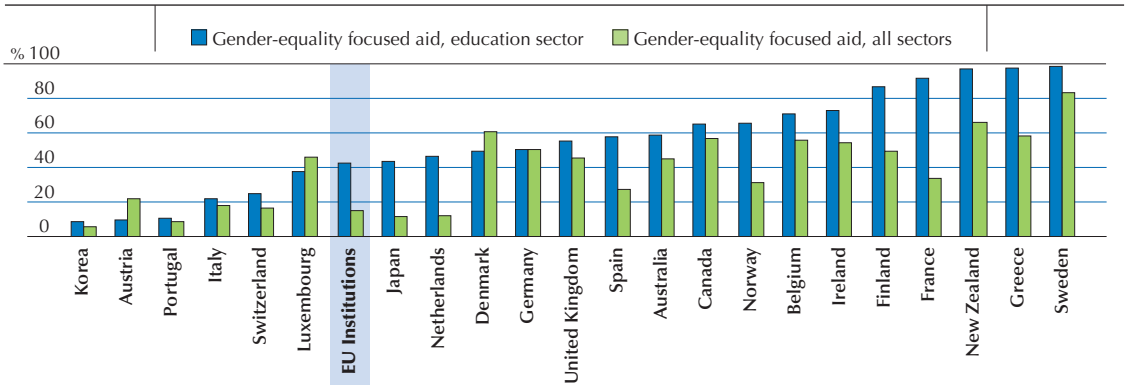
OECD DAC donor countries devote a large share of their aid to the education sector on gender equality. Donors should ensure that this aid makes it easier for girls to remain in school, including by supporting "girl-friendly" school environments. Aid flows from OECD Development Assistance Committee (DAC) donor countries totalled USD 129 billion in 2010, the highest level ever, and an increase of 6.3% over 2009. This represents about 0.32% of the combined gross national income of DAC member countries.

In the education sector, aid targeting gender equality and women's empowerment more than doubled in 2009-10 compared to 2004-05, with a total of USD 4.7 billion (annual average commitments).This represented close to 20% of total gender equality-focused aid by DAC members in 2009-10.

The figure below shows that, in 2009-10, an average of 60% of all DAC members' aid (excluding the United States) to the education sector was principally or significantly focused on gender equality – a proportion substantially higher than that of aid focused on gender equality in all sectors combined. For most DAC members, at least 50% of aid to the education sector addressed gender-equality concerns, either as a principal or significant objective; in countries such as New Zealand, Greece and Sweden, almost all aid to education focused on gender equality.

Shares of gender equality-focused aid, education and all sectors

2009-10 commitments



Note: "All sectors" refers to all sector-allocable aid: education, health, water, government, other social sectors, all productive sectors and multisector.

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The main recipient regions of gender equality-focused aid to the education sector in 2009-10 were sub-Saharan Africa, which received 31% of the total of this kind of aid, followed by South and Central Asia, with 16%, East Asia, with 12%, and North Africa, with 10%. The remaining regions received 5% or less of total aid to the education sector focused on gender equality.

Source: OECD (forthcoming), *Report on the Gender Initiative*.

Box 1.25 ***Bolsa Escola* – A successful support programme for disadvantaged families in Brazil**

At first, the Bolsa Escola was limited to a few areas, but as the programme became more and more successful, other regions of Brazil adopted it as well. Bolsa Escola paid cash stipends directly to mothers to send their children aged 6 to 15 to school. Though the payments were small – approximately USD 5 per child, per month – they helped many poor families improve their quality of life (for example, some families used the stipends to purchase electricity), while also encouraging education for their children. A pioneering feature of the programme was its decentralisation to the municipal level, entrusting the municipal authorities with the selection of beneficiaries and making the transfers. Eventually, Bolsa Escola reached some 10 million children. In 2003, it was folded into the broader, much-praised Bolsa Família programme.

Source: OECD (2010i).

Labour-migration policies can complement other measures to address these shortfalls. The OECD road-map for managing labour migration[64] recommends that an effective migration programme:

- identifies labour-market needs, considering demographic changes in the non-immigrant population and changes in educational attainment;
- establishes formal recruitment channels, including for low-skilled migration;
- issues sufficient numbers of visas and processes them quickly;
- provides efficient ways to verify residence and immigration status; and
- implements effective border-control and workplace-enforcement procedures.

Countries have established various policies to facilitate labour migration.[65] While most countries select labour migrants, they differ in the extent to which public authorities intervene in the selection process, and in the extent to which employers select potential employees. In European countries, labour migration is generally only possible for persons who have a job offer. Some countries, including Australia and Canada, allow so-called "supply-driven" labour migration, whereby potential labour migrants are invited to apply, and a certain number are accepted, to enter the country without a specific job offer. These migrants are generally selected on the basis of the skills they possess and other socio-demographic characteristics. Both of these countries, however, have recently restricted supply-driven migration, since immigrants who arrived without a job offer often found their qualifications and work experience gained abroad strongly discounted on the labour market. Selecting labour migrants through a job offer can be done through a labour-market test (that is, employers have to prove that they advertised a position nationally for a given amount of time without finding adequate candidates before they can turn to foreign candidates), wage criteria or lists of occupations in shortage. These can also be linked with other, particularly socio-demographic, criteria.[66]

Taxation policies can also influence immigration. By 2010, 16 OECD countries had established targeted tax incentives for high-skilled workers.[67] Some of these countries have introduced tax incentives to minimise the impact of tax burdens perceived to be uncompetitive. Others use tax concessions to attract or retain highly skilled workers when, for example, there are concerns about skills shortages.

International mobility has been growing significantly over the past decade, both in the OECD countries that have been settled through migration and in other destinations.[68] As a consequence, foreign-born populations have been steadily increasing. The education level of migrants varies substantially across OECD countries.[69] In a majority of destination countries, a larger proportion of migrants than of workers without an immigrant background has a tertiary degree. Australia, Canada and New Zealand, countries that have been settled by migration and that have longstanding programmes to admit significant numbers of labour migrants, have among the largest proportions of immigrant populations, and educational attainment among immigrants is also higher than among individuals without an immigrant background. Both of these facts are linked to selective labour-migration policies that favour highly skilled migrants. Meanwhile, targeted education policy in destination countries can help children of immigrants to succeed (Box 1.26).

Box 1.26 **Unleash the potential of the children of immigrants**

The best way to measure how well immigrants are integrated into a society is, arguably, not by how their outcomes compare with those of their peers, but rather by their children's outcomes. Immigrant students underperform in PISA, but the performance gap between them and non-immigrant students varies considerably across countries, even after adjusting for socio-economic differences. There are only a few OECD countries where the reading outcomes of 15-year-old immigrant students are similar to those of non-immigrant students: these are countries like Australia, Canada and New Zealand that have practiced selective immigration policies for many years and where arriving immigrants tend to be highly educated. This is also the case in Israel, which, in recent decades, has seen an increase in the migration of educated Jews from around the world. In other countries where immigrants' children do well, the migration often occurred when these countries were part of larger states and/or had a different international status. In most other countries, reading levels among immigrant students lag far behind those of non-immigrant students, even after controlling for parental education.

Designing education policy to address the needs of immigrants' children is not easy or cheap. It takes a concerted effort to try to understand what those needs are and the best ways to address them. The most effective way to tackle disadvantages related to age at arrival would be to favour earlier arrival of immigrant children whenever possible.

...

This is not something that is entirely influenced by policy or even a matter of immigrant choice, such as when immigrants and their families flee persecution or life-threatening situations. However, the fact that outcomes depend so closely on the age at arrival suggests that immigrants who intend to settle or are thinking of doing so should be encouraged to bring their families as soon as they can. Most countries have policies in place that require certain immigrants to have adequate income and housing before they can bring in their families. Such policies, intended to ensure minimum living standards for immigrant families, may delay the arrival of immigrant children and thus have the unintended consequence of delaying the acquisition of the language of instruction or of falling behind in school for certain immigrant children.

Not understanding the language of the country of residence upon arrival is a significant disadvantage; but so too is little exposure to that language outside of school. PISA results suggest that students who mostly speak a different language at home from that used in school have significantly lower reading scores than those who tend to use the test language at home most of the time. This effect is very strong in OECD countries and elsewhere, accounting for a difference of about 30 points in reading scores, or nearly a full year of schooling, on average, between those who mostly speak the test language at home and those who do not. The performance gap is still apparent even when comparing students of similar socio-economic backgrounds.

Language-learning policies, including mother-tongue language, need to be reinforced, both for very young immigrant children and for those students who arrive later with little knowledge of the host-country language. The language skills of parents, particularly of mothers, may not be sufficient to allow them to assist their children in their schoolwork. This is especially the case in the Internet age, when media in the language of the country of origin are more present in immigrant households than they ever used to be. The objective needs to be more exposure to the host-country language, both in and out of school. Parents need to be made aware of this so that the home environment contributes to improving outcomes.

The diversity of immigrant student populations across countries signals the wide variety of challenges these students face. However, the variance in the performance gaps between immigrant and non-immigrant students across countries, even after adjusting for socio-economic background, suggests that policy has an important role to play in eliminating such gaps.

Source: OECD (forthcoming), *Competitiveness and Private Sector Development in the MENA Region;* OECD (2012d), *Untapped Skills: Realising the Potential of Immigrant Students.*

Encourage international students to remain after their studies

International students are a growing source of highly skilled migrants. Information on the number of international students (that is, students who obtained prior education abroad) is not available for all OECD countries, but the available evidence suggests a strong increase over the past decade. The advantage of international students for host-country employers is that they have a qualification or diploma that can be easily evaluated. They also often have established ties with the host-country society and labour market and can find a job more easily. To make better use of this important source of skills, several OECD countries have eased their immigration policies to allow international students to work during their studies and encourage them to remain after their studies to work (Box 1.27). The overall percentage of those who remain in the host country after their studies varies,[70] averaging 25% in 2008-09 among international students who did not renew their student permits; it is above 25% in Australia, Canada, the Czech Republic, France, Germany and the Netherlands.

Doctorate-holders are not only the most qualified individuals in terms of educational attainment, they are also those who are specifically trained to conduct research. Since not much is known about the career paths and mobility of this high-skilled group, the OECD, UNESCO and Eurostat are working together in the Careers of Doctorate Holders project to provide statistics for this specific group.[71] Across the participating countries, an average of 13.7% of doctorate holders had lived or stayed some time abroad during the previous 10 years, ranging from 5.6% in Latvia to 23.5% in Hungary and 29.8% in Malta.[72]

Facilitate return migration

Migrants returning home can bring back knowledge and experience of use to their home country. However, some emigrants do not return to their home countries because they may be prevented from immigrating again. A long-term residency status in the destination country can help to remove that barrier; so can measures that allow social security contributions or rights to "migrate" with the individual. A number of countries have tried to eliminate disincentives to return and, indeed, to facilitate and encourage return migration.[73] Poland provides financial support to municipalities

that invite returnees and provide them with housing; Estonia has developed a specialised website aimed at connecting Estonians living abroad with possible employers in Estonia; and several countries in Asia have developed training and business-counselling services offered to return migrants who want to set up businesses. Italy, New Zealand, Portugal and Spain provide income-tax concessions to highly skilled nationals returning to their home country.[74]

Box 1.27 **How countries retain international students after study**

In recent years, a growing number of OECD countries have sought to attract international students, either as sources of finance for educational institutions or, after they graduated, as new knowledge-creators who could contribute to economic growth by changing their status to labour migrants. Some policy measures are designed to encourage international students to come and study; others make it easier for these students to stay after graduation and enter the labour market. **Austria** and **Germany**, among other countries, have largely opened their labour markets to international students after their studies. Similarly, **the Czech Republic** has made it easier for international students who have completed secondary or higher education to enter the country's labour market. These graduates no longer require a work permit.

Under the new immigration law in **Norway**, graduates from Norwegian universities may apply for a six-month permit to seek a job commensurate with their level of qualification. In addition, family members of students taking courses are allowed to work full-time, while the students themselves may work part-time. Since 2011, international students will be entitled to remain in **Switzerland** for six months after they graduate while they look for employment. **Japan** also has taken steps to make it easier for international students to stay in the country. The period after graduation during which they are allowed to stay and seek work has been increased from six months to one year. Most foreign students graduating from **US** universities are eligible to seek employment for practical training in work directly related to their field of study for a one-year period after graduation; since 2008, however, students graduating from US universities with a degree in science, technology, engineering, or mathematics may also apply for an additional 17 months of post-graduation employment. In 2011 the United States announced the launch of the Study in the States website, a new online initiative encouraging international students to study in the United States.

While some OECD countries continue to liberalise their policies for international students, others that have been prime destination countries for student migration – namely **Australia**, **Canada** and the **United Kingdom** – have started to exert stronger control over enrolments and programmes in an effort to minimise abuse and the use of study as a fraudulent means of entry.

Source: OECD (2011g).

COUNTRIES CAN ESTABLISH EFFECTIVE CROSS-BORDER SKILLS POLICIES

While governments tend to think and act primarily in national terms, economic activity is increasingly international. Skills policies increasingly need to adopt a global perspective in addition to catering to the needs of the national economy. Some countries, particularly emerging economies with rapidly changing skills needs, engage in cross-border education partnerships and other forms of knowledge transfer. Other countries invest in skills abroad.

Facilitate knowledge transfer and cross-border education

Co-operation on skills policies between source and destination countries can increase benefits to both. For example, some countries provide training to temporary labour migrants in the host country – and the workers can then take this knowledge back to their home countries when they return (Box 1.28).

Policies that encourage cross-border tertiary education help a country to expand its system more rapidly than if it had to rely on domestic resources alone. They can also help to improve the quality, variety and relevance of domestic higher-education – three key elements that require a critical mass of high-quality academics. A growing number of emerging economies in Asia have allowed foreign universities to introduce cross-border tertiary education on their territories. In Malaysia, for example, foreign providers offered 34% of the 899 bachelor's degree and post-graduate programmes in the country's private education sector in 2006, and the government has encouraged this by allowing foreign providers to bid for domestic research funding.[75] In Brazil, the government recently launched the Science Without Borders programme, providing scholarships to Brazilian undergraduates that allow them to spend one year of studies in the best colleges and universities abroad, with special preference for STEM (Science, Technology, Engineering and Mathematics) sectors.[76]

Box 1.28 **Training foreign workers**

Korea offers an "occupational skills and set-up business training programme" for workers under its five-year-maximum temporary Employment Permit Scheme for low-skilled workers in SMEs. The programme aims to help foreign workers to successfully resettle in their own country after returning and is targeted to both foreign workers with E-9 visas and, more recently, overseas Koreans with H-2 visas (a temporary work permit) who have worked for more than three years or have been re-employed.

The courses offered include hairdressing, computer repair, automobile maintenance, electrical welding, excavator driving, Korean translation, Korean cuisine, and trade with China (most H-2 visa holders are Chinese).There were 720 spaces in the programme in 2012 – enough to accommodate only a small fraction of the several hundred thousand workers in the EPS scheme. Some 5 000 active foreign workers can participate in the training programme.

Other OECD countries have also set up temporary labour-migration programmes for training that are often administered in close co-operation with origin countries. **Germany**, for example, has a so-called "guest employee" programme that is aimed at allowing skilled and semi-skilled migrants from Eastern and Southeastern Europe to obtain supplementary specific training in Germany for one year to 18 months. The intention is to train them and teach them about the German labour market, economy and language so they can find work in their respective country of origin if that country engages in a trade partnership with Germany. Under certain circumstances, the migrants may also stay in Germany after the programme.

Source: Employment Permit System, *www.eps.go.kr/en/supp/supp_02.jsp*; OECD (2004).

Creating networks of expatriates can also have positive effects on both technology transfer and investment. Organisations of expatriate scientists have been instrumental in encouraging firms in the host country to invest in the expatriate group's country of origin. There is also evidence that networks of expatriates have initiated joint research projects with scientists in their countries of origin, thus improving the flow of technology and information.[77]

Invest in skills development abroad

Another way to link migration and skills policies across borders is to invest in people abroad. This has the double advantage of providing well-trained workers to branches of firms located abroad, building up skills in the host country, and reducing the incentive for emigration, especially among higher-skilled individuals, since there are work opportunities available locally (Box 1.29).

Box 1.29 **Swiss-Indian vocational education and training initiative**

In 2008, Switzerland launched a pilot project in India as a way of investing in human capital for Swiss companies abroad. The project, Berufsbildungskooperation Schweiz – Indien, which offers vocational education and training, is led by the Swiss-Indian Chamber of Commerce in co-operation with the Swiss Federal Institute for Vocational Education and Training (SVIVET) and Swissmem (the association of the Swiss mechanical and electrical Engineering industires). The Swiss Federal Office for Professional Education and Technology (OPET) supported the pilot phase of the initiative by providing funds and access to government agencies.

The initiative has three main objectives: to cover some of the demand of Indian and Swiss companies operating in India for highly qualified workers; to provide an opportunity for young Indian adults with a school-leaving certificate to enrol in vocational education and training that is based on the successful elements of Switzerland's combined dual-track VET programmes, and that is a valuable and viable alternative to exclusively academic education; and to strengthen trade relations between Switzerland and India and boost the competitiveness and productivity of Swiss and Indian businesses.

A two-year vocational education and training pilot in the industrial sector has been operating in Bangalore and Pune since late 2009. In 2011, the first students completed their training as production technicians according to Swiss standards. The project started as a public-private partnership, with at least 40% of the costs in the launch phase covered by private industry. After the pilot phase was successfully completed, the project was transformed into a private enterprise, financed by a group of industry partners. A co-operation contract signed with this new corporation, SkillSonics Private Ltd., for the period 2012-22 aims to train one million skilled workers during that time.

Source: *www.bbt.admin.ch/themen/01051/01071/01082/index.html?lang=en.*

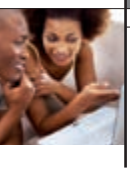

Table 1.2 [1/2]

Developing relevant skills: Key questions, indicators and resources

Key questions	Selected indicators for self-assessment	Selected further reading and policy examples
Encourage people to learn		
What is the level and distribution of skills in my country's population?	▪ **Performance in PISA over time** http://dx.doi.org/10.1787/888932359948 ▪ **Distribution of foundation skills in the adult population** (OECD Adult Skills Survey, available in 2013) ▪ **Educational attainment in the adult population** http://dx.doi.org/10.1787/888932462168 ▪ **Percentage of population that has attained tertiary education** http://dx.doi.org/10.1787/888932459831 ▪ **Percentage of population that has attained at least upper secondary education** http://dx.doi.org/10.1787/888932459850	▪ "The Output of Educational Institutions and the Impact of Learning" (Chapter A), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011 ▪ *PISA 2009 Results: Learning Trends: Changes in Student Performance Since 2000* (Volume 5), OECD Publishing. www.oecd.org/document/60/0,3746,en_32252351_46584327_46609852_1_1_1_1,00.html
How is the educational attainment of my country's population likely to evolve in the future?	▪ **Trends in educational attainment** http://dx.doi.org/10.1787/888932462339 ▪ **National demographic statistics and projections**	▪ "The Output of Educational Institutions and the Impact of Learning" (Chapter A), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011
What do we know about changes in sectoral composition and skills demand in the economy?	▪ **Changes in employment structure** (OECD Employment Database) www.oecd.org/employment/database ▪ **Human resources in science and technology (HRST)** http://dx.doi.org/10.1787/888932485842 ▪ **HRST employees by industry** http://dx.doi.org/10.1787/888932485861 ▪ **HRST growth by industry** http://dx.doi.org/10.1787/888932485880	▪ *Skills for Innovation and Research 2011*, OECD Publishing www.oecd.org/document/30/0,3746,en_2649_33703_47151838_1_1_1_1,00.html ▪ Handel, M. (forthcoming), OECD Publishing.
Are there any skills gaps/ shortages in specific sectors in my country?	▪ **Share of employers reporting difficulties in recruiting skilled workers** (Talent Shortage Survey; www.oecd-ilibrary.org/social-issues-migration-health/right-for-the-job_5kg59fcz3tkd-en) ▪ **National employers surveys**	▪ *Employment Outlook 2012* (forthcoming), OECD Publishing.
Is my country's education system sufficiently flexible to adapt to the needs of local labour markets?	▪ **LEED Programme analysis on flexibility in VET systems** (available in 2013-14)	▪ *Breaking Out of Policy Silos. Doing more with less*, 2010, OECD Publishing. www.oecd.org/document/43/0,3746,en_2649_34417_46764907_1_1_1_1,00.html ▪ *Flexible Policy for More and Better Jobs, 2011*, OECD Publishing. www.oecd.org/document/33/0,3746,en_2649_34417_42892129_1_1_1_1,00.html
Who participates in lifelong learning?	▪ **Expected number of years of work-related formal and non-formal education and training over a working** (EU Adult Education Survey) ▪ **Rates of participation in formal and non-formal education and training by size of enterprise** (OECD Adult Skills Survey, available in 2013)	▪ "Access to Education, Participation and Progression" (Chapter C), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011
How much does my country invest in skills development? How are the costs shared? Does my country set the right incentives to invest in skills development?	▪ **Annual expenditure per student by educational institutions from primary through tertiary education** http://dx.doi.org/10.1787/888932460895 ▪ **Expenditure on educational institutions as a percentage of GDP for all levels of education** http://dx.doi.org/10.1787/888932461028 ▪ **Distribution of public and private expenditure on educational institutions by level of education** http://dx.doi.org/10.1787/888932461085 ▪ **Expenditure on core educational services, R&D and ancillary services in tertiary educational institutions as a percentage of GDP** http://dx.doi.org/10.1787/888932461275	▪ "Financial and Human Resources Invested In Education" (Chapter B), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011 ▪ *Tertiary Education for the Knowledge Society: Volume 1: Special Features: Governance, Funding, Quality*, OECD Publishing. www.oecd.org/document/35/0,3746,en_2649_39263238_36021283_1_1_1_1,00.html ▪ Müller, N. and Behringer, F. (2012, forthcoming), OECD Publishing. …

Table 1.2 [2/2]

Developing relevant skills: Key questions, indicators and resources

Key questions	Selected indicators for self-assessment	Selected further reading and policy examples
Does my country provide high-quality education and training?	▪ **Distribution of foundation skills in the adult population by qualification levels** (OECD Adult Skills Survey, available in 2013) ▪ **Performance in PISA over time** http://dx.doi.org/10.1787/888932359948 ▪ **Youth unemployment compared to total unemployment** (*OECD Labour Force Statistics Database*)	▪ *Starting Strong III – A Quality Toolbox for Early Childhood Education and Care 2011*, OECD Publishing. www.oecd.org/document/0/0,3746,en_2649_39263231_49317504_1_1_1_1,00.html ▪ *PISA 2009 Results: Learning Trends: Changes in Student Performance Since 2000* (Volume V) 2010, OECD Publishing. www.oecd.org/document/60/0,3746,en_32252351_46584327_46609852_1_1_1_1,00.html ▪ *Strong Performers, Successful Reformers in Education: Lessons from the United States*, 2010, OECD Publishing. www.oecd.org/document/13/0,3746,en_2649_35845621_46538637_1_1_1_1,00.html ▪ *OECD Reviews of Vocational Education and Training , Learning for Jobs – Country Studies*, OECD Publishing. www.oecd.org/edu/learningforjobs ▪ *Tertiary Education for the Knowledge Society: Volume 1: Special Features: Governance, Funding, Quality; Volume 2: Special Features: Equity, Innovation, Labour Market, Internationalisation* 2008, OECD Publishing. www.oecd.org/document/35/0,3746,en_2649_39263238_36021283_1_1_1_1,00.html
What is the incidence of skills inequity and inequality in my country?	▪ **Upper secondary graduation rates** http://dx.doi.org/10.1787/888932459926 ▪ **Trends in equity** http://dx.doi.org/10.1787/888932360005 ▪ **Percentage of "population at risk" among children without an immigrant background and young immigrants** www.oecd.org/document/15/0,3746,en_2649_33729_38002191_1_1_1_1,00.html	▪ "The Output of Educational Institutions and the Impact of Learning" (Chapter A), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011 ▪ *Equity and Quality in Education – Supporting Disadvantaged Students and Schools*, 2012, OECD Publishing. www.oecd.org/document/42/0,3746,en_2649_39263231_49477290_1_1_1_1,00.html ▪ *No more Failures: Ten Steps to Equity in Education*, 2007, OECD Publishing. www.oecd.org/document/54/0,3746,en_2649_39263231_39676214_1_1_1_1,00.html
Allow skilled people to enter the country		
What is the net migration and proportion of foreign-born individuals in my country's population?	▪ **Stock of foreign and foreign-born populations** http://dx.doi.org/10.1787/888932440375 ▪ **Net migration as a percentage of the total resident population** http://dx.doi.org/10.1787/888932446759	▪ "Trends in Migration Flows and in the Immigrant Population" (Chapter A), in *International Migration Outlook 2011*, OECD Publishing. www.oecd.org/migration/imo
Is my country attractive to foreign students who may want to stay on?	▪ **Student mobility in tertiary education** http://dx.doi.org/10.1787/888932461541 ▪ **Percentage of international students changing status and staying on** http://dx.doi.org/10.1787/888932461598	▪ "Access to Education, Participation and Progression" (Chapter C), in *Education at a Glance 2011: OECD Indicators*, OECD Publishing. www.oecd.org/edu/eag2011 ▪ "Trends in Migration Flows and in the Immigrant Population" (Chapter A), in *International Migration Outlook 2011*, OECD Publishing. www.oecd.org/migration/imo
How many skilled immigrants return to their country of origin? How many skilled emigrants come back?	▪ **Doctorate holders returning to their country of origin** www.oecd.org/dataoecd/44/36/49867563.xlsx	▪ *OECD Science, Technology and Industry Scoreboard 2011* (Chapters 1-4), OECD Publishing. www.oecd.org/document/10/0,3746,en_2649_34409_39493962_1_1_1_1,00.html#toc ▪ Careers of Doctorate Holders Indicators (CDH), OECD/UNESCO Institute for Statistics/Eurostat data collection on careers of doctorate-holders, 2010. www.oecd.org/sti/cdh
Encourage cross-border skills policies		
Does my country facilitate cross-border higher education? Does my country invest in skills formation abroad?	*(Indicators not yet available)*	

Notes

1. Handel (forthcoming). See also Levy (2010) who finds that since 1959 in the United States, the task composition of employment has shifted dramatically towards tasks requiring higher-order cognitive skills, such as expert thinking and complex communication, while routine tasks, particularly routine cognitive tasks that are easily computerised, are now declining sharply.

2. OECD (2011a).

3. Michaels, Natraj and Van Reenen (2010).

4. Handel (forthcoming).

5. OECD (forthcoming), *OECD Employment Outlook.*

6. CEDEFOP (2008a) for projections for the European area.

7. Haskel and Martin (1993).

8. Tang and Wang (2005).

9. Bennet and McGuinness (2009).

10. Foley and Watts (1994).

11. Lucifora and Origo (2002).

12. Different sources of information can be used to construct measures of skills shortages (Quintini, 2011). Employers' own assessments of skills shortages constitute one of the most direct ways of assessing the size of the phenomenon. Employers' views are often collected in surveys conducted by employer associations, recruitment agencies or other institutions. These surveys explicitly question employers on the existence of skills shortages and on what jobs they have more difficulties filling. However, they often take different formats across countries and are repeated infrequently, making international comparisons very difficult. The Manpower indicator presented in Quintini (2011) has the advantage of being collected regularly and in the same format across a number of countries where the company is active.

13. World Bank (2010).

14. For example, the EU in its Europe 2020 Strategy has set targets of 40% tertiary attainment for all EU countries.

15. Giguère (2008); Froy and Giguère (2010b); Froy, Giguère and Meghnagi (2011).

16. OECD/IMHE: *www.oecd.org/edu/imhe/regionaldevelopment*.

17. One way to build flexibility is to establish rapid-approval procedures for one-off training programmes at the local level, which can then be mainstreamed at a later date if required. For example, in the US state of Texas, local educators can get approval for a new course rapidly, usually within a month, if it is classified as a 'local needs course'. The course will be assessed after three years to ascertain whether there is a state-wide need and whether it should be mainstreamed (Froy, et al., 2009; Froy and Giguère, 2010).

18. AfDB (2010).

19. "Short-term Job Creation: Lessons learned" – IFI coordination platform of the Deauville partnership (Washington DC. - April 2012).

20. OECD (2010a).

21. OECD (2010b); OECD (2008a).

22. OECD (2008b).

23. Desjardins and Warnke (2012).

24. OECD (2011a).

25. CEDEFOP (2003).

26. OECD (2005a).

27. Martinez-Fernandez (2008); Dalziel (2010); Kubisz (2011).

28. Clough (2012).

29. Martinez-Fernandez (2008); CEDEFOP (2011).

30. Martinez-Fernandez and Sharpe (2010).

31. Kubisz (2011).

32. OECD (forthcoming), *Leveraging Skills and Training in SMEs*.

33. OECD (2005a).

34. Müller and Behringer (forthcoming); Johanson (2009); CEDEFOP (2008b).

35. Johanson (2009).

36. Müller and Behringer (forthcoming).

37. Smith and Billett (2005).

38. The OECD's Programme for International Student Assessment (PISA) measures 15-year-old students' proficiency in the core subjects of reading, mathematics and science. This survey provides a way of comparing countries' success in imparting cognitive foundation skills through their systems of compulsory education OECD (2010c).

39. OECD (2005b).

40. Schleicher (ed.) (2012).

41. OECD (2010e).

42. OECD (2012c).

43. OECD (2008b).

44. OECD (2010b).

45. OECD (2005a).

46. OECD (2011d). The Gini coefficient, a standard measure of inequality, where zero means everybody has the same income and 1 means the richest person has all the income, stood at an average of 0.29 for working-age persons in OECD countries in the mid-1980s. By the late 2000s, it had increased by almost 10% to 0.316. Today in advanced economies the average income of the richest 10% of the population is about nine times that of the poorest 10%.

47. Equity in education has two dimensions: *inclusion* (ensuring that all students reach a minimum level of skills) and *fairness* (ensuring that personal or social circumstances, such as gender, ethnic origin or family background, are not obstacles to educational achievement); Field, Kuczera and Pont (2007).

48. OECD (2011e).

49. Psacharopoulos and Patrinos, (2004); Machin and Vignoles (2005); OECD (2005a).

50. OECD (2006a); Woessmann (2008).

51. Carneiro and Heckman (2003).

52. OECD (2012b).

53. OECD (2012b); Lyche (2010).

54. OECD (2008b).

55. OECD (2010f).

56. See e.g. Liebig and Widmaier (2010).

57. Carrington and Skelton (2003); OECD (2010g).

58. OECD (2010h).

59. Unfortunately, many educators still hold bilingualism of migrant children as responsible for linguistic delay, academic underachievement, and identity issues. However, the source of academic and linguistic difficulties is typically not rooted in the use of their languages of origin, but rather the lack of cohesive support and recognition for their heritage cultures and languages. Students could be taught to capitalise on first-language knowledge by using cross-linguistic transfer strategies, which not only would improve literacy in the second language, but also bolster their self-esteem and recognise the value of preserving home language and culture. Della Chiesa, et al. (2012).

60. OECD/Statistics Canada (2005).

61. World Bank (2010).

62. Desjardins and Rubenson (2011).

63. OECD and ILO (2011).

64. OECD (2009).

65. Labour migration is only part of overall migration flows. Even in countries like Australia and Canada, which take in many labour migrants, primary applicants – that is, directly selected migrants – account for less than a third of overall inflows. The remainder is family migration (including accompanying families of labour migrants) and humanitarian migration, and these migrants are generally not subject to (direct) selection to meet labour needs. In the European Economic Area and Switzerland, much recent migration is free movement, involving nationals of these countries moving easily from one country to another. Although this form of migration is at least partly for employment, it is not controlled by governments and thus generally not included in this discussion of labour migration.

66. OECD (2009).

67. OECD (2011f).

68. Due to the recent economic crisis, there was a marked drop in flows to OECD countries in 2009, notably in free-movement migration and labour migration (see OECD 2011g). However, this is not likely to persist in the coming years as the underlying drivers for labour migration remain.

69. Dumont, Spielvogel and Widmaier (2010).

70. The stay rate is defined as the proportion of international students who change to a status other than student to the amount of students not renewing their student permits in the same year; it does not measure the rate of students who stay over the long term. Medium-term working periods abroad can be a value-added for students when returning to their country of origin. In some countries, a short-term, post-doctoral contract abroad can be decisive for acquiring a position in a university (OECD, 2011g).

71. *www.oecd.org/document/63/0,3746,en_2649_34451_39945471_1_1_1_1,00.html*

72. OECD, based on OECD/UNESCO Institute for Statistics/Eurostat data collection on careers of doctorate holders 2010.

73. OECD (2009).

74. OECD (2011f).

75. OECD (2008c).

76. Further information available in Brazil Science Without Borders Undergraduate Program *www.iie.org/en/Programs/Brazil-Science-Without-Borders*.

77. Dowell and Findlay (2001).

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Policy Lever 2: Activating Skills Supply

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Key policy lessons on activating skills

ENCOURAGE PEOPLE TO OFFER THEIR SKILLS TO THE LABOUR MARKET:

- **Identify inactive individuals and the reasons for their inactivity.** Some socio-demographic groups are more likely to be inactive than others, notably women and people with disabilities or chronic health problems, particularly if they are also low-skilled. Integrating under-represented groups into the labour force has a great potential to increase the skills base in an economy.
- **Create financial incentives that make work pay.** Costly childcare services, tax systems that make work economically unattractive, or benefit systems that offer better compensation compared with expected salaries can make it uneconomical to work. Countries can either abolish partial disability benefits or make full disability schemes exclusive to people who can no longer work. Employers can offer flexible start times and working hours, control over working hours, and, especially for women, flexible working arrangements around the time of childbirth. In some countries, people who can still work are increasingly being counted as unemployed, and are thus subject to the so-called "mutual obligation", whereby they have to comply with job-search and training requirements or risk losing part or all of their unemployment benefits. When examining beneficiary claims, countries need to shift the focus from assessing health status to assessing the remaining capacity to work.
- **Dismantle non-financial barriers to participation in the labour force.** Inflexible working conditions can make it difficult for people with care obligations and individuals with disabilities to participate in the labour force. Part-time work is increasingly seen as a way to activate these groups. Less rigid working-time arrangements and improved working conditions, particularly for workers with health problems, can also make employment more attractive to these traditionally inactive groups. Employers, trade unions and government can work in concert to design these policies. To be effective, however, these programmes have to be combined with efforts to reduce employers' reluctance to hire inactive individuals. In addition, since skills can atrophy or become obsolete during long periods of inactivity, these individuals may need re-training or up-skilling to improve their employability.

RETAIN SKILLED PEOPLE IN THE LABOUR MARKET:

- **Discourage early retirement.** To keep older workers in the labour market, many countries have eliminated early-retirement schemes, increased the official pensionable age and corrected distorted financial incentives to retire early. To tackle demand-side barriers to employing older workers, some countries have tried to balance labour costs with productivity by reducing employers' social security contributions or providing wage subsidies for older workers. 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 motivate more employers and older employees to invest in training.
- **Staunch brain drain.** To reap the full benefits of initial investments in skills, countries where brain drain is a major concern should focus on retaining their skilled workers. Compulsory public-service schemes, known as "bonding", are widely spread in African countries. Experience has shown that the best way to prevent brain drain is to provide incentives to stay, including by improving labour-market conditions locally, rather than by imposing coercive measures to prevent emigration. Brain drain also happens within countries, particularly between rural areas and urban centres. Local career-advice services can help to ensure that skilled people are fully aware and take advantage of the opportunities available within their nearby labour market.

HOW CAN COUNTRIES ENCOURAGE PEOPLE TO SUPPLY THEIR SKILLS TO THE LABOUR MARKET?

People might have skills but decide, for various reasons, not to offer them to the labour market. Women and people with disabilities or chronic health problems, for example, are more likely to be inactive. Some young people who are neither in employment nor in education and training risk becoming disengaged from the labour market altogether and may remain at the margins of society. In addition to investing in the development of new skills, and before importing skills from outside the country, it is worthwhile to consider tapping this unused source of skills. Skilled people should also be discouraged from withdrawing from the labour market through early retirement or because they decide to leave the country to find work elsewhere.

COUNTRIES CAN ENCOURAGE INACTIVE PEOPLE TO PARTICIPATE IN THE LABOUR MARKET

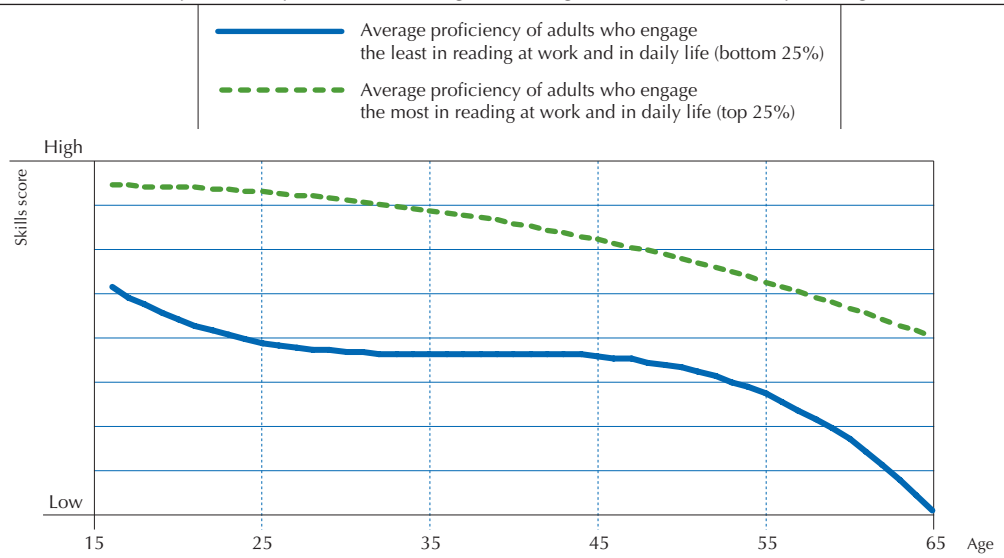
In all countries, many individuals are out of the labour force by choice, because of their personal or family circumstances, or because there are financial disincentives to work. Unused human capital represents a waste of skills and of initial investment in those skills. As the demand for skills changes, unused skills can 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 aging can be prevented. Moreover, when adults acquire new skills, they often do so on the job; someone who isn't in the labour market will not have this advantage.

Figure 2.1 suggests that foundation skills generally depreciate with age. However, the results also suggest that the depreciation of skills may be offset by what people do at work and in their daily lives. For example, frequent engagement in reading at work and at home may help to mitigate the proficiency declines associated with aging.[1]

■ Figure 2.1 ■

Unused skills may be more likely to atrophy

Foundation skills of 16-65-year-olds, by high and low levels of reading engagement, adjusted for years of schooling and foreign-born status, country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
Source: PIAAC field trial data (2010).

Identify inactive individuals and the reasons for inactivity

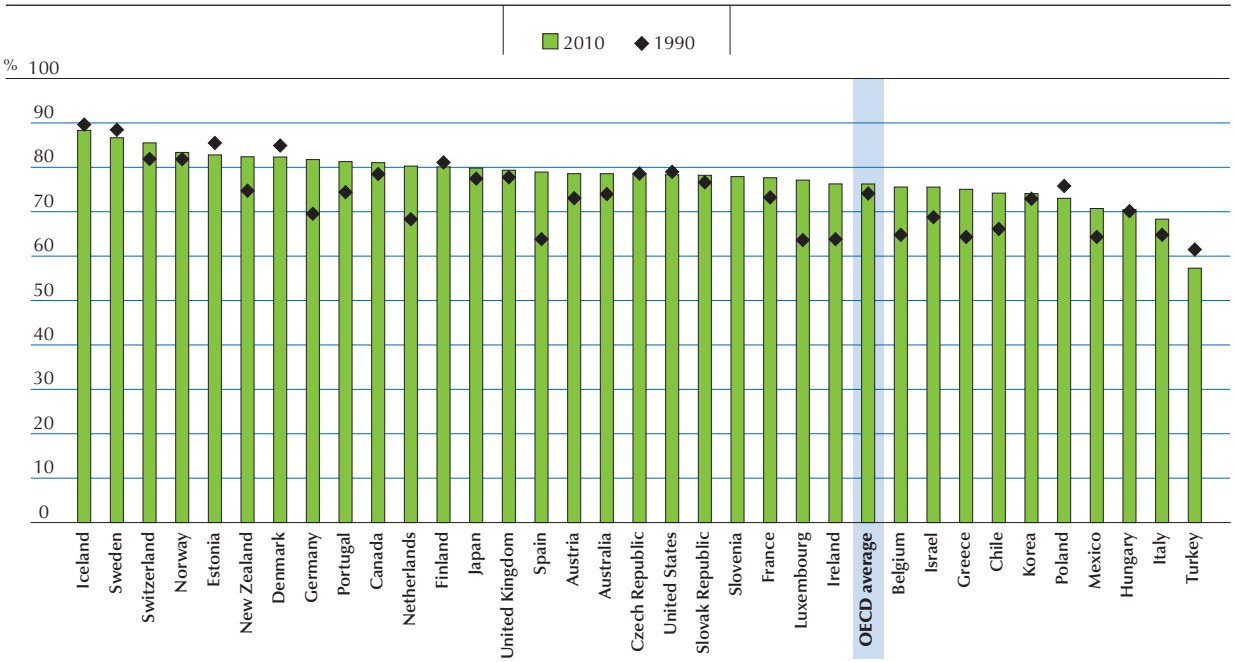
Labour-force participation rates – the sum of people in employment and in unemployment as a percentage of the working-age population – vary significantly across OECD countries, ranging from close to 90% in Iceland to below 60% in Turkey (Figure 2.2). Some socio-demographic groups, such as women and people with disabilities or chronic health problems, are more likely to show lower participation rates than others, particularly when they are poorly skilled. Because of various barriers to integration, immigrants, too, may not be full participants in the labour market.[2]

Variations in the composition of the labour force and in the participation rates of these socio-demographic groups translate into significant cross-country differences in what higher participation rates could mean for skills supply. The OECD projected how the labour force would develop by 2050 under different policy scenarios.[3] The results show that in some countries, such as Denmark, Finland, Hungary and Norway, higher participation rates among workers with disabilities could play a significant role in increasing future labour supply. In Greece, Italy and Spain, closing the gender gap offers the greatest potential for raising labour-force participation rates by 2050. Later retirement, which is also among these scenarios, would lead to labour-force growth similar to the "disability equality" scenario, with the exception of those countries in which early retirement is still particularly widespread.

■ Figure 2.2 ■

Labour-force participation among adults, 1990[1] and 2010

Percentage of 25-64-year-olds active in the labour market



1. 1991 for Iceland, Mexico and Swizerland; 1992 for Hungary and Poland; 1993 for the Czech Republic; 1994 for Austria and the Slovak Republic; 1996 for Chile.

Source: OECD, *Labour Force Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932607328

In addition to these broad socio-economic groups, young people are also at risk of disengaging from the labour market. The OECD's Jobs for Youth study[4] identifies "youth left behind" as young people who have several disadvantages, including the lack of a diploma, an immigrant/minority background, residence in disadvantaged/rural/remote areas, teenage motherhood, and a prison or foster-care background. Because these groups vary in size and composition across countries, the OECD has chosen to proxy this group with the number of young people aged 15 to 29 who are neither in employment, nor in education or training (NEET). In 2010, in the 26 OECD countries for which data was available, the group of "youth left behind" represented 12.5% of 15-24-year-olds. In Europe, where the figure can be refined further to exclude youth who hold a diploma, the OECD estimates that in 2005, the most recent year for which this statistic is available, the group of "youth left behind" represented 11% of out-of-school 15-29-year-olds.

Reasons for inactivity vary. Some working-age individuals make a conscious decision to withdraw from the labour market or have major health-related work impediments. Others are willing and able to work but are prevented from doing so by a range of supply- and demand-side barriers. Because there are often multiple reasons behind inactivity, improving labour-force participation requires policy packages that combine several initiatives and participation by employers. Overall, policies can promote activity in the labour force in two ways: by making employment financially more attractive and restricting access to income-replacement schemes; and by reducing non-financial barriers to employment.

Offer financial incentives to make work pay

For some people it simply does not pay to work. Costly childcare services, tax systems that are structured in ways that make work economically unattractive, or benefit systems that offer better compensation than expected salaries can all make it uneconomical to work. Financial incentives and well-designed tax and welfare systems can influence the labour supply among all groups, albeit in different ways.

For women or second-earners more generally, the tax and benefit systems and the way the incomes of second-earners and part-time workers are treated usually discourage re-entry into the labour market.[5] The tax burden on second-earners wanting to enter the labour market or increase the number of hours worked is influenced by a range of factors, including

the nature of the taxable unit. Joint or family-based systems with progressive income taxes introduce a bias towards single-earner couples, especially if the employed partner is a high-income earner and/or the inactive partner has a low earning potential. Family-based tax allowances or tax credits, and income-tested benefits related to family composition and/or income, can have similar effects.[6] For example, in some countries the entitlement to income support explains why employment levels are low among single parents. To encourage women – and second-earners in general – to enter or return to the labour force, many countries have individual tax systems in place. However, in nearly all OECD countries there is still some tax relief for non-employed spouses as well as some forms of family assistance that are based on total family income. These could be reformed to have a neutral effect on women's participation in the labour market.

Box 2.1 **In-work benefits policies**

For women. Single parents are usually women, and most OECD countries target social-protection policies to this group. Nevertheless, financial benefits from being a sole parent may be a disincentive to enter or re-enter the labour market. The challenge is thus to encourage these women to return to work.

- **The Canadian Self-Sufficiency Project (SSP)**. SSP is a ten-year experimental research project on the labour-market behaviour of single parents who receive social assistance. The project, launched in 1992, involves different experimental studies. In all studies, some single parents in the experimental group received generous earning supplements, while the rest were in the control group. The studies found that financial incentives had a positive effect on the return to employment, encouraging single parents to leave welfare rolls. However, earning supplements had a much stronger effect among those sole parents with recent employment experience. Single parents who were long-term social assistance claimants showed a high rate of employment in the short term, but that declined after some time.[10]

For older workers. A few countries provide older workers with a direct wage top-up (or in-work benefit) for either finding a job or remaining in employment, although it has been claimed that employers may offer lower wages than they would without this measure.

- **Germany** and the **United States** have such schemes, providing unemployed workers who find a job with a supplement of 50% of the difference in earnings between their old and new jobs, up to a given ceiling. In countries like Germany, where unemployment benefits are high, this kind of policy encourages older workers to return to work.
- **Japan**'s system only offers older workers the top-up if their reduction in earnings is of 25% or more, relative to what they were earning at the age of 60. No unemployment benefits can be claimed in this case.
- **Spain** provides an in-work tax allowance in its Personal Income Tax system, the so-called "extending labour market participation allowance" by which working taxpayers extending their labour market participation beyond the retirement age (65 years) may increase their "work-related expense allowance" (applied for all taxpayers receiving income from work) by 100%.

For people with disabilities. Recipients of disability benefits who enter a job generally lose entitlement to part or all of their benefits. High tax burdens are one of the main factors that discourage some individuals from entering the labour market. Nevertheless, some countries have successfully introduced measures to encourage people with disability benefits to enter the labour force by reducing taxation.

- **Back-to-Work Allowance**. In **Ireland**, when a disability recipient works at least 20 hours a week, his or her average effective tax rate drops from a level close to 100% to some 45% for former average earners (and as low as 20% for low-income workers). The allowance is phased out gradually over a four-year period.
- **Working Income Tax Benefit (WITB)**. In **Canada**, in addition to WITB entitlements available to all eligible low-income workers, low-income working individuals with disabilities can be entitled to a WITB Disability Supplement. The additional supplement increases with individual earnings, at a rate of 25%, up to a maximum benefit equivalent to half of the maximum WITB entitlement for single individuals, thereby further improving their financial return from work. The supplement is reduced when income exceeds a threshold.

Source: OECD (2006; 2010a; 2011d).

For people with disabilities, incentives to withdraw from the labour force greatly depend on access to full-disability benefit schemes. There is evidence that in countries that have radically reformed their disability-benefit systems and have tightened access through stronger work incentives, benefit-recipient rates have decreased.[7] A number of countries have either abolished partial-disability benefits or have made full-disability schemes exclusive to people who can no longer work. In a number of countries, people who can still work are increasingly being counted as unemployed, thus becoming subject to the so-called "mutual obligation" whereby they have to comply with job-search and training requirements or risk losing part or all of their unemployment benefits.[8] When examining beneficiary claims, countries should shift the focus from assessing health status to assessing the remaining capacity to work.

Although incentives should be tailored to specific groups of workers, some are relevant for several groups. For instance, employment for people on disability benefits can be made relatively more attractive by making it possible to combine income from work with disability benefits through earnings-disregards and in-work benefits, respectively. Some countries no longer require that disability benefits be contingent on workers leaving the labour force and have found other ways to compensate for disability status through allowances.[9] Under certain circumstances, work incentives for single parents can also be strengthened by offering in-work benefits (Box 2.1).

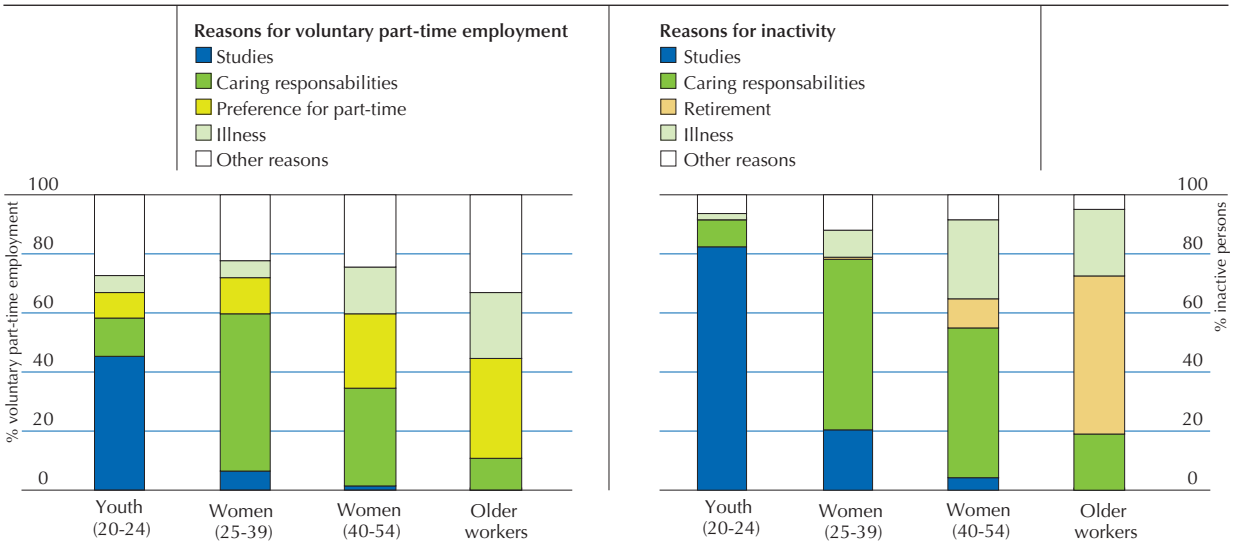
Overcome non-financial barriers to labour-force participation

Policies can also help to dismantle the non-financial barriers to labour-force participation. For women, these are often in the form of time constraints stemming primarily from family and care obligations, both for children and for senior family members. Limited opportunities for part-time work can be a barrier to employment in these cases. The reasons people choose to work part-time or leave the labour force entirely are often closely related. For example, the main reason 25-39-year-old women cite for choosing to work part-time is their care responsibilities; the same reason is given for this group's inactivity (Figure 2.3). This suggests that part-time work – coupled with adequate childcare facilities – can facilitate labour-market participation when caring responsibilities prevent full-time employment.[11]

■ Figure 2.3 ■

Reasons for working part-time or being inactive

Percentages, average over 21 European countries[1] and years 2005-07



1. Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden, the United Kingdom.

Source: OECD (2010h).

StatLink http://dx.doi.org/10.1787/888932607347

Hence, even though part-time work might imply less job security, lower wages and limited career prospects, it is increasingly seen as a vehicle for activating groups with traditionally low labour-market participation.[12] Employers who offer flexible start times and working hours, control over working hours, and, especially for women, flexible working arrangements around the time of childbirth could make a substantial difference to labour-force participation (Box 2.2).[13]

Box 2.2 **Employment conditions that facilitate participation in the labour market**

Jobs for parents. While some parents prefer to stay home with children regardless of childcare options, others prefer to combine home care with full- or part-time work. In **Austria**, **Denmark**, **Finland**, **the Netherlands** and **Sweden**, parental-leave programmes involve adjustments of working hours and part-time jobs. In **Portugal** and Sweden, the parental leave period can be used at different times, for example to extend holiday periods until children go to school (age six in Portugal; age eight in Sweden).

Employers' obligations. In order to retain workers with health problems, some countries have legislated obligations for employers that aim to reduce non-financial barriers for workers with health problems or disabilities.

- **Germany**. Employers have to offer preferential selection for within-company training to those workers with health problems or disabilities, and support their efforts to enrol in training elsewhere. Furthermore, workers with disabilities or health problems have the right to work assistance, an adapted workplace and part-time employment, if required.
- **Luxembourg**. Firms with more than 25 workers are obliged to find an appropriate job for their workers with disabilities, either a different job or the same one on a reduced schedule.
- **Spain**. Employers must keep a post open for up to two years for a worker with health problems. Moreover, former employees on disability benefits who recovered after taking leave have priority for filling suitable vacancies or for a similar job.

Source: OECD (2007a; 2010a).

For those with disabilities, it is generally the quality of employment that influences participation in the labour market. Improving the general conditions for workers with health problems should therefore be part of employer and government strategies aimed at reducing non-financial barriers to employment.[14] Employers and unions can help workers to retain their jobs by improving workplace safety and by being more aware of specific work needs.[15] Given the link between sick leave and incapacity to work, improving prevention and early-intervention measures, while avoiding "medicalisation", is critical. For employers, effective wage subsidies or other financial incentives that compensate for losses in productivity can make it financially more attractive to retain sick workers or people with disabilities.

Combine activation policies with opportunities for retraining or up-skilling

The skills of people who have stayed inactive for an extended period of time can atrophy or become obsolete. These people might require retraining or up-skilling to avoid moving from inactivity to unemployment because their skills are not in demand. Targeted (vocational) training and re-entry programmes can help people who have been outside the labour market due to care obligations or illness.[16] In addition, active labour market policies, primarily used to help unemployed persons find work,[17] are being extended to target those who are inactive but who have the capacity to work, such as single mothers or individuals with health problems. These programmes can involve work-related and job-search training as well as subsidised employment in the open labour market or in protected sectors.

Activation measures, such as individual case management that help hard-to-place unemployed persons to find work, often also work for target groups that face multiple barriers to participation. But it is a challenging task, as it is much more difficult to impose a mutual obligation on a heterogeneous group than on an individual.[18] And participation in activation programmes is more difficult to enforce if non-compliance carries no consequences, such as reducing or eliminating benefits. In the end, employment-related services tend to be most effective when they are personalised, which explains why these services are often targeted to specific groups and provided by private specialists.[19]

To be effective in increasing employment and the use of skills, these measures also need to be combined with efforts to reduce employers' reluctance to hire inactive individuals,[20] particularly workers with health problems or persons with disabilities.[21] If there aren't enough job opportunities on offer, any efforts to employ larger numbers of these workers will fail. The same holds for disengaged young people. The OECD has made a number of recommendations on how countries can use supply- and demand-side approaches to support hard-to-place young people at risk of total labour-market disengagement and long-term inactivity that can leave them languishing at the margins of society for their entire lives (Box 2.3).

Box 2.3 Policy advice from the OECD's Jobs for Youth study

- Promote a smooth transition from school to work and early career development by:
  - using early and selective interventions to help avoid creating a large pool of youth at risk of becoming long-term unemployed, inactive or involved in informal jobs or jobs that do not make full use of their skills;
  - ensuring that youth leave education with recognised qualifications or diplomas;
  - promoting the use of internships and other forms of on-the-job learning that could help students acquire some labour-market experience before graduation; and
  - adopting a "learn/train first" approach to boost employability of low-skilled youth who have difficulty finding a job.
- Remove demand-side obstacles to better youth-employment outcomes by:
  - investing in funds that promote new skills for new jobs, targeting young entrants;
  - reducing the cost of employing low-skilled youth; and
  - pursuing efforts to reduce labour-market duality overall, particularly that of temporary vs. permanent contracts.
- Provide support for unemployed and inactive youth who are not engaged in learning by:
  - strengthening the safety net and promoting smoother employment and training pathways for unemployed youth and young workers;
  - assisting unemployed youth in their job search with appropriate measures; and
  - designing programmes for youth who are disconnected from work and education, focusing on mentoring and vocational learning and a rigorous 'mutual obligations' approach.

Source: OECD (2010b).

Figures on unemployment and inactivity do not tell the whole story. In countries that have a large informal sector, most notably in the developing world, official statistics do not capture the full employment picture. However, from what is known, certain socio-economic groups are over-represented in the inactive category, meaning that they do not supply their skills to the labour market. For example, in Middle East and North African (MENA) countries, there are large differences in the rates of labour-market participation between women and men. The men-to-women ratio of participation ranges from over 3.7 to one in Saudi Arabia and Syria to 1.86 to one in Qatar. Participation rates among men range from 71% in Tunisia to 93% in Qatar, while among women it ranges from 15% in Iraq to 53% in Qatar. Women find it particularly difficult to secure decent employment in Egypt, Jordan, Libya, Morocco and Tunisia. In all five countries, only about a quarter of adult women were in the labour force in 2010 (a figure that also includes discouraged workers), compared to 70%-80% participation rates among adult men (see Box 2.4).

Box 2.4 Labour-force participation among women in MENA countries

Many countries in the Middle East and North African (MENA) region have made significant progress towards reducing gender gaps in key dimensions of education and health, but improvements in employment outcomes are limited. The increase in women's labour-force participation over the past two decades has been slight: from 22% in 1990 to 30% in 2010, almost 40 percentage points below the labour-force participation rate among men in the region.

Patterns of employment and occupational segregation. Women are often employed in the public sector. In **Egypt**, for example, the public sector accounts for 56% of employed women compared with 30% of men. However, female public employees tend to work in the areas traditionally regarded as "feminine". In **Morocco**, for example, in 2009, women represented about 50% of employees in the Ministries of Health and Social Affairs, but only 4% in the General Directorate for Civil Protection and 6% in the General Directorate for National Security.

...

Similar to OECD countries, when employed, women earn lower salaries than men in both the private and public sectors and do not have equal access to leadership training. Women are less represented in senior and leadership positions in both the private and public sectors. In 2010, women's representation in top management in national government was 14% in **Morocco**, 26% in **Egypt**, and 45% in **Tunisia**.

Barriers to employment. Lack of work-family balance policies is one of the main barriers to women's employment in the region. Family responsibilities are considered women's domain and marriage plays a key role in women's labour-force participation, particularly among women in the private sector. In **Morocco**, only 12% of married women join the labour force, compared with 79% of married men. In **Egypt** and **Jordan**, the share of women in private jobs falls sharply at first marriage. This pattern is observed regardless of women's level of education. In contrast, the proportion of women in public-sector jobs is less affected by marriage: 57% of married working women are employed in the public sector.

Other institutional, legal, economic and social norms also help to explain the slow progress of women in employment in the region. These include norms restricting the type and hours of work for women and requirements to get the permission of husbands or fathers to work. Some MENA countries, including **Egypt**, **Jordan** and **Yemen**, also report that safe public transport and a more suitable working environment would improve employment prospects for women, particularly for those in remote areas.

On the reform path. Many MENA governments have introduced measures to improve women's employment prospects (see part 4 on entrepreneurship in MENA countries). **Morocco**, for example, regularly reports on gender employment trends and women's access to leadership positions in the civil service; and measures to guarantee public-sector pay equity have been put in place in **Egypt**, **Jordan**, **Morocco** and **Tunisia**.

Source : OECD (forthcoming), *Report on the Gender Initiative.*

COUNTRIES CAN RETAIN SKILLED PEOPLE

Developing skills is a substantial investment for any country. To reap the returns on this investment, skills policies need to ensure that skilled people do not withdraw from the labour market either because they retire prematurely or because they decide to move to other countries. The extent of these problems varies substantially across countries: early retirement is a particular concern in many European OECD countries, where populations are aging and social systems are not sustainable if large numbers of workers retire prematurely. Brain drain is often associated with developing countries. But several OECD countries, including Poland and New Zealand, struggle with loosing skilled labour to other countries as well.

Discourage early retirement

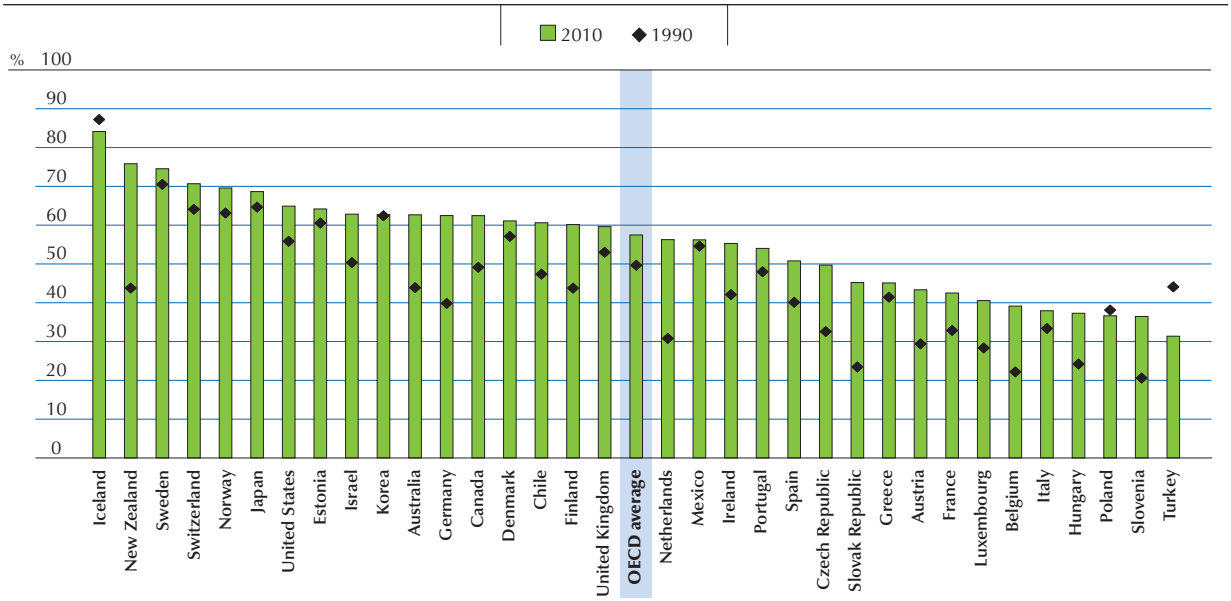
In about two-thirds of OECD countries, the labour-force participation rate among 55-64-year-olds stands at or below 60%, ranging from 85% in Iceland to just 30% in Turkey (Figure 2.4). On average in OECD countries, the participation rate of older workers is 19 percentage points below that of prime-age adults, but the difference between the two varies widely, from just 5 percentage points in Iceland to 53 percentage points in Slovenia.

Frequent use of early-retirement schemes and low statutory retirement ages are the key reasons for low labour-force participation rates among older workers. Indeed, the more limited use of early-retirement schemes and recent pension reforms prompted a rise in participation rates for this age group over the past two decades. In New Zealand, older workers' participation rates rose from 44% to 76% between 1990 and 2010, and very large increases were also observed in Germany, the Netherlands, the Slovak Republic and Slovenia. However, these positive developments are relatively recent; in most OECD countries, retirement ages remain well below their 1970s levels. Most older workers continue to leave the labour market well before the standard age at which they are eligible for a pension, which stands at 65 in most countries. Out of 30 OECD countries for which data are available, only in nine countries do men retire later than age 64, on average, and in only five countries, namely Iceland, Japan, Korea, Mexico and New Zealand, does the same apply to women. Cross-country differences are marked. Mexico has the highest average age at which men leave the labour market – 72.2 years – and the second highest average age for women – 69.5 years. At the other extreme, men and women retire under the age of 60, on average, in Austria, Belgium, Luxembourg and the Slovak Republic.[22] For older workers, leaving the labour market early tends to be definitive: an OECD study finds that fewer than 5% of 50-64-year-olds who had left employment before the official pensionable age had returned to a job one year later.[23]

■ Figure 2.4 ■

Labour-force participation among older workers, 1990[1] and 2010

Percentage of the population aged 55-64



1. 1991 for Iceland, Mexico and Swizerland; 1992 for Hungary and Poland; 1993 for the Czech Republic; 1994 for Austria and the Slovak Republic; 1996 for Chile and Slovenia.

Source: *OECD Labour Force Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932607366

Box 2.5 **Features of pensions systems that reduce incentives to work**

Although technical policy recommendations on retirement-income systems are reported by the OECD, the main policy conclusion is that details matter. System details determine whether the pension system treats individuals who participate in the labour force in different ways, and whether the pension system influences work and retirement decisions. Some technical examples are provided below, but no general guidance is offered.

1. In **France**, **Greece** and **Luxembourg** it is possible to retire at 60, or earlier in some cases, without any reduction in benefits. This discourages older workers from staying in work. The average reduction in benefits in earnings-related schemes for each year of early retirement is around 4.5% (the actuarially neutral level is around 6-8%).
2. **Greece**, **Spain** and the **United States** have limits to the number of years during which pension benefits can accrue in their earnings-related schemes. These policies discourage work once the maximum number of years has been achieved. Additional benefits can be accrued in Greece and the United States only if working after 65.
3. Many OECD countries used to calculate pension benefits based on a subset of years with the best or final earnings. This policy encourages people to retire once their earnings have peaked, and not to stay employed at older ages.
4. An earnings-related scheme with uniform accrual structure would provide older workers with incentives to work. In **Spain**'s public-pension system, the accrual rates at younger ages are higher than those later on, discouraging older workers from remaining in work.
5. Resource-tested schemes can have negative effects on work incentives for low earners, although these schemes also target benefits for those most in need, reducing the use of higher taxes and contributions. Some countries, such as **Chile**, **the Czech Republic**, **Iceland**, **Ireland**, **New Zealand** and **Switzerland**, have managed to combine redistributive pension systems with incentives to stay in work.
6. Increments in pension benefits for people who defer claiming the pension after normal age are, on average, 5% below actuarial neutrality. Only **Canada**, **the Czech Republic**, **Japan**, **the United Kingdom** and **the United States** offer more attractive terms for deferring pensions and staying in work.

Source: OECD (2011d).

The cross-country variation in employment rates among 55-64-year-olds can largely be explained by a country's pension system.[24] In fact, some pension systems include financial disincentives to stay in work (Box 2.5). On the one hand, the absolute level of pension wealth and its marginal change, embedded in the so-called "implicit tax on continuing to work" for an additional year, influences the decision to exit the labour force. Indeed, countries with the lowest implicit tax on continuing to work have the lowest withdrawal rates among older workers.[25]

The decision to leave the labour force is influenced by the official pensionable age and by the availability of early-retirement schemes. As a result, several policy changes can help to reduce the incentives to retire. Although most countries have eliminated early-retirement schemes, increased the official pensionable age, and corrected distorted financial incentives to retire early, pension systems still offer powerful incentives to leave work at the earliest possible opportunity.[26] This means that there is still considerable scope to improve financial incentives to remain in the workforce after reaching the official pensionable age. A good measure is the one adopted by the Netherlands, where an additional year's work is rewarded with a 24% increase in pension wealth, since early-retirement programmes providing benefits from age 60 to 65 were abolished.

The quality of employment can also influence decisions to retire early. There is evidence that employers' inability or unwillingness to reduce working hours tends to push workers into retirement by limiting the possibility of a phased transition out of employment.[27] It is also important to bear in mind that policies to reduce non-financial barriers to labour-force participation may work in tandem with other policies intended to encourage employers to hire and retain workers from some under-represented groups. For example, a rise in the pensionable age would lengthen the period of time over which employers could recover training costs, hence is likely to reduce employers' reluctance to provide for their older employees.[28]

After the age of 50, workers in all OECD countries are increasingly less likely to be hired or retained.[29] While employers often cite obsolete skills as a reason why they do not want to hire older job-seekers, age discrimination is still common. Rigid compensation structures, whereby labour costs increase with age rather than reflect workers' productivity, also play a role, although these are often circumvented through early-retirement schemes.[30] To tackle these demand-side barriers to employing older workers, some countries have run large anti-discrimination campaigns; others have tried to balance labour costs with productivity by reducing employers' social security contributions or providing wage subsidies in respect of older workers.[31] Some countries have also begun to emphasise lifelong learning and targeted training, especially in mid-career, to improve employability later in life and discourage early withdrawal from the labour force. Another measure used is to improve the match between the type of work the older worker wants to perform and remuneration. For example, older workers might prefer fewer night shifts for lower pay while younger workers may be more willing to do more night shifts for higher pay. This improved match will automatically increase demand.

Staunch brain drain

Some countries incur large costs because their skilled labour leaves and the returns on investments in skills development are reaped by the new host country. As Table 2.1 shows, emigration rates also vary across countries, even within the same region. Europe, Latin America and Oceania have the highest emigration rates (in 2008, for example, the outflow from Bulgaria represented 1% of the country's total population, and from Romania and Poland it represented 0.8% and 0.6% of the respective populations),[32] while Africa, Asia and North America have emigration rates that are less than half those of the aforementioned regions. In all regions, the emigration rate for tertiary-educated workers is significantly higher than the total emigration rate,[33] although this difference is especially great for African countries. At 10.6%, the emigration rate of tertiary-educated persons born in Africa is much higher than that in other regions, although Latin America also has a relatively high rate of emigration – 8.8% – among highly skilled persons.

As noted before, losing highly skilled individuals through migration to other countries can create skills shortages in the source country. Some countries have introduced retention policies aimed to staunch brain drain. Experience has shown that the best policies are those that provide incentives to stay rather than coercive measures to prevent migration (Box 2.6). When opportunities to move abroad are widely available, coercive measures to prevent departure appear to be largely ineffective and may even increase pressure to leave, unless they are accepted as legitimate. The possibility of migrating to earn higher returns abroad can also create an incentive for people in the source countries to invest more in education and training. As not all of them will leave, there is likely to be a net addition to the stock of human capital in the source country as a result.

Table 2.1

Emigration rates by region of origin and by skills level, population aged 15 and over, 2000 and 2005-06

Weighted averages

	2005-06					2000				
	Emigrant population (thousands)	**Emigration rates** (in percent)				**Emigrant population** (thousands)	**Emigration rates** (in percent)			
		TOTAL	Low-educated	Intermediate-educated	High-educated		TOTAL	Low-educated	Intermediate-educated	High-educated
High-income: OECD	25 155	2.9	4.5	1.9	3.7	22 999	2.8	4.4	2.0	2.6
High-income: non-OECD	3 404	7.7	7.6	6.6	12.5	3 017	7.5	8.5	6.3	12.3
Upper-middle-income	26 468	3.8	5.3	2.5	5.2	19 565	3.0	4.2	1.9	3.6
Lower-middle-income	26 309	4.6	1.3	1.1	5.6	19 605	1.3	1.1	0.9	5.3
Low-income	8 319	0.6	0.2	0.5	5.4	6 046	0.5	0.2	0.5	4.2
Africa	**8 947**	**1.6**	**1.0**	**1.8**	**10.2**	**6 847**	**1.4**	**0.9**	**1.7**	**9.2**
Morocco	2 106	9.0	7.7	10.5	15.3	1 505	7.3	6.1	9.0	13.0
Other North Africa	2 403	2.2	1.8	1.9	6.2	2 151	2.3	1.8	2.0	8.1
Sub-Saharan Africa	4 437	0.9	0.4	1.1	13.2	3 191	0.8	0.4	1.0	10.2
Asia	**19 510**	**0.7**	**0.3**	**0.5**	**3.7**	**15 473**	**0.6**	**0.3**	**0.5**	**3.3**
China	2 723	0.3	0.2	0.1	1.7	2 063	0.2	0.2	0.1	1.8
India	2 759	0.4	0.1	0.2	4.2	1 951	0.3	0.1	0.2	3.2
Philippines	2 491	4.4	1.8	3.8	7.9	1 930	3.9	1.8	3.9	6.8
Europe	**34 281**	**4.5**	**8.8**	**3.4**	**8.6**	**28 425**	**3.9**	**6.8**	**2.9**	**6.6**
EU27	22 129	5.1	6.4	3.3	8.0	19 370	4.6	5.4	3.1	7.0
Turkey	2 603	4.7	5.3	3.6	5.0	2 085	4.2	4.5	3.5	3.2
North America	**2 075**	**0.8**	**1.7**	**0.4**	**1.2**	**1 910**	**0.8**	**3.5**	**0.5**	**0.7**
Oceania	**1 221**	**4.7**	**5.0**	**3.9**	**5.3**	**1 103**	**4.5**	**6.3**	**3.3**	**4.8**
South America & Caribbean	**24 786**	**6.0**	**5.7**	**5.5**	**9.2**	**18 624**	**5.0**	**5.0**	**4.4**	**7.0**
Mexico	10 780	13.1	18.4	9.7	7.1	8 328	11.1	15.4	7.0	6.1
Total	**90 818**	**1.9**	**1.5**	**1.5**	**4.8**	**72 381**	**1.6**	**1.4**	**1.3**	**3.7**

Note: Weighted averages. Income groups are classified according to the World Bank classification of economies based on the 2005 GNI per capita: low income USD 955 or less, lower middle income USD 996 – USD 3 945, upper middle income USD 3 946 – USD 12 195 and high income USD 12 196 and more. Former USSR and Former Yugoslavia are classified in "Upper middle income" countries, the aggregated category North and South Korea to "High income: OECD". Former USSR, Former Czechoslovakia and Former Yugoslavia are assigned to the region "Europe".

Source: DIOC (2000; 2005-06) and Barro and Lee (2010).

StatLink http://dx.doi.org/10.1787/888932607499

Box 2.6 Staunching brain drain: Retaining vs. restricting

Restricting policies. Compulsory service schemes ("bonding") are widely used to try to manage the exodus of health-care professionals from developing countries. In **Ghana**, for example, the bonding system requires that health professionals work at least five years in the country, otherwise the cost of the training must be paid back. Although bonding systems have had some success in increasing the number of doctors serving temporarily in deprived and rural areas, bonding is not successful in retaining workers. High inflation and currency depreciation may weaken the effectiveness of these systems. **Thailand** and **Mexico** have had similar experiences with bonding. In Ghana too, many doctors left without paying their bond, since there was poor monitoring of the policy. This makes it even more unlikely that those migrants will return.

Retaining policies. Policies that provide incentives to stay may be more successful if they tackle the perceived needs of healthcare professionals. Most of these needs are related to management and governance of the health services and to salaries and working conditions. This is why some developing countries introduced incentive schemes for health professionals that include higher salaries, improved pension and insurance systems, clothing and travel allowances, child care allowances and subsidised meals, accommodation and training. In **Thailand**, financial incentives were introduced in 1983 with allowances for physicians working in remote district hospitals; in 1995 those who agreed not to engage in private practice received an extra USD 400 per month. In **Indonesia**, higher salaries are offered to those graduates who work in very remote areas. A guarantee of a civil-service career is also featured, with free access to specialist training after the completion of the three-year compulsory contract.

Source: Mensah, Mackintosh and Henry (2005).

Brain drain is a particular challenge in many developing countries. However, the focus on the cost of high-skilled emigration in developing countries has obscured the substantial benefits of migration. Some workers, including those who are highly skilled, may not find a job in their home country because of inappropriate investment climate (highly distorted prices, poor governance, and inadequate provision of infrastructure), which reduces the demand for skills. Over the long term, countries need to raise the demand for skilled workers by improving the investment climate; but in the interim, one way to reduce unemployment among high-skilled workers is to make it easier to work abroad. Providing placement services, removing impediments to private agencies, while imposing strong regulations to prevent fraud, exploitation, and abuse, and establishing domestic qualifications and diplomas that meet international standards can help potential emigrants to find jobs that match their skills outside their home country. In addition, nationals abroad can serve as a bridge to useful technical skills, funding, and links to international markets. However, the constraint on emigration remains immigration restrictions in the more developed countries. Easing these restrictions could make a substantial contribution to development.

Table 2.2

Activating skills supply: Key questions, indicators and resources

Key questions	Selected indicators for self-assessment	Selected further reading and policy examples
Activating people to supply their skills to the labour market		
Do people in my country supply their skills to the labour market?	▪ **Labour-force participation rates** *http://stats.oecd.org/wbos/default.aspx?DatasetCode=LFS_D*	▪ Online OECD Employment Database *www.oecd.org/employment/database*
Which inactive group in my country has the biggest potential for participation?	▪ **Projected labour force according to four different scenarios on age, gender and disability-specific participation rates** *www.oecd.org/LongAbstract/0,3425,en_2649_33927_46502382_1_1_1_1,00.html*	▪ *Sickness, Disability and Work. Breaking the Barriers. A synthesis of findings across OECD countries*, 2010, OECD Publishing. *www.oecd.org/LongAbstract/0,3425,en_2649_33927_46502382_1_1_1_1,00.html*
What is the percentage of the "population at risk" in my country?	▪ **Percentage of "population at risk" among children without an immigrant background and young immigrants** *www.oecd.org/document/15/0,3746,en_2649_33729_38002191_1_1_1_1,00.html*	▪ "Overview: Children of Immigrants in the Labour Markets of OECD and EU Countries", in: *Equal Opportunities? The Labour Market Integration of the Children of Immigrants*, OECD Publishing. *www.oecd.org/document/15/0,3746,en_2649_33729_38002191_1_1_1_1,00.html*
What is the incidence and composition of part-time employment in my country?	▪ **Part-time employment in OECD countries** *http://dx.doi.org/10.1787/888932293087* ▪ **Incidence of gender inequality in part-time employment** *http://dx.doi.org/10.1787/888932303575*	▪ "How Good is Part-Time Work?", in *Employment Outlook 2010*, OECD Publishing. *www.oecd.org/document/0/0,3746,en_2649_37457_40774656_1_1_1_37457,00.html*
What are the main reasons for part-time work and inactivity across groups?	▪ **Reasons for working part-time or being inactive** *http://dx.doi.org/10.1787/888932293315*	▪ "How Good is Part-Time Work?", in *Employment Outlook 2010*, OECD Publishing. *www.oecd.org/document/0/0,3746,en_2649_37457_40774656_1_1_1_37457,00.html*
Retain skilled people in the labour market		
Are older workers in my country active?	▪ **Labour-force participation rate by age group** *http://stats.oecd.org/wbos/default.aspx?DatasetCode=LFS_D*	▪ *Pensions at a Glance 2011: Retirement-Income Systems in OECD and G20 Countries*, OECD Publishing. *www.oecd.org/els/social/pensions/PAG*
Does my country lose substantial amounts of skilled people to other countries?	▪ **Net migration as a percentage of the total resident population** *http://dx.doi.org/10.1787/888932446759*	▪ "Trends in Migration Flows and in the Immigrant Population" (Chapter A), in *International Migration Outlook 2011*, OECD Publishing. *www.oecd.org/migration/imo*

Notes

1. Desjardins and Warnke (2012).

2. OECD (forthcoming), *Settling in – 2012*.

3. OECD (2010a).

4. OECD (2010b).

5. Jaumotte (2004); OECD (2011a).

6. OECD (2007a); OECD (2011b).

7. OECD (2010a).

8. OECD (2007b).

9. OECD (2010a).

10. For more information see Immervol and Pearson (2009).

11. OECD (2010c), Gornick and Hegewish (2010). Multivariate analysis shows that the availability of part-time work tends to improve women's participation rates, but not by the same extent in all countries because of different preferences, see Jaumotte (2004) and Falzone (2000).

12. Gustman and Steinmeier (2004); OECD (2010c).

13. The availability of parental leave can strengthen labour-market attachment and make it more likely that women return to work after childbirth. However, the duration of parental leave also matters: if women stay out of the labour market for an extended period of time, this might have negative effects on participation in the long run due to skills deterioration (OECD, 2011c).

14. OECD (2011d).

15. OECD (2006).

16. OECD (2007b) and OECD (2010a).

17. Results from active labour-market programmes (ALMP) focusing on job training of the unemployed are mixed. One study (Kodrzycki, 2007) finds that participation in job training or general education as part of the US Job Training Partnership Act did not improve re-employment pay levels compared with use of basic re-employment services. A World Bank study by Betcherman et al. (2004) considers 159 scientific (i.e. control group-based) evaluations of active labour-market programmes, 49 of which were training programmes for the unemployed and nine retrained workers affected by mass lay-offs. The evaluations show that training measures have a more positive impact than employment subsidies or job-creation programmes, but they cost more. The authors found a number of programmes that improved employment prospects, but far fewer that improved wages. More mixed results, with some positive effects of community-college training for displaced workers, are found in Jacobson et al. (2005).

18. Carcillo and Grubb (2006).

19. OECD (2006, 2011c); Carcillo and Grubb (2006).

20. Carcillo and Grubb (2006).

21. OECD (2006, 2010a).

22. OECD (2011d).

23. OECD (2006).

24. Bassanini and Duval (2006).

25. OECD (2011d).

26. OECD (2011d).

27. OECD (2011d); Gustman and Steinmeier (2004).

28. The so-called horizon effect; see Aubert (2011).

29. OECD (2006).

30. OECD (2011d).

31. OECD (2006; 2011d; 2011a).

32. OECD (2010d).

33. OECD (2011e).

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Key policy lessons on putting skills to effective use

CREATE A BETTER MATCH BETWEEN PEOPLE'S SKILLS AND THE REQUIREMENTS OF THEIR JOB:

- **Help employers to make better use of their employees' skills.** Developing skills and making them available to the labour market will not have the desired impact on the economy and society if those skills are not used effectively. Skills policies need to support employers in making better use of the skills available to them. This can be achieved if managers, particularly in SMEs, identify effective work and organisational practices. These include promoting employee engagement, offering greater job flexibility, providing incentives for innovation, and aligning business strategies with skills development in their workforce. However, the incentives for employers to invest in their employees may be insufficient, even if employers may ultimately benefit from such investments. Government-support schemes, especially for individuals with low levels of skills, are often necessary to solve the problem of under-skilling in the labour force and to achieve an optimal match between workers' skills and job requirements
- **Tackle unemployment and help young people to gain a foothold in the labour market.** In many countries, young people struggle to enter the labour market and to find stable jobs that pay a living wage and offer good career prospects. Successful entry into the labour market at the beginning of a professional career has a profound influence on later working life. The "scarring effects" of a poor start can make it difficult to catch up, and individuals who start in unstable jobs are likely to be badly matched to their jobs or unemployed later.
- **Provide better information about the skills needed and available.** Under-skilling, under-use of skills and unemployment can arise because of a lack of information and transparency in skills systems. Thus, quality career guidance is a critical part of any skills strategy. 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. Coherent and easy-to-interpret qualifications help employers understand which skills are held by potential employees, thereby facilitating recruitment and matching. Competency-based qualifications/diplomas provide employers with a sense of what a future employee can perform on the job and enable individuals who have work experience to secure credentials that reflect the skills they may have learned on the job.
- **Facilitate internal mobility among local labour markets.** One reason why skills shortages 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.

INCREASE THE DEMAND FOR HIGH-LEVEL SKILLS:

- **Help economies move up the value-added chain**. 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.
- **Stimulate the creation of more high-skilled and high value-added jobs**. A good 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. 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, education institutions focusing on new technologies and innovation can also be involved in developing the skills that will shape the economies of the future.
- **Foster entrepreneurship**. Entrepreneurs create new jobs and increase the demand for skills; but entrepreneurs are made, not born. Education and training institutions can have a role in developing entrepreneurs as they can train students to identify opportunities, turn them into successful ventures, and recognise and respond to difficulties and obstacles that may emerge. Since migrants, too, can be entrepreneurs, policies can support recent immigrants in establishing their businesses by offering seminars and briefings on local labour law, and income and corporate tax and social-security legislation in addition to more traditional courses in financing, production and marketing.

HOW CAN COUNTRIES MAKE THE BEST USE OF THEIR TALENT POOL?

Not all of the skills that people are willing to offer to the labour market are used productively. There is evidence that, in far too many cases, there is a mismatch between an employee's skills and those required for his or her job. The incidence of mismatch can be reduced through better management and more transparent information. Low-skills equilibria, where people are matched with their jobs, but at a very low level of skills, and underemployment due to a lack of demand for higher-level skills can be countered by boosting the demand for such skills.

COUNTRIES CAN HELP INDIVIDUALS TO MAKE THE BEST USE OF THEIR SKILLS

Support employers in making better use of their employees' skills

Some workers are not well-matched with their current jobs. Some are over-skilled for their current jobs – they are capable of handling more complex tasks and their skills are underused – while others are under-skilled for their current jobs – they lack the skills normally needed for their job.[1] Although skills mismatch is difficult to measure (Box 3.1), available indicators suggest that these two phenomena are widespread. Of course, such indicators need to be interpreted in context. For example, in a low-skills equilibrium, where the policy objective is to move up the value-added chain, a high level of skills match is not a desirable outcome as it may prevent supply-led improvement. And, as explained below, skills that are not used in an individual's current job may be used elsewhere, to the benefit of society as a whole.

Box 3.1 Alternative measures of skills mismatch on the job

There are several ways of measuring skills mismatch, each having an impact on how the issues are framed, investigated and interpreted. Most of the academic and policy analyses on mismatch to date have focused on qualification rather than skills mismatch because this is what the available data have permitted. Some analyses have used indirect or self-reported measures of skills mismatch, but few have been based on direct measures of skills. PIAAC will change that by making available direct measures of skills along with measures of the requirement to use those skills at work. The three sets of measures are distinct yet complementary. Each has advantages and disadvantages.

Qualification mismatch measures (based on the International Standard Classification of Education, ISCED):
- provide a less-accurate reflection of actual skills at a given period of a worker's life;
- indicate a broader set of skills (covering a range of cognitive and non-cognitive skills), albeit indirectly;
- assume skills are fixed at the qualification point;
- ignore possibilities for skills gain or loss after the qualification point;
- ignore quality differences in qualifications both within cohorts and over time, and between countries; and
- may lead to the application of a static measure to a dynamic problem.

Self-reported mismatch measures (based on workers opinions of their use of skills at work):
- refer to skills more specifically, as opposed to qualifications or diplomas;
- provide a subjective measure of the use of skills at work; and
- do not lend themselves to measuring under-skilling.

Skills mismatch measures (based on direct measures of skills and use of skills):
- provide a more accurate reflection of actual skills at a given period of a worker's life;
- indicate a narrower set of skills more directly (covering only a small number of foundation skills);
- account for skills gain or loss after the qualification point; and
- account for quality differences in qualifications or diplomas.

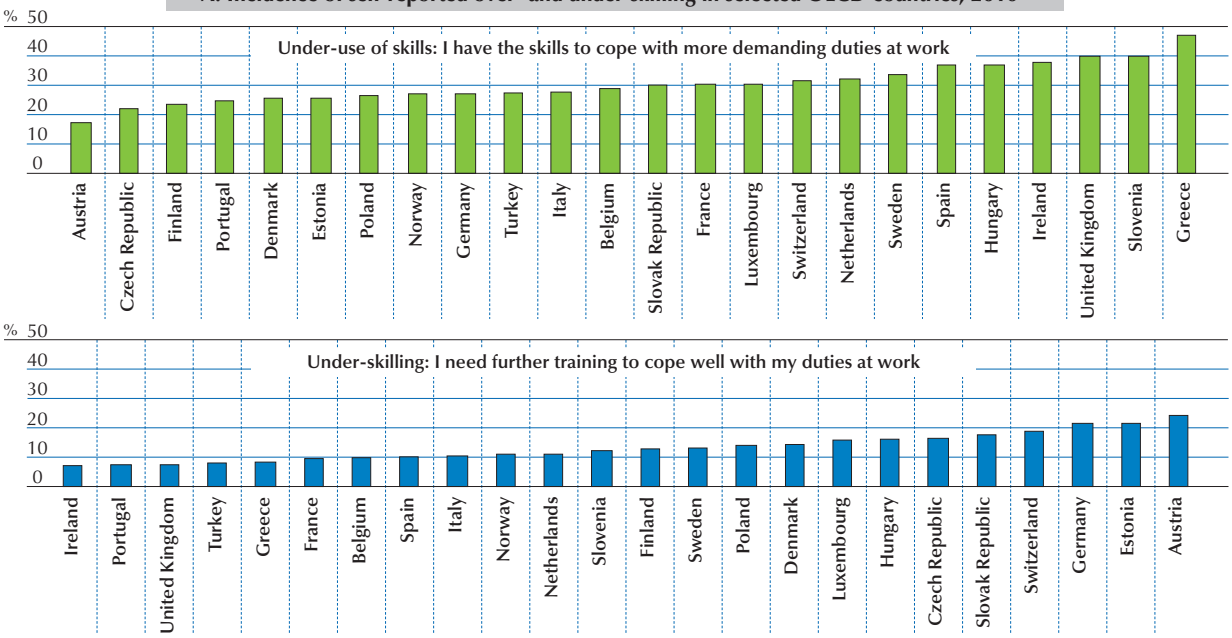
Even if the measures used only deal with a small number of skills, these are key foundation skills, because mastery, to at least a minimum level of functionality, of these skills:
- influences the potential to develop and maintain other higher-order and job-specific skills; and
- helps people to cope with text-based processing tasks that are relevant to a wide range of jobs and are of increasing importance in a wide variety of contexts (civic, social, political and personal).

Source: Desjardins and Rubenson (2011); Quintini (2011a).

■ Figure 3.1 ■

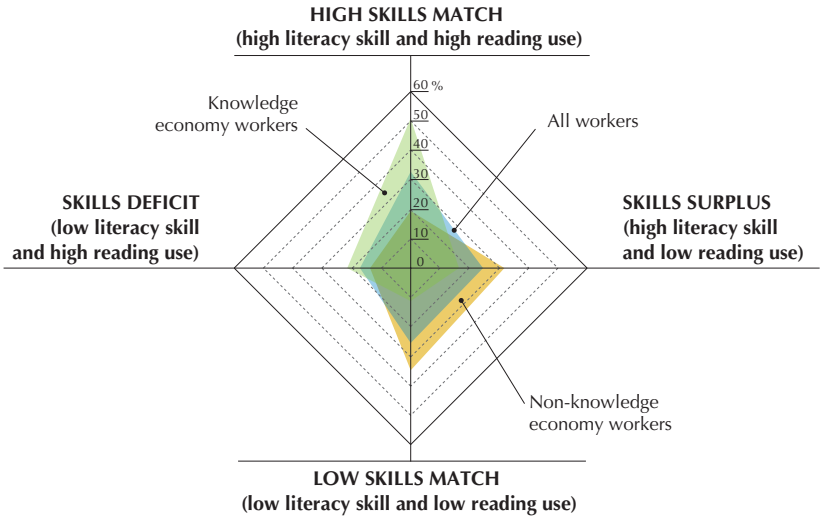
The incidence of skills mismatch

A. Incidence of self-reported over- and under-skilling in selected OECD countries, 2010[1]



1. Data for Switzerland is from 2005.
Source: Quintini (2011a); OECD Secretariat estimates based on the European Survey of Working Conditions (2010).
StatLink http://dx.doi.org/10.1787/888932607385

B. Incidence of match/mismatch based on direct measures of foundation skills and the requirement to use foundation skills at work, country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
Source: PIAAC field trial data (2010); Desjardins and Rubenson (2011).

How to read this graph

The incidence of skills mismatch varies across groups of workers. Based on preliminary PIAAC field trial data, a relatively high percentage of knowledge-economy workers are considered to have a "high skills match", meaning that they have high literacy skills and that they use those skills at work. This group also shows a lower incidence of "low skills match", meaning that fewer of these workers have low literacy skills that they use at work. In contrast, a relatively high percentage of non-knowledge-economy workers are considered to have a "low skills match", meaning that they have low literacy skills and use those skills at work. A high proportion of these workers have high literacy skills, but they use those skills infrequently at work ("skills surplus"). Far fewer non-knowledge-economy workers enjoy a "high skills match" as compared with those who work in the knowledge economy.

Panel A of Figure 3.1 shows the incidence of self-reported skills mismatch in Europe. On average, 30% of workers in European countries report that they have the skills to cope with more complex tasks than those required in their current job. About 13% feel they need more training to handle their job. Panel B of Figure 3.1 presents an alternative measure of mismatch based on the comparison between actual measured skills and how those skills are used at work. It suggests fewer, but still numerous, incidences of both underuse of existing skills and under-skilling.

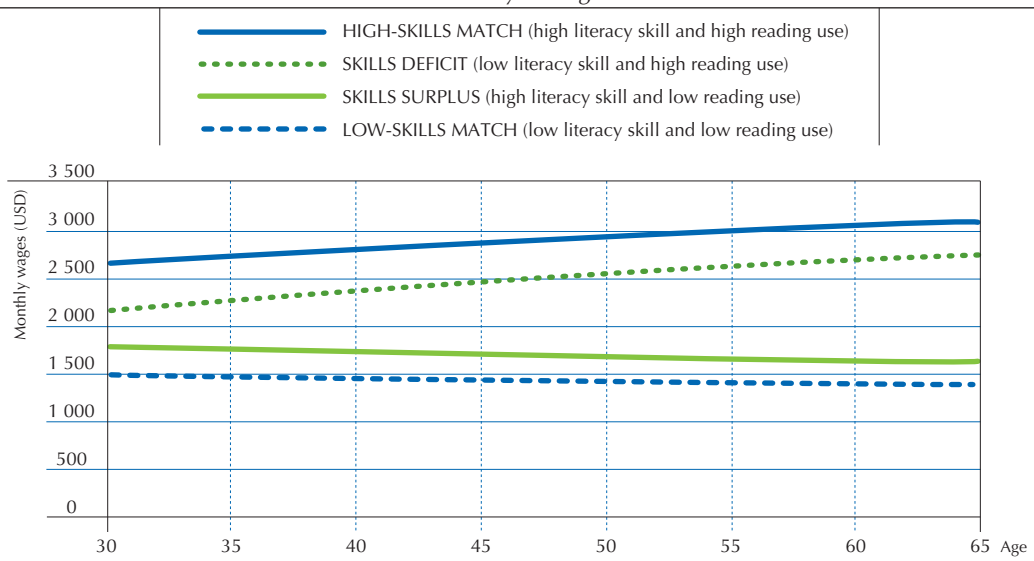
Skills mismatch on the job can be a temporary phenomenon: sometimes, for example, the demand for skills takes time to adjust to the fact that there is a larger pool of highly skilled workers available. Thus, not all types of skills mismatch are bad for the economy. Skills surpluses, which can result from an under-use of skills in specific occupations, can serve as a skills reserve that may be used in other, more advanced jobs and for building knowledge economies over the long run. Also, skills might be useful beyond serving immediate economic needs, as education has a major impact on social, political, and cultural life too. Individuals do not necessarily acquire skills only to use them in the labour market. A population with high-level skills also influences consumption of so-called knowledge products (i.e. computer software, new media, electronic databases and libraries, and Internet delivery of goods and services), which, in turn, can affect market exchange and may generate economic growth as demand for these products increases.[2]

At the same time, the mismatch between workers' skills and their tasks at work can also adversely affect economic and social outcomes. Over-skilling, or the under-use of skills, in specific jobs in the short to medium term can be a problem because it may lead to skills loss and a waste of the resources that were used to acquire these skills. Workers whose skills are under-used in their current jobs earn less than workers who are well-matched to their jobs and tend to be less satisfied at work.[3] 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 can be adopted. This negative impact of mismatch is reflected in workers' earnings as shown in Figure 3.2 below. While there is evidence of skills imbalances, it is difficult to interpret for policy purposes, primarily because of the complexity of the underlying causes. What is known suggests that there is scope for public policy interventions.

■ Figure 3.2 ■

The link between skill mismatch and earnings

Country average



Note: This figure is based on results of the PIAAC field trial. It is not based on representative samples and is therefore only illustrative.
Source: PIAAC field trial data (2010).

Mismatch also has a gender dimension.[4] Women are more likely than men to graduate from certain fields of study, such as the humanities, that are associated with a higher incidence of over-qualification. Moreover, young women who pursue science, technology, engineering and mathematics (STEM) studies are less likely than their male counterparts to end up working in that field. However, there is no evidence of gender differences in the likelihood of over-qualification;

yet women are more likely than men to be under-qualified, and the likelihood increases with part-time work and children in the household.[5] This higher likelihood of under-qualification might also be partly driven by women's perceptions of their own abilities. For example, women more frequently than men self-report that they are under-qualified for their job.

Enhance the use of skills through better management and innovation

Under-use of available skills can result when new technologies are introduced that accomplish the tasks previously performed by workers. In other cases, workers may not have been well-matched to their jobs, either due to a lack of information, or because workers use only some, but not all, of their skills at work. In addition, there may be a lack of high-skilled jobs in a preferred sector or geographical location. In African economies, highly skilled youth must often contend with a lack of high-skilled jobs.[6] While higher education often leads to good employment prospects over a lifetime, in these situations, it could also increase the likelihood of unemployment in the short term. Skills surpluses can also be temporary, resulting from a rapid expansion of the tertiary-educated population and an insufficient demand for these workers. In the long run, the availability of higher levels of skills can trigger a demand for these skills and an accompanying evolution towards higher value-added production in the wider economy.

The expansion of tertiary education can also lead to so-called "qualification inflation", whereby minimum job requirements are inflated, prompting still more individuals to enrol in tertiary education. As a result, the value of tertiary education as a signal of high productivity to prospective employers may be undermined, simply because more people hold tertiary degrees; and the quality of that education may suffer if larger numbers of students have to be accommodated. While earnings differentials suggest that this may be the case in some countries, in the majority of OECD countries rising earnings advantages of tertiary graduates suggest that it is not a widespread phenomenon.

Whatever the reason behind skills surpluses, skills policies should support employers in making better use of the skills available to them. Mechanisms that help managers, particularly in SMEs, to identify effective work and organisational practices, should be emphasised. These include promoting innovation and adopting technologies and practices that complement the existing skills base, such as through brokerage services. A study of 4 000 firms in Europe, the United States and Asia[7] concludes that firms that apply effective management practices perform significantly better than those that do not. According to recent research,[8] when management practices are rated on a scale from 1 to 5, a one-point improvement in management practices is associated with an increase in industrial output equivalent to that produced by a 25% increase in labour or a 65% increase in capital. Successful practices include employee engagement and high-performance organisation of working and learning, which involves job flexibility, delegation of authority, and incentives for innovation (Box 3.2).[9]

Some observers point out that the increased rate of innovation across economies requires employees to have both technical competence and generic or transferable/transoccupational skills, such as problem solving, creativity, team work and communication skills.[10] While these skills can be taught, employers can also encourage their employees to make better use of the skills they already possess by granting workers some autonomy to develop their own working methods. As workers assume more responsibility for identifying and tackling problems, they are more likely to "learn by doing", which can also spark innovation. The OECD Innovation Strategy[11] has found that such "incremental" changes can lead to greater innovations in products and services, hence to growth and productivity in OECD economies as a whole.

Sometimes employers may have no choice but to hire under-skilled workers, as appropriately skilled persons may not be available, or may not be available in the geographical area and for the given working conditions. Alternatively, workers may have had the required skills at one point, but those skills atrophied due to a lack of use, or the skills requirements changed because of innovations in the workplace.

Offering relevant adult education and employer-provided training can address this problem. Employers need to align their business strategies with human-resource practices and skills development in their workforce. Many studies show that training can be complementary to changing demands for skills.[12] Indeed, this is a major reason why some firms support adult education and training in the first place.[13] However, the incentives for employers to invest in their employees may be insufficient, even if employers may ultimately benefit from such investments. Government-support schemes, especially for individuals with low levels of skills, might be necessary to solve the problem of under-skilling in the labour force and to achieve an optimal match between workers' skills and job requirements (see chapter on developing skills above).

Box 3.2 Innovative workplaces

The Nordic countries have ambitious initiatives to promote workplace change and innovation. The main aim of these initiatives is to make the workplace a place for learning. **Norway** has a long tradition in implementing such policies, which are based on the principles of social partnership and workplace democracy. In 1982 a key agreement between the LO (Confederation of Trade Unions) and the NHO (Confederation of Business and Industry) was signed to support local initiatives for workplace co-operation and organisational change. This was the basis for the Enterprise Development Programme (1994-2001) and the following Value Creation (VC) Programme (2001-2010). VC is implemented at the regional level through the creation of networks or partnerships between local firms and local organisations, such as universities, colleges and research institutes.

Sweden has also a long history of job design and re-organisation of factories. The major national programmes in Sweden started with the LOM Programme (1985-1990), which emphasised democratic dialogue to promote workplace change. It was followed by the Work Life Fund Programme (1990-1995), with more than 25 000 projects. Two new agencies, FAS (Swedish Council for Working Life and Social research) and VINNOVA (Swedish Agency for Innovation Systems), were created in 2001. FAS's objective is to support applied research relevant for working life, while VINNOVA concentrates on research activities and enterprise- or network-development projects.

Finland's first national development programme, TEKE, began in 1996 and ran for three years. Other programmes followed. TEKE programmes provided funding for more than 670 projects, involving 135 000 persons and about 1 600 firms. At the beginning, most projects, conducted in single enterprises, aimed to improve work processes, personnel management, team-based work and external networking. Research and development projects were later incorporated, and projects were implemented on the basis of firms' and organisations' networks, with special focus on SMEs. These first programmes focused on identifying best practices carried out in progressive enterprises. Nevertheless, more ambitious and recent policy approaches involve a relatively large number of firms, including less-progressive ones, to encourage them to undertake organisational change with the aim of improving the workplace. The OECD supports this more ambitious policy approach, since countries that implementing this approach are among the leaders in adopting new forms of work organisation.

Source: Alasoini (2009); OECD (2010a).

Tackle unemployment and help young people to gain a foothold in the labour market

Temporary exclusion from the labour market due to unemployment implies that available skills are not being used at all. The OECD Jobs Strategy provides a number of recommendations on how countries can tackle unemployment (Box 3.3).

Box 3.3 Policy advice to tackle unemployment

In 1994, the OECD Jobs Strategy was released to provide a set of policy guidelines to OECD countries to tackle high and persistent unemployment. In 2006, a revised version of the Jobs Strategy was published. The Strategy rests on four main pillars, each of which includes either direct or indirect policy measures to address unemployment.

Pillar A: Set appropriate macroeconomic policy

- Temporary increases in unemployment due to adverse shocks can become persistent if macroeconomic policy does not help to stabilise the economy. A call for monetary and fiscal policy is required.
- Monetary policy should pursue medium-term price stability by reacting to either inflationary or dis-inflationary shocks. The ultimate aim is to stabilise economic activity.
- Fiscal policy should aim to restore and maintain sound public finances, so that automatic stabilisers can be allowed to operate.

...

Pillar B: Remove impediments to labour-market participation and job search

- Unemployment benefit replacement rates and duration should be set at levels that do not discourage job search, especially where they are relatively generous.
- Employment services should offer unemployed workers in-depth interviews and job-search assistance. Participation in active labour-market programmes should be compulsory.
- Performance of employment services should be assessed on the basis of their long-term impact on employment benefit caseloads; inefficient programmes should be terminated.
- Employment should be financially attractive *vis-à-vis* benefit receipt. Tax-benefits reforms and in-work benefits to make work pay are policies to be addressed.

Pillar C: Tackle labour- and product-market obstacles to labour demand

- Ensure that minimum wages are set at levels that do not harm job creation significantly for low-productivity workers.
- Legal impediments to entry of new firms should be removed in all areas where competition is feasible, and administrative burdens and costs on business start-ups should be reduced and simplified to promote an entrepreneurial climate.
- Employment-protection legislation should be reformed in countries where it is overly strict, by sanctioning unfair dismissal (on the basis of discrimination) and reducing constraints on dismissals for economic reasons. Reasonable dismissal notice periods should be provided so as to help laid-off workers find new jobs.

Pillar D: Facilitate the development of labour-force skills and competencies

- Establish a system of recognition of new competencies acquired by adults through training and work experience, including recognition of the credentials of new immigrants.
- Ensure that some employment programmes are targeted to the specific needs of disadvantaged groups, such as unemployed persons.
- Reduce early exit from education and ensure that young people acquire skills relevant to the labour market.
- Help combine education with work; apprenticeship systems or more informal channels are a good start.

Source: OECD (2006).

In many countries, young people struggle to enter the labour market and find stable jobs that pay a living wage and offer good career prospects. In 2010, the average youth unemployment rate in the OECD stood at 17%, 2.3 times higher than that of prime-age adults; in Spain, more than 40% of young people were unemployed that year (Figure 3.3). While these figures reflect the impact of the recent global economic crisis, high rates of youth unemployment were common even before the downturn because of several structural barriers that impeded smooth school-to-work transitions.

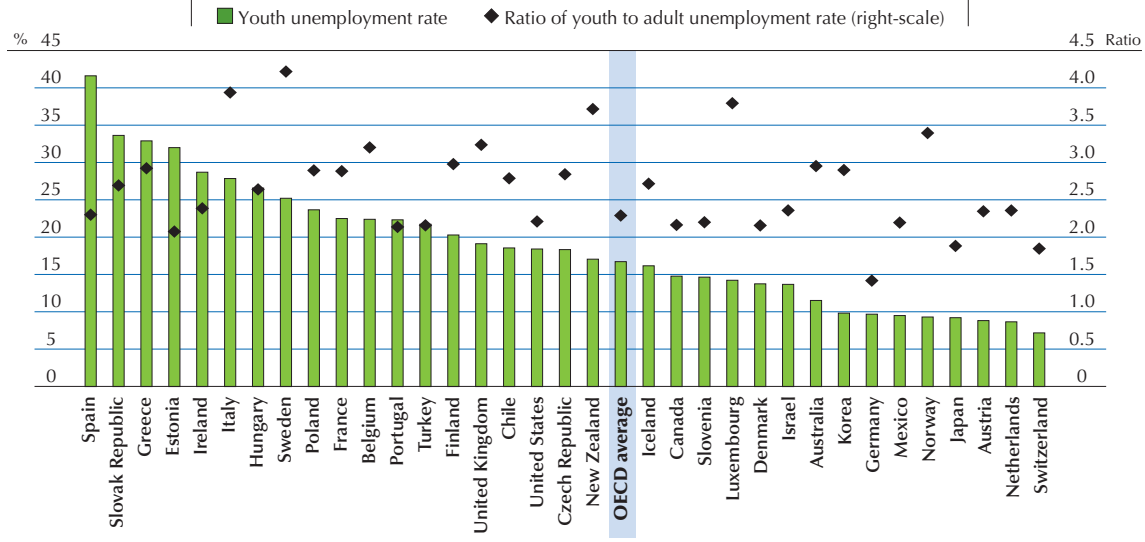
Many young people start their professional lives as "poorly-integrated new entrants".[14] While these young people often have qualifications or diplomas, they frequently alternate between unstable jobs that require lower levels of skills than they possess, and unemployment and/or inactivity, even during periods of strong economic growth. Since the definition of unstable jobs varies across countries, it is difficult to measure the size of this group. For European countries, the OECD chose to proxy this group with youth who spend at least three years in temporary work. In Europe, an average of 8% of out-of-school 15-29-year-olds who were employed in temporary jobs in 2005 were still in temporary work in 2007. In low-income countries, youth employment is more a problem of quality, while in middle-income countries, it is more a matter of quantity. Unemployed youth in low-income countries are usually from relatively more advantaged backgrounds and are not as disadvantaged as young people employed in the informal and rural sectors. Disadvantage is greatest among discouraged young workers.[15]

Successful entry into the labour market at the beginning of a professional career has a profound influence on later working life. The "scarring effects" of a poor start can make it difficult to catch up, and individuals who start in unstable jobs are likely to be badly matched to their jobs or unemployed later.[16] Hence, identifying and tackling the causes of poor labour-market outcomes for young people is key to ensuring a skilled and productive adult labour force.

■ Figure 3.3 ■

Youth unemployment in OECD countries, 2010

Youth unemployment rate, and ratio of the unemployment rate of 15-24-year-olds to that of 25-64-year-olds



Source: OECD, *Labour Force Statistics Database.*

StatLink http://dx.doi.org/10.1787/888932607442

Box 3.4 **Improving the transition from school to work: Examples of good practice**

Raising the age of compulsory education: England, Portugal and the Netherlands

England, Portugal and the Netherlands have recently raised the age of compulsory schooling with the aim of ensuring that more young people leave education with at least an upper secondary qualification. In these countries, young people are required to stay in education until they acquire a high-school diploma or until they turn 18, whichever comes first. Under England's system, to fulfil the learning obligation, young people can also be engaged in full-time training or be employed in jobs that provide training in addition to remaining in school. This type of flexibility ensures that young people who feel alienated in classroom education – the majority of early school-leavers – can choose alternative learning pathways.

Reviving the apprenticeship system: Australia

The Australian apprenticeship system is crucial to the development of Australia's technical and trades skills. Apprenticeships are available to anyone of working age. They combine time at work with training and can be full-time, part-time or school-based. During the global financial crisis, apprenticeship completion levels quickly returned to their pre-crisis levels. Following a review of the country's apprenticeship system, the Australian government invested in: supporting a systemic shift towards competency-based progression rather than a time-served basis; providing advice to school-leavers who are considering a career in a skilled occupation; offering targeted mentoring services to help retain apprentices; and harmonising differing state apprenticeship legislation to facilitate labour mobility and efficiency.

Reducing youth unemployment: Poland and the Slovak Republic

Low school dropout rates do not guarantee low unemployment rates among young people. In both Poland and the Slovak Republic, the incidence of dropping out of school among 20-24-year-olds is among the lowest in OECD countries. Nevertheless, one youth in four is unemployed. Part of the explanation for the high unemployment rate in these countries is the mismatch between the skills taught in vocational secondary schools, which lead to outdated qualifications, and the requirements of the labour market. In Poland, the 2009 Act on Employment Promotion and Labour Market Institutions strengthened the financial incentives for unemployed young people to participate in training to match their skills with those required in the labour market. In the Slovak Republic, regional schools have adopted measures to design new curricula. The aim is to improve students' knowledge and skills and bring vocational education and training closer to labour-market requirements at the regional level.

Source: OECD (2010c).

Hiring and firing rules that do not penalise young people compared with other groups, and financial incentives that make it viable for employers to hire young people who require on-the-job training are critical to overcoming employers' reluctance to hiring inexperienced youth. Some countries have established successful practices that support young peoples' entry into the labour market (Box 3.4).

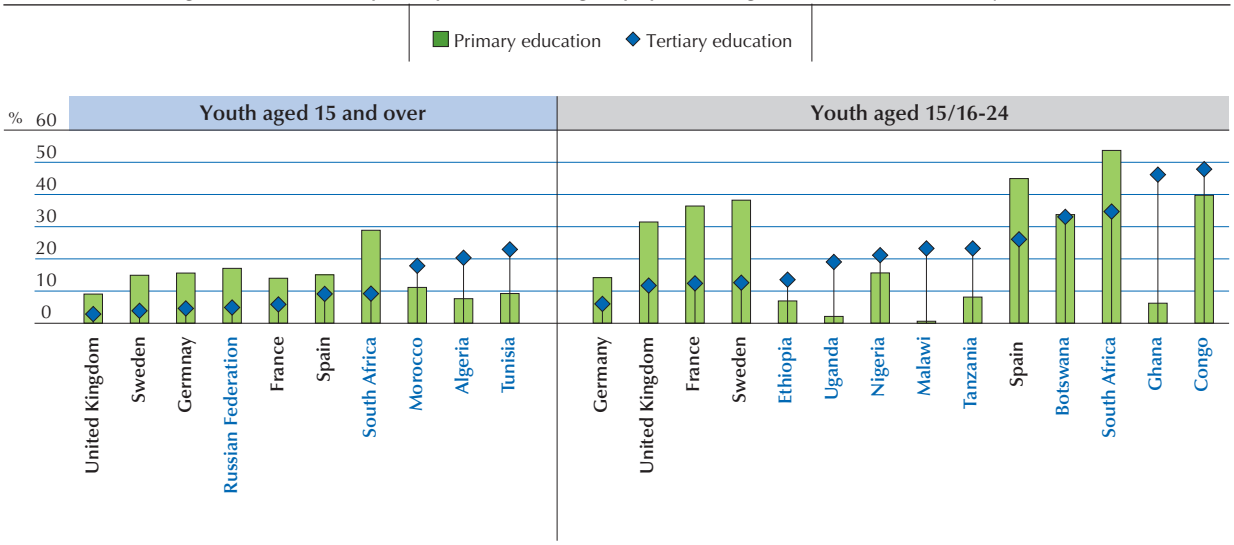
In many developing countries, the potential supply of workers implied by high rates of unemployment and large numbers entering the labour force represent a golden opportunity for boosting growth. Adequately training these new workers, and providing a business climate in which firms are encouraged to hire them, could substantially boost economic and social development. However, rapid population growth poses challenges as well as opportunities. The International Organization for Migration estimates that Egypt will need to create some 833 000 jobs each year to absorb new entrants and the long-term unemployed – almost 40% more than recent increases in employment.[17] Easing regulatory constraints that limit hiring by private-sector firms, improving the quality and relevance of education, and strengthening governance to increase productive efficiency would also enable these countries to reap the potential benefits afforded by having large populations of young people.

Moreover, the unemployment rate among women exceeds 22% in Egypt and Jordan, compared to the global average of 6.5%; and the unemployment rate among women is more than four times that among men in Egypt, more than double in Jordan, and about 70% higher in Tunisia, but only slightly higher in Morocco. The young and the well-educated also face high unemployment rates. Youth unemployment ranges from 25% to 29% in Egypt, Jordan and Tunisia, but is lower in Morocco, although still well above the global average of 12.6%.[18] College-educated workers account for a large share of the unemployed because they tend to have greater resources and more incentives to wait for a job in the formal sector than less-educated workers. Incentives to wait are greater because of the relatively high pay and benefits offered in public-sector employment, which accounts for a substantial share of jobs. Figure 3.4 shows that unemployment rates are higher for those with higher education than for those with few educational qualifications – the opposite of what is observed in the industrialised world.

■ Figure 3.4 ■

Unemployment rate by level of education in selected African and European countries

Percentage of labour-force participants in each group, persons aged 15 and over[1], latest year available



Notes: Data from 2010 for the Russian Federation, South Africa, Algeria and Tunisia; data from 2009 for the United Kingdom, Sweden, Germany, France, Spain and Morocco; data from 2006 for Uganda, Tanzania and Ghana; data from 2005-06 for Botswana; data from 2005 for Ethiopia and Congo; data from 2004 for Malawi; data from 2003-04 from Nigeria.

OECD countries are indicated in black and partner countries are marked in blue.

1. 15-72 for the Russian Federation, 16 and over for Spain and 16-64 for South Africa and the United Kingdom.

Source: ILO Department of Statistics, Statistical Update on Arab States and Territories and North African countries for Algeria, Jordan, Morocco, Tunisia, the West Bank and Gaza Strip, Lebanon, Qatar, Saudi Arabia, and Syria; ILO, Short-Term Indicator of the Labour Market for the Russian Federation; *OECD Education Database* for France, Germany, Spain, Sweden and the United Kingdom; national Labour Force Survey for South Africa; and African Development Bank (AfDB) estimations for Botswana, Congo, Ethiopia, Ghana, Malawi, Nigeria, Tanzania, and Uganda.

StatLink http://dx.doi.org/10.1787/888932607461

In Africa, there have not been enough jobs created to accommodate the number of young people in search of work. The International Labour Organization estimates that between 2000 and 2008, Africa created 73 million jobs, but only 16 million for young people aged between 15 and 24. As a result, many young Africans find themselves unemployed or, more frequently, underemployed in informal jobs with low productivity and pay. Of Africa's unemployed, 60% are young people; and youth unemployment rates are double those of adults in most African countries (Box 3.5).

Box 3.5 The outlook for Africa

Africa is a huge continent composed of diverse countries with different resources and challenges. Middle-income countries have a higher proportion of young people in education and a smaller proportion in the labour market than do lower-income countries. Those in the labour market face low-quality employment prospects in low-income countries, and a lack of opportunities in middle-income countries.

Who are Africa's working youth? Many young people in Africa work in bad conditions and are poor even though they are employed. They deserve as much attention and support as young people who are not working, since employed youth are usually more disadvantaged than those who are unemployed. Most young people are in agriculture or earn their livelihoods as traders or vendors, while young people with higher education can remain in unemployment while looking for job opportunities.

Who are the young Not in Employment, Education, or Training (NEET)? The distinction between unemployed and discouraged youth is of particular importance. However, and contrary to the trends in OECD countries, discouraged youth in Africa are in fact more disadvantaged than unemployed youth. Unfortunately, they are not usually included in labour analyses because of a lack of data.

What is the employment outlook for young people in Africa? Although many jobs have been created over the past decade, Africa's population has grown faster. While the private sector has been increasing in size, it started from a small base; the public sector cannot grow as fast as the population and, in general, does not employ as many young people. The legacy of the economic crisis of 2008-09 has been a marked increase in work in agriculture and informal activities. Given this outlook, the informal and rural sectors are becoming even more important employers of young people.

What do governments do to promote youth employment? Although governments are more aware of the problem of youth unemployment, effective responses are rare. Experts consider programmes to promote youth employment to be dysfunctional in 21 countries, and well-developed only in Morocco.

Source: OECD, et al. (2012).

The cost of inadequate employment – poverty being the most obvious – is high. Some 72% of young Africans, on average, live on less than USD 2 per day. The highest rates of poverty are found among young women and young people living in rural areas. The skills developed and experience accumulated during the first years in the labour market affect young people's future. For the few who manage to obtain a formal-sector job, an initial period of unemployment can have significant negative effects on lifetime earnings. In fragile states, the lack of adequate employment is among the major threats to stability.

Improve transparency and information

Under-skilling and under-use of skills, and also temporary unemployment, can arise because of a lack of information and transparency in skills systems. The under-use of skills is often related to field-of-study mismatch,[19] whereby individuals work in an area that is unrelated to their field of study and in which their qualifications or diplomas are not fully valued. The likelihood of field-of-study mismatch varies significantly across occupations, underscoring the importance of up-to-date and quality information on labour-market outcomes across fields.

Under-skilling can also be addressed through more transparent national qualification/skills systems. On the one hand, 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. On the other hand, under-skilling is often measured by comparing the qualifications held by workers against the average qualification of workers in the same occupation. As a result of this measurement practice, some workers may appear to be under-qualified for their jobs because the skills they have acquired through work experience are not reflected in their formal qualifications or diplomas. In all these cases, developing and disseminating better information for

all actors in the labour market could reduce skills mismatch. For example, governments can enhance the transparency of qualifications systems and improve the certification and recognition of skills acquired in informal and non-formal settings. National and cross-national qualifications frameworks can help to ensure greater transparency in the market for skills. In contrast, locally defined qualifications frameworks can lead to a lack of comparability and hinder mobility.[20]

Coherent, clear and easy-to-interpret qualifications can help employers to understand which skills are held by potential employees, thereby facilitating recruitment and matching. Competency-based qualifications or diplomas can provide employers with a clearer sense of what a future employee can perform on the job and enable individuals who have work experience to secure credentials that reflect the skills they may have learned on the job. Continued certification that incorporates non-formal and informal learning over the working life is key to improving the frameworks now in use because most are based exclusively on initial and formal education.[21]

In addition to language barriers, one of the biggest obstacles facing new arrivals and resident individuals with an immigrant background who are looking for work is that their (credentials/diplomas/) qualifications and work experience obtained abroad are often discounted in the host-country labour market. As a result, their (credentials and) skills are not adequately used and a large proportion of these individuals hold jobs for which they are over-qualified – in fact, a far larger share than among individuals without an immigrant background.[22] Several countries have put in place policies that aim to make better use of resident migrants in the labour market (Box 3.6).

Box 3.6 **Tackling under-use of immigrants' skills**

Some states in **Australia** have established programmes to overcome the problem of over-qualification among recent immigrants. In Victoria, for example, the Overseas Qualified Professionals Programme provides recently arrived professionals who acquired their skills abroad with a work-experience placement to enhance their opportunities for employment in their field of study. The participants must be either unemployed or employed in low-skilled jobs. The programme consists of an initial six-week training period to develop job-search skills, followed by a four-to-six-week work-experience placement in the participant's field or in a closely related occupation. The work-placement component is generally not remunerated. The programme includes mentoring and industry-specific networking sessions with employers and professional associations to provide further orientation and networking opportunities. Six months after completing the programme, more than 60% of participants were in paid employment in a field corresponding to their qualifications and experience.

Following a different approach, in 2004, **Denmark** established regional knowledge centres to assess the skills and qualifications of immigrants. The project is run jointly by the Ministry of Employment and its social partners. The assessment is generally conducted in the workplace and participants obtain 'competence cards' that link immigrants' skills to labour-market needs. The centres also help migrants to find employment that matches their skills.

Programmes in other countries have focused on over-qualification in specific occupations. In **Portugal**, two non-governmental organisations (the Gulbenkian Foundation and the Jesuit Refugee Service), working with universities and the health, interior and foreign affairs ministries, developed a programme for foreign-trained doctors who were found to be working in low-skilled occupations. The programme provides translation services for documentation, bridging courses at medical faculties, and comprehensive preparation material, including internships in teaching hospitals and vocation-specific language training. Participants have to pass a final examination. At the end of the pilot project, about 90% of the participants were employed as doctors. Participants were followed for one year after completion of the programme to ensure that integration is sustainable. The programme has since been mainstreamed. The government of **Sweden** has recently assigned a number of universities and colleges to arrange supplementary courses for immigrants with a foreign degree in law, education, health or public administration. The programme aims to adjust foreign credentials to meet the requirements of the Swedish labour market, thereby helping highly skilled immigrants to find work in their field of study.

Refugees are often highly qualified, but their primary reason for migration is not employment. To assist this special group of workers, **the Netherlands** has set up several training programmes for highly qualified refugees. In light of growing skills shortages and a high incidence of over-qualifications among immigrants, **Austria** has launched a number of important initiatives to train unemployed or overqualified persons for shortage occupations, and immigrants have been an important group among these. The measures included targeted language and vocational training for shortage occupations, in co-operation with employers.

Source: Krause and Liebig (2011); OECD (2007; 2008).

Governments can also foster the development and dissemination of better information regarding labour-market opportunities among students, parents, workers, employers, education providers and policy makers. Good-quality and up-to-date information is essential for avoiding imbalances that can act as a drag on growth. More and better information is needed about recent and ongoing changes in skills demands in order to reduce the incidence of skills mismatch. Dissemination routes often take the form of school/labour-market guidance agencies (Box 3.7).

Box 3.7 **Disseminating information on skills needs**

New Zealand

Career Services (CS), a body independent of the education system, is the main provider of career information in New Zealand. CS provides services directly to individuals to help them make informed decisions about work and training. These services include providing labour-market information (e.g. job profiles and industry outlooks) and information on tertiary education and vocational training. In addition to providing this information and advice, CS also develops guidance modules for schools. The Creating Pathways and Building Lives programme, for example, assists schools in developing effective career advice.

Career guidance consists of wide-ranging information on career paths and training opportunities. The New Zealand Qualification Authority provides information about qualifications and diplomas, and the quality of learning institutions. The New Zealand Register of Quality-Assured Qualifications provides a comprehensive list of all quality-assured qualifications in New Zealand. In addition, most tertiary education institutions conduct surveys of graduates to structure their programmes. The Department of Labour collects and analyses information about the skills needed in the labour market and about how the tertiary education system interacts with the labour market. Merging this information with that from other sources, the Tertiary Education Commission, which supervises the country's education system, produces annual "portraits" of tertiary education and training in New Zealand, including indicators of possible under- and over-supply.

Australia

Australia has a wealth of data on skills requirements, including data collections by the Australian Bureau of Statistics and surveys administered by the Department of Education, Employment and Workplace Relations. The Household, Income and Labour Dynamics in Australia Survey, which began in 2001, captures the employment experiences of working-age individuals as they relate to labour-market forces, household consumption and social interactions. The Longitudinal Survey of Australian Youth (LSAY), which began in 1995, follows a cohort completing post-compulsory schooling at age 15 through their transitions to tertiary education and training and into the labour market up to age 25, providing insights into how and where these young people acquire skills. The government has also set up a Skills Info Portal (*www.skillsinfo.gov.au/*) and a Labour-Market Information Portal (*www.deewr.gov.au/lmip/*) that allows policy makers, industry (employers) and the community (workers, students, etc.) to make informed decisions on policy, workforce planning and current and future training and job prospects.

United States

The US Department of Labor developed two online portals, "My Skills, My Future" and "My Next Move" to help students and workers identify their skills and need for new or upgraded skills so that they can succeed in the labour market. My Skills, My Future allows workers to register their previous job information with the aim of finding an appropriate job that is currently available. Users can also search the job database for job-training seminars and local job opportunities. My Next Move allows users to search for jobs by occupation, by industry and by using the "O*NET Interest Profiler", which matches an individual's interests with suitable occupations through the user's response to some 60 questions.

The department's Occupational Information Network, or O*NET, had previously used a 180-question version of the profiler that could be printed out or downloaded to a personal computer. The new, streamlined version is available online for the first time as part of My Next Move. Users can also search for jobs in three categories: careers with a "bright outlook" in growing industries, jobs that are part of the "green" economy, and occupations that have a Registered Apprenticeship programme. Each occupation that a user selects has an easy-to-read, one-page profile, including information about what knowledge, skills and abilities are needed; the occupation's outlook; the level of education required; technologies used within the occupation; and a list of similar jobs. In addition, each occupation page includes direct links to local salary information, training opportunities and relevant job openings.

In addition, governments can improve guidance systems. A review of career-guidance policies in OECD countries concluded that such services are predominantly available to only a limited range of groups, at fixed points in life, and tend to focus only on immediate decisions rather than taking a lifelong approach to decisions concerning investment in skills.[23] Competent personnel who have the latest labour-market information can provide tailored guidance to individuals on the connections between their education and their prospective careers (Box 3.8).

Box 3.8 Sectoral strategy approaches in Maryland and Pennsylvania, United States

In the United States, local and regional government agencies have increasingly adopted sectoral strategy approaches to economic development and a similar approach is surfacing in the workforce-development field. As partnership between workforce and economic-development agencies becomes more common in regions and communities, the role of education and workforce agencies in mapping and building skills pipelines for key industries becomes more critical to economic-development practitioners. Public education and workforce systems organise their work through pathways and cluster models. For high schools and community colleges, establishing career-pathway models helps to connect them to the economy, and to produce workers with the appropriate skills for jobs in the region.

Maryland started working on a sectoral strategy approach in 1995 under the School-to-Work Opportunities Act. Some 350 business executives in ten different sectors were brought together to inform education policy makers about their bottom line: how they made money and what they needed to be successful. The original project was funded with USD 25 million of federal School-to-Work funds, and the approach was bottom-up: mapping what knowledge and skills were required and developing programmes around clusters of skills. Within each county, a Cluster Advisory Board (CAB) focused on different industry clusters. In Montgomery County, Maryland, for example, which hosts the third-largest biotechnology cluster in the United States, a CAB is focused on the biosciences, health science and medicine cluster. Administrators, counsellors, and faculty members use the career-cluster system to develop programmes that extend from high school to two- and four-year colleges/universities, graduate schools, apprenticeship programmes and the workplace. Although the cluster framework was originally developed for high schools and young people, it is now being adopted by workforce investment boards and other programmes serving adults.

A similar sectoral approach is used in Pennsylvania. One is the Industrial Maintenance and Mechatronics[a] Industry Partnership in Berks and Lancaster counties. The region is home to large manufacturing companies, including those that produce food and wood products. Local manufacturers have long had difficulty finding skilled workers in mechatronics, which combines mechanical and electrical engineering and computer science. Local education and training institutions collaborated with industry to create training programmes that begin in high school and lead to two- and four-year degrees, and to establish clear career pathways within the industry. The scheme was initially funded locally, but it eventually attracted state and federal investment and has been expanded to other sectors. Fifty companies are engaged in the scheme and more than 250 workers have been trained.

Source: Hamilton (2012); Pages (2011), submitted.

Public-employment services and other institutions responsible for matching people to jobs can pool relevant information and act as intermediaries, linking the supply of and demand for skills and providing guidance to all concerned stakeholders, based on the latest information (Box 3.9).

Box 3.9 Barcelona Activa's Porta22 web portal: Supporting a better match of skills to local employers' demands

Barcelona's Local Development Agency, Barcelona Activa, is seeking to "foster the transformation of Barcelona through entrepreneurship, business growth, innovation, human capital, professional opportunities and quality employment". As part of this process, the agency aims to improve the match between the skills demanded by the labour market and the skills available among local job-seekers. As well as investing heavily in physical infrastructure to support job-seekers, Barcelona Activa has also recently created a unique online service for professional guidance – Porta22.

Launched in 2010, Porta22 is a municipal web portal that contains tools for all types of users who want help defining and putting into practice their own professional paths and for professional guidance counselors. It is divided into three mains sections, Person, Tools and the Market, and provides functions that allow users to explore the local labour market and learn more about job opportunities in Barcelona.

...

One of its most advanced tools is a bank of 932 professional-profile descriptions that gives information on all aspects of a given career. This includes the range of tasks associated with different jobs, and requirements in terms of training, education, experience and soft skills. Profile descriptions are linked to a search engine that has over 7 000 job offers. The professional-interest test is an additional interactive feature that allows users to identify their work interests and match their own profile with job profiles. The key skills dictionary allows users to better understand the importance of key competencies in the current labour market.

By providing clear, up-to-date information on local employment sectors and the skills required to enter these, job-seekers can build up their knowledge, assess which career paths are open to them, and what is needed to get there. It also helps to ensure greater transparency in career pathways. The online service is seen as a critical component of Barcelona Activa's skills-related work.

Source: *http://w27.bcn.cat/porta22/cat/.*

In many countries, most notably in the developing world, the need for intelligence on skills requires significant investments in the basic infrastructure for data development. To this end, the G20 Development Working Group has developed a framework for internationally comparable skills indicators (Box 3.10).

Box 3.10 Internationally comparable skills indicators for low-income countries

One of the main actions to be developed in the Human Resources Development Pillar is the creation of a set of internationally comparable indicators of skills for LICs. The initial framework and approach to construct this set of skills indicators is divided into five main areas:

1. **Contextual factors:** Required to capture the main drivers of skills acquisition and skills requirements, contextual indicators aim to picture the economic and demographic situation of a country, as well as its labour market and technological development. As an example, some indicators included in this area are GNI per capita, employment shares by sector, pupil-student ratio or access to the Internet.
2. **Skills acquisition:** Focusing on the stock of human capital and the ongoing investments in skills formation in a country, some of the indicators suggested are educational attainment, literacy, school enrolment or participation in apprenticeships.
3. **Skills requirement:** Assessing the demand for and use of skills is one of the main challenges in determining each country's productivity and growth potential. Employment shares by level of education and by occupation or job-task measures of skills use at work are some of the indicators to be included in this section.
4. **Matching:** Achieving a good match between skills acquired and those used in the labour market is important to maximise the benefits of costly investments in education and training. The proportion of workers who are over-qualified or under-qualified, the proportion of qualified workers working in the informal sector or hard-to-fill vacancies are some direct and indirect measures of skills (mis-)match.
5. **Outcomes:** The final objective is to enrich the links between skills and economic performance, employment and health outcomes. Growth in GDP, labour productivity, unemployment rate by education or earnings by occupation and education are some of the indicators that can guide policy makers to evaluate their policies.

Indicators have to be constructed so that they provide relevant information, so that it is economically and technically feasible for all countries to construct them, and so that they are comparable and can be used to accurately represent the current and future situation in a country. Labour-force and health surveys are two key data sources potentially available. Employers' surveys are also required, although availability and comparability issues will have to be addressed.

Source : OECD and World Bank (in collaboration with ILO and UNESCO, forthcoming).

Facilitate mobility among local labour markets

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

These measures need to be coupled with adequate information systems that allow workers to identify opportunities outside their local labour market and employers to recruit from a larger pool of available skills, nationally and even internationally. Supra-national qualification frameworks can facilitate international mobility because such qualifications are comparable across borders. The European Qualifications Framework, together with other European instruments, help to "translate" national qualifications into credentials that are understood by employers across Europe, making it easier for workers and learners to offer their skills in other countries (Box 3.11).

Box 3.11 **Joint European skills instruments**

European Qualifications Framework (EQF): The EQF supports lifelong learning and mobility by being the common reference framework for qualifications. Its eight levels enable national qualifications (general and higher education, and vocational education and training) to be compared with each other and with those of other countries. Establishing the EQF has spurred development of national qualifications frameworks in many European countries, as they are seen as the best way to link national qualifications to the EQF.

European Credit System for Vocational Education and Training (ECVET): ECVET promotes geographical and professional mobility. It helps validate, recognise and accumulate work-related skills and knowledge acquired during a stay in another country or in other situations, so that these experiences count as part of vocational qualifications.

Europass: Europass is a portfolio of documents that supports mobility by helping people to communicate their knowledge, skills and competencies acquired through education, training, work experience, or in informal settings. Europass includes the Curriculum Vitae, Language Passport and the Diploma Supplement, which records additional information on learning from a stay in another European country, linked to a VET qualification and diploma in higher education.

COUNTRIES CAN INCREASE THE DEMAND FOR (HIGH-LEVEL) SKILLS

As noted before, a good match between available skills and job tasks is not always a positive indicator: people can be matched with their jobs, but at a very low level (often referred to as low-skills equilibrium). These individuals tend to earn the least and be the least productive.[24] The aim should be to upgrade poor skills rather than try to match these skills with a job that only requires low levels of skills.

Low-skills equilibria can adversely affect the economic development of a local economy, region or sector, or indeed an entire country. For example, employers pursuing price-based competition strategies that rely on low-quality and standardised production require only a limited range of low-level skills from the bulk of the workforce.[25] Even if such price-based strategies leave the local workforce vulnerable to displacement because of innovation and competition in global markets, workers have few incentives to remain in education because local employers are neither seeking, nor are they willing to reward, high levels of skills. For their part, employers have little incentive to upgrade production processes or workers' skills since this can undermine their price-based competition strategy. Even if employers eventually do want to upgrade their strategy or innovate, managers may be hindered from doing so because the local skills base would be inadequate to the task, due to the lack of investment in skills by individuals, employers, national and local authorities.[26]

In the long term, investing in the skills supply can help to transform the kinds of employment on offer in such economies, as employers can more easily recruit skilled workers who, in turn, improve the quality of the work that they do. However, some management practices discourage this kind of transformation. In the meantime, a "skills surplus" may develop, where skilled people either carry out work for which they are over-qualified, remain unemployed, or move to other regions or out of the country to find more appropriate employment. In such situations, economies often find themselves with labour shortages, as local people are unwilling to take up the low-skilled and low-income jobs that are on offer. This can lead to a reliance on low-skilled immigrants.[27] While these workers may meet employer demand in the short term, they will do little to support the medium- or long-term economic development of such regions.

In order to support longer-term economic development, policy makers therefore have an interest in helping to increase the demand for skills. The need to "shape" demand, as opposed to merely respond to it, is already prioritised in national skills strategies. In many countries governments are helping local economies or sectors to move production up the value-added chain and enhance economic performance.[28] The UK Commission for Employment and Skills,[29] for example, encourages employers to take more "ownership" in the area of skills development, while also supporting improvements to work organisation, through the longstanding Investors in People scheme, and by generating growth and productivity gains through a new Growth and Innovation Fund (Box 3.12).

Box 3.12 **Shaping demand in the United Kingdom**

In the United Kingdom, concerns about a "long tail of low skills" has meant that skills policies have focused primarily on boosting the supply of skills through publicly-funded investments, and through social inclusion and mobility. More recently the UK Commission for Employment and Skills (UKCES), led by a team of commissioners, including large and small employers across a wide range of sectors, and representatives from trade unions and the government, has argued that "the future employment and skills system will need to invest as much effort on raising employer ambition, on stimulating demand, as it does on enhancing skills supply". As the Commission points out, there is little value to an organisation having a skilled workforce if the skills are not used well. The United Kingdom is implementing a number of different initiatives to this end:

Investors in People: Investors in People, first introduced in 1991, specialises in transforming business performance by aligning business planning and goals with people management. In April 2010, responsibility for Investors in People passed to the UK Commission. Investors in People helps organisations to grow, improve their performance and business impact, and ensure that the skills of their employees are fully used. Working with Investors in People demonstrates a business's commitment to developing people. Some 16% of all workplaces in the United Kingdom are recognised as Investors in People.

Employer Ownership of Skills: The Employer Ownership pilot offers all employers in England direct access to up to GBP 250 million of public investment over two years to design and deliver their own training solutions, including apprenticeships, training courses and pre-employment opportunities. The pilot is jointly overseen by UKCES, the Department for Business, Innovation and Skills and the Department for Education, and will test new employer-led delivery models. The prospectus invites employers to work with employees, trade unions, colleges and training providers, and other partners to develop proposals that establish how they will invest in skills to drive enterprise, jobs and growth within a sector, supply chain or locality.

Growth and Innovation Fund: The Growth and Innovation Fund (GIF) is open to all employer representative organisations, including Sector Skills Councils, and is an England-only fund. GIF helps employers to develop their own innovative, sustainable skills solutions that have the potential to transform growth in their sector, region or supply chain by raising the capacity of employers to collectively upgrade the skills of their workforce. Successful bids have included proposals to set up new employer-training networks and group-training associations, and to develop new industry standards and talent-development programmes. GIF will co-invest up to GBP 34 million in 2012-13, with comparable levels of investment planned for the following two years.

The Employer Investment Fund: The Employer Investment Fund is a UK-wide fund targeted only at Sector Skills Councils to incentivise innovative and self-sustaining skills solutions that strengthen employer leadership, drive up skills levels and ensure better use of those skills. Some GBP 66 million has been committed so far to leverage greater co-investment in a range of activities, including projects to improve skills development in key areas; enhance industry standards; strengthen career pathways, progression routes and employment opportunities so that talent is effectively developed, managed and retained; and to build stronger employer networks within sectors. The funding for these projects will run from April 2012 to March 2014.

The Scottish Government has also made a strong commitment to improving the use of skills. Among initiatives to boost demand for, and improve the use of, skills, a Skills Utilisation Leadership Group was established, and a series of action-research projects were initiated, aimed at exploring the potential for universities to help to improve the use of skills in the workplace.

Source: United Kingdom Commission for Employment and Skills; Green (2012).

Support the creation of more high-level skill and high value-added jobs

There are a number of ways in which policy makers can increase the demand for skills. For example, by developing economic-diversification strategies and supporting inward investment, they can increase the number of knowledge-intensive jobs in a region. While such policies are primarily implemented by economic-development actors, educational institutions can also play an important role in stimulating such activities. If various factors work well together, both radical and incremental innovations in the economy, and a related increase in the demand for high-level skills, can occur (Box 3.13).

Box 3.13 **Silicon Valley: The creation of a high-skills ecosystem**

Economist David Finegold suggests that there are four elements required to create and sustain high-skills ecosystems (HSEs): a catalyst, nourishment, a supportive host environment, and a high level of mutual interdependence.

He argues that in Silicon Valley, a surge in government spending on military research and hardware provided the catalyst for the aerospace industry to take off. Another critical factor for both the aerospace and biomedical clusters was the interaction between researchers and industry, with regional universities acting as catalysts and sources of nourishment, establishing well-trodden pathways between universities, including their management schools, and high-tech local firms. Once established, the HSEs began to attract overseas-born workers, often bringing family and personal networks that further strengthen global reach and viability.

Features of the supportive environment that made it attractive to "knowledge workers" include:

- infrastructure, including transportation, telecommunications and serviced business parks;
- a regulatory environment that makes it easy to start a business and take it public, and also go bankrupt without severe penalties if the business does not succeed; and
- flexible work arrangements.

Key are the frequent partnering among complementary businesses within the HSEs that made them "knowledge-sharing networks" rather than just companies located in the same region. In addition, the employment system – high pay, short-term contracts – encouraged the circulation of people across organisations, as did the "wealth of intermediate institutions that provide a forum for people to meet and exchange learning".

Firms came together through intermediaries to purse initiatives such as improved technical training that benefitted all. However, professionals and technicians mainly developed their skills informally. The organisation of the HSEs facilitated this form of knowledge creation and diffusion.

Source: Finegold (1999).

Governments can develop systems to reward employer ambition, as measured in how they demand and use skills. They can also develop occupational standards, for both the public and private sectors, which set a minimum level of skills content within any given job. Sector councils have been active in helping to define such standards in several countries, including Canada and the United Kingdom. For example, the UK sector skills council for health ("Skills for Health") has developed occupational standards that define the skills, knowledge and understanding needed to undertake a particular task or job to a nationally recognised level of competence.

Governments can also look more broadly at the way in which they design public services to understand whether they create quality jobs that engage a skilled workforce. Some growth areas of low-skilled employment, such as the care sector, fall under public-sector control. Early childhood education and care services, for example, can be defined in two different ways: as day care, which is concerned with keeping children safe while parents work, or as pre-schools and kindergartens, which are primarily concerned with the educational development of children.[30] If governments choose to provide day care, the set of skills required will be different than that demanded if governments choose to prioritise early childhood education. Governments can also consider ensuring that public-funded contracts specifically detail skills requirements and job quality.

Trade unions can also help to shape skills demand by supporting the creation of more high-skilled jobs. Recent research suggests that unions are increasingly promoting a relationship between learning and work organisation (Box 3.14).

Help (local) economies move production up the value chain

Governments and employers can work together to move towards forms of production that maximise the use of their employees' skills. In order to increase the demand for skills, government programmes can influence both 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.[31] Whereas a company's competitiveness strategy may or may not be affected by how available skills are used, 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.

Box 3.14 **"Better, not cheaper"**

Metal workers in **Germany**'s North-Rhine Westphalia were not sure their union could handle the industrial conflicts it faced. IG Metall – the metal workers' union – responded with a campaign to promote new forms of production that used workers' skills and innovative products of high quality. The "better, not cheaper" campaign promotes a two-pronged approach: "fight against cheaper" and "fight for better". The challenge is for workers to propose new forms of work organisation and investment at the firm level that can be an alternative to employers' strategies.

From the cases studied in the campaign, three main strategies were developed by work councils to promote and enable better jobs:

- activate the skills already available in the work councils to solve specific problems;
- attend seminars on specific problems to increase the knowledge base available to the work councils; and
- engage a union-oriented consultant to interpret the data and figures presented by the management and develop alternative strategies.

The campaign has resulted in greater employee participation in decision making and an increase in the legitimacy of work councils and consultants.

Source : Haipeter (2011).

Recent work by the UK Commission for Employment and Skills highlights the strong link between product-market strategies and skills use in the private sector. An analysis of data from the 2001 and 2009 National Employers Surveys shows that UK firms varied greatly in the extent to which they sought to engage in "high-end" or high value-added production, and that this variation persisted throughout the period from 2001 to 2009.[32] The research shows that product-market strategies and the level of workforce skills in an establishment are strongly and positively correlated. This means that those with high product-market strategy scores were also likely to register higher levels of workforce skills, whereas those with lower product-market strategy scores were more likely to register lower workforce skills.

Box 3.15 **Moving towards new product-market strategies in the food-processing sector, Niagara in Canada**

Research among small firms in the food-processing sector in the region of Niagara, Ontario, Canada, found that these firms were pursuing a variety of strategies to improve quality and innovation, each of which had an impact on skills use. The four main ways through which they added value to their products were:

- **Being local**: Using local products, local personnel, and selling locally (as a primary market) enabled the firms to develop customer loyalty despite having higher prices for similar products available from 'non-local' providers.
- **Maintaining consistently high quality**: An insistence on quality also generated customer loyalty and long-term profitability.
- **Producing unique goods**: The majority of the companies produce unique items that allow them to capture a particular segment of the market since there is no direct competition. Although they require specialised production processes, each of these lines of items generates profits by providing something that cannot be found elsewhere.
- **Responsiveness/Flexibility**: The ability to respond quickly to consumer demands enables the companies to provide a value-added product. For these smaller firms, adapting the production line or changing an aspect of their products involves changes that can be implemented relatively quickly as they have one shift of workers, direct communication lines, and hands-on owners who can train and oversee the new process directly.

How does this translate into skills needs?

The firms surveyed all sought employees with a food-science background or education, which is supplied in local, specialised training colleges, such as Niagara College and Brock University. One firm is using an apprenticeship approach to develop its skilled labour force, as there are no educational institutions that provide the requisite courses specific to its particular product line. Firms also use premium wages to retain personnel once they have been trained. Having an adaptable workforce is a necessity for those firms that want to remain responsive to their customers. This means that employees remain open to learning about new products and processes.

Source: Verma (2012).

However, many companies, particularly in emerging economies, continue to compete by producing low-cost products. In fact, in recent years there has been a growing trend towards the mass production of simple and effective products and services aimed at customers in emerging economies who do not have great purchasing power. This has been dubbed "frugal innovation" and is exemplified by the low-cost Nano car produced by Tata Motors in India. When companies deliver standardised products to markets and attract customers mainly on the basis of cost, they are likely to use technical means of production that are task- and routine-based.[33] They therefore have limited incentive to attract skilled staff or to train new staff. However, as firms move into higher-quality product markets, they are more likely to require both technical and generic skills across the workforce in order to innovate and to develop products that are unique and differentiated to meet customer needs (Box 3.15). Adopting new technologies is important for developing new product-market strategies. For example, in the province of Ontario in Canada, the Canadian Manufacturers and Exporters created the SMART Programme to help manufacturers improve their productivity by transferring technology and training people in how to use this technology.[34]

Experience has shown that it can be beneficial to work with clusters of enterprises and supply chains, in addition to individual firms. This reflects the fact that enterprises often share knowledge, innovation and skilled workers at the local level.[35] In the Rivera del Brenta region of Italy, for example, local co-operation among firms, unions and the public sector has helped to raise both the demand for and the supply of skills (Box 3.16).

Box 3.16 A joined-up strategy to move to higher value-added production in the Riviera del Brenta, Italy

In the Riviera del Brenta industrial district in northern Italy, firms in the footwear sector have pooled their investment in training while also collectively upgrading product-market strategies in order to compete in high-quality international markets. Not far from Venice, the region traditionally hosted cottage-based industries that mainly employed low-skilled, blue-collar workers. However, the area has now become a global centre for the production of high-quality ladies' footwear (supplying to Giorgio Armani, Louis Vuitton, Chanel, Prada, and Christian Dior) by developing an international brand through the local employers association, ACRIB.

The population of high-skilled workers in design, R&D, management and marketing has been steadily growing in the region over the past two decades. Before the 1993-1994 repositioning, almost all workers in shoe manufacturing were blue-collar workers; today, some 40% of workers are blue-collar, while 50% are designers and 10% are commercial staff. Close co-operation with local unions ensured that improvements in productivity were accompanied by wage increases and improved working conditions, particularly in health and safety.

The privately-run local polytechnic, Politecnico Calzaturiero, employs firm managers to train local workers and job-seekers after hours, while also offering management training, and investing in research, innovation and technology transfer. The polytechnic thus invests in skills supply while also optimising skills use by developing new products and improving human-resource management. The fact that firms are members of ACRIB means that they are less concerned about pooling training, technology and new innovations, and more aware that investment in local human capital will not only improve prospects for individual firms, but also for the global brand as a whole.

Source: Froy, Giguère and Meghnagi (2011); Destefanis (2012).

While many forms of local employer collaboration develop independently of public support, governments can help to foster and maintain these kinds of arrangements by:

- helping to generate regional brands, which enables firms to collaborate to gain access to higher value and foreign markets;
- supporting the development of employers' associations and sector networks, which bring employers together to share training resources and co-operate on the development of new product innovations;
- providing management training and technical assistance to firms, particularly SMEs; and
- supporting R&D and new product testing while supporting technology transfer.

Foster entrepreneurship

Countries can foster the creation of new jobs and increase the demand for skills by encouraging entrepreneurship. Entrepreneurs are made, not born. Education and training institutions can also be indirectly involved in creating

higher-skilled jobs by helping their students to develop the skills necessary to become entrepreneurs. To be successful, these students need to know how to identify opportunities, turn them into successful ventures, and recognise and respond to difficulties and obstacles that may emerge. Teaching entrepreneurship in schools, universities and vocational training institutions can help instil these skills and competences in students (Box 3.17).[36] Turkey, for example, promotes entrepreneurship activities by organising entrepreneurship contests and by offering entrepreneurship certificate programmes and courses in universities to instil a culture of entrepreneurship among secondary school and undergraduate students. Moreover, the Turkish SME Development Organisation has developed an entrepreneur-support programme that includes training and the creation of Business Improvement Centres that aim to support start-ups in their critical first years in business. The Centres offer such services as consultations on how to improve business, affordable workshop sites, and shared office equipment.

Box 3.17 **Skills for entrepreneurship**

Teaching entrepreneurship and providing "hands-on support" are still new to many universities. Successful implementation of these types of programmes requires not only closer links between the "research" and "education" missions of a university, but also partnerships with entrepreneurship-support providers and (global) sources of financing. Public policy can facilitate this process. The main policy priorities are:

- **Anchoring entrepreneurship support at top university-management level.** In promoting entrepreneurship, universities themselves need to be entrepreneurial and innovative. In the United States and Malaysia, recruitment and career-development procedures for academic staff in many private and public universities now take into account entrepreneurial attitudes and prior experience as well as work in mentoring entrepreneurs.
- **Facilitating networking and exchange.** Information on entrepreneurship needs to be easily accessible to students. In Germany, more than half of all universities are engaged in entrepreneurship support and many have established dedicated centres that offer information, training and access to networks. A new federal government programme, EXIST IV, awards universities that do particularly well with an excellence status and supporting funding. Networking and exchange of universities is also promoted. Inter-university collaboration can increase the spread and use of innovative pedagogies and teaching materials in entrepreneurship education. In France, the *Observatoire des pratiques pédagogiques en entrepreneuriat* (Observatory of Pedagogical Practices in Entrepreneurship) is an online resource centre for innovative and pertinent teaching material that also organises regular networking events for teachers and staff from entrepreneurship-support organisations.
- **Finding a balance between public and private financing**. Public kick-off funding for university entrepreneurship support is provided in many OECD countries. Yet, while some public funding is important for the long-term financing of staff and overhead costs, universities should also be open to accepting financing from the private sector for, for example, entrepreneurship-support centres and incubation facilities. Early exposure of would-be entrepreneurs to the management and organisational characteristics of the private sector have a positive impact on entrepreneurship skills and competences. Universities can also seek revenues from the sale of shares in spin-off companies (a common practice in the United States) and by offering business consultancies (common in the United Kingdom). In Germany and Italy, private co-financing is less frequent, but there are signs of increasing private-sector involvement.
- **Increase across-campus participation in entrepreneurship activities.** Students need access to entrepreneurial learning opportunities inside and outside their courses of study. However, these activities have traditionally been available mainly to students in business and engineering rather than to the student population as a whole. Lately, however, students studying other subjects are receiving such support. While in countries like Australia, the Czech Republic, Italy and Poland entrepreneurship support is still primarily aimed at generating start-ups, there are signs of a shift towards stimulating growth-oriented and technology-intensive ventures, which is the main objective of this kind of support in the United States. The focus in Denmark and the United Kingdom is on creating "entrepreneurial mindsets", and equipping students with the skills and competences that are useful for running one's own business and for being an entrepreneurial employee.

Source: Hofer, A. et al. (2010).

Immigrants can also be entrepreneurs: during the period from 1998 to 2008, the number of jobs created by migrant entrepreneurs in OECD countries increased steadily (Box 3.18).[37]

Box 3.18 Selected entrepreneurship programmes

Targeted measures to foster entrepreneurship among populations with an immigrant background generally focus on the entrepreneurs' skills rather than on the economic environment. Usually these "knowledge-based" measures provide information on business regulations and mainstream business-support services; educational services and training in language, managerial and marketing skills; and advice and counselling. Measures to build social capital include mentoring and services tailored to improve the network-building capacity of migrant entrepreneurs and to facilitate their access to mainstream business networks and markets.

The *Zentrum fur Existenzgründungen und Betriebe von Migrantinnen und Migranten*, a semi-public organisation funded by the City of Hamburg and the European Social Fund, has run the *Unternehmer ohne Grenzen* (Entrepreneurs without Borders) programme in **Germany** since 2000. The programme offers counselling services as well as seminars and briefings on legal and fiscal issues intended to improve migrant entrepreneurs' knowledge of local labour laws, income and corporate tax, and social-security legislation. More general knowledge-based services – such as training courses in financing, production, investment and marketing, and assistance in business planning and accounting – are also delivered. The programme also facilitates migrant entrepreneurs' access to mainstream business organisations and their integration into local business structures.

The **United Kingdom**'s *Ethnic Minority Business Service* (EMBS), targeted to entrepreneurs with immigrant backgrounds, covers all aspects of business development, from help with start-up finance to ongoing support for more mature businesses. The EMBS was launched in 1987 as a one-stop shop for business advice and support to black and minority communities in the city of Bolton. Business-support activities under the EMBS are carried out in three stages, with community outreach and individual needs-assessments conducted prior to the actual delivery of business-support services. Services are offered in various languages and consist of training, counselling and financing for both nascent and established entrepreneurs. Start-up assistance includes raising capital, training in business skills, business planning, locating premises and bookkeeping. Seminars on tax and employment legislation, patenting and trade marking, promotion, marketing, entering international markets, and IT services are also provided. Immigrant businesses assisted by the programme between 2001 and 2006 showed a two-year business survival rate of 90% compared with the national benchmark of 62%.

Source: OECD (2011e).

Table 3.1

Putting skills to effective use: Key questions, indicators and resources

Key questions	Selected indicators for self-assessment	Selected further reading and policy examples
Ensure that people use their skills effectively		
Are working people in my country well-matched to their jobs?	▪ **Qualification mismatch** *http://dx.doi.org/10.1787/888932480066* ▪ **Self-reported skill mismatch** *http://dx.doi.org/10.1787/888932480085* ▪ **Incidence of match/mismatch based on direct measures of foundation skills and the requirement to use foundation skills at work** (OECD Adult Skills Survey, available in 2013)	▪ "Right for the Job: Over-qualified or under-skilled?", in *Employment Outlook 2011*, OECD Publishing. *www.oecd.org/employment/outlook* ▪ Desjardins, R. and K. Rubenson (2011), "An Analysis of Skill Mismatch Using Direct Measures of Skills", *OECD Education Working Papers*, No. 63, OECD Publishing. *www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/WKP(2011)8&docLanguage=En*
What is the incidence of unemployment in my country, particularly among individuals at particular risk?	▪ **Unemployment rates by educational attainment** *http://dx.doi.org/10.1787/888932462947* ▪ **Unemployment rate by age group and gender** *http://stats.oecd.org/wbos/default.aspx?DatasetCode=LFS_D* ▪ **Trends in unemployment rates of men, by educational attainment** *http://dx.doi.org/10.1787/888932463042* ▪ **Trends in unemployment rates of women, by educational attainment** *http://dx.doi.org/10.1787/888932463061*	▪ *Off to a Good Start? Jobs for Youth 2010*, OECD Publishing. *www.oecd.org/employment/youth*
Increase the demand for high-level skills		
What proportion of my country's population is employed in high value-added jobs? **How does the demand for skills differ among local economies in my country?**	▪ **Human resources in science and technology (HRST) by occupations**, *http://dx.doi.org/10.1787/888932485842* ▪ **HRST employees by industry**, *http://dx.doi.org/10.1787/888932485861* ▪ **HRST growth by industry**, *http://dx.doi.org/10.1787/888932485880* ▪ **OECD LEED Programme diagnostic tool comparing supply and demand for skills at OECD territorial level 3** (available at skills.OECD) based on: percentage of population with post-secondary education, GVA per worker/income and percentage of medium-high skills occupations)	▪ *Skills for Innovation and Research 2011*, OECD Publishing. *www.oecd.org/document/30/0,3746,en_2649_33703_47151838_1_1_1_1,00.html* ▪ Froy, F., S.Giguère and M. Meghnagi (2011), "Skills for Competitiveness: A Synthesis Report", OECD Publishing.
Are there enough entrepreneurs in my country?	▪ **Number of entrepreneurs as a percentage of the total employed population, by gender** *www.oecd.org/dataoecd/32/38/49835798.xls*	▪ "Entrepreneurship Skills in SMEs", *Entrepreneurship and Innovation 2010*, OECD Publishing. *www.oecd.org/document/16/0,3746,en_2649_33956792_44938128_1_1_1_1,00.html* ▪ "Migrant Entrepreneurship in OECD Countries", in *International Migration Outlook 2011*, OECD Publishing. (*www.oecd.org/migration/imo*)

Notes

1. Skills shortages and certain types of mismatches on the job may be linked in some cases. Under-skilling, for example, may be a symptom of chronic shortages because some employers respond by filling their vacancies with less-skilled workers.

2. Quah (1999).

3. Quintini (2011a).

4. The OECD Gender Iniatitive discusses gender issues is education, employment and entrepreneurship in detail (OECD, forthcoming).

5. Quintini (2011b).

6. OECD, et al. (2012).

7. Bloom, et al. (2007).

8. McKinsey (2009).

9. OECD (2011a).

10. Toner (2011).

11. OECD (2010b).

12. See, for example, Baldwin and Johnson (1995).

13. For example, in Australia, about 54% of training in firms is provided on this basis, ABS Survey of Education, Training and Information Technology (2001).

14. OECD (2010c).

15. OECD, et al. (2012).

16. OECD (2009).

17. AfDB (2011).

18. ILO (2011).

19. Quintini (2011a).

20. Backes-Gellner and Veen (2008); Woessmann, et al. (2007).

21. Werquin (2010).

22. Quintini (2011a).

23. OECD (2004).

24. Desjardins and Rubenson (2011).

25. Lloyd and Payne (2006); Finegold and Soskice (1988); Froy, Giguère and Meghnagi (2011).

26. Workers in low-skills match situations are the least likely to invest in themselves and also the least likely to receive employer support for developing or maintaining their skills (see Desjardins and Rubenson, 2011).

27. Froy, Giguère and Hofer (2009).

28. See OECD (2010a); Scottish Government (2007); Froy, Giguère and Meghnagi (2011).

29. UKCES (2010).

30. Buchanan, et al. (2010).

31. Ashton and Sung (2011).

32. Mason (2011).

33. Ashton and Sung (2011).

34. Verma (2012).

35. Finegold (1999) called these "local skills ecosystems".

36. Potter (2008).

37. OECD (2010e).

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The Way Forward

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ENHANCING THE EVIDENCE BASE TO HELP DESIGN EFFECTIVE SKILLS POLICIES

As a first step towards developing national skills strategies, countries need to build "skills intelligence" in order to situate their strengths and weaknesses on the different dimensions laid out in the OECD Skills Strategy and to design and evaluate policy alternatives.

To facilitate this, the OECD Skills Strategy shifts the focus from a quantitative notion of human capital, measured in years of formal education, to the skills people actually acquire, enhance and lose over their lifetimes. As an empirical foundation for this, the OECD Survey of Adult Skills provides a first-of-its kind assessment of the skills individuals have, how these are used on the job, and what the resultant economic and social outcomes are (Box 4.1). The first results from the OECD Survey of Adult Skills will be published in October 2013 as part of a new OECD Skills Outlook. In later editions, this publication will feature the OECD's ongoing work on skills, such as meeting skills needs, preventing the deterioration of skills among displaced workers and helping them back into jobs, improving the flexibility of education and training systems to respond to local needs, and using science skills for innovation. Based on the Skills Strategy framework, this flagship publication will also allow the OECD to identify and fill knowledge gaps in such areas as approaches to funding skills development and the various facets of adult learning.

In addition, the OECD is developing an interactive online portal for skills, skills.oecd. It will allow governments, researchers and other users to access the OECD's rich stock of data and analysis on skills at a glance and in the most up-to-date form. Users will be able to access data by theme, position their country internationally, and exchange their experiences with policy implementation and best practices.

Box 4.1 The analytical potential of the OECD Survey of Adult Skills

The OECD Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC), is the most comprehensive international survey of adult skills ever conducted. It gathers information from some 5 000 people aged 16 to 65 in each participating country.

Directly assessing adult skills has significant advantages over previous measures of human capital, such as those based on educational qualifications. A diploma does not certify a precise skill, even on the day it is awarded; one that was awarded many years prior to an assessment says even less about a person's current skills. The Survey of Adult Skills not only measures the level of skills, it also tries to assess how skills are associated with the success of individuals and countries. In addition, it examines how well education and training systems succeed in instilling these competencies, and how public policy might improve their effectiveness. The data gathered through the Survey of Adult Skills, which also includes information on participants' demographic characteristics (age, gender, immigrant status, etc.), education and training, job history, and the social aspects of their lives, are broad and deep enough to offer insights into many different aspects of skills, including:

- **The influence of skills on social and economic outcomes**: The survey allows for in-depth analysis of the relationship between skills and labour-market outcomes as well as between skills, trust, political engagement, volunteering, and health. Information from the survey, combined with advanced econometric modelling, can provide insights into how the supply of skills and the quality of those skills affect economic growth.
- **The use of skills in the workplace**: The data from the survey can be compared against other measures of skills, such as occupations and qualifications or diplomas, while differences and similarities in how skills are used in the workplace can be examined and compared among countries, industries and enterprises. The data also offer a unique opportunity to develop a direct measure of mismatch by comparing observed individual skills levels to skills requirements at work. In addition to shedding light on the under-use of skills, its causes and consequences, the data will also allow for an examination of the reasons behind skills deficits.
- **Developing skills over a lifetime**: The survey allows for a study of some of the factors that are important for acquiring and maintaining skills, and how the acquisition of skills changes over time. These aspects of skills development can be studied at both the cohort and country levels. The comparative data on adult learning can also be used to identify international patterns of who is and who is not participating in adult learning, whether and where the opportunity to participate is not available to all, and the factors that motivate people to participate. The data can also help identify adults with poor skills and can also be used to develop strategies to improve their literacy.

...

- **Immigrant skills and qualifications**: The data from the survey can also be used to examine differences in skills levels between immigrants who acquired their skills in the host country and those who acquired their skills elsewhere, and between first- and second-generation immigrants. This information sheds light on such issues as whether returns to skills depend on where the qualifications, diplomas and work experience were acquired; the relationship between outcomes and measured skills, as opposed to formal qualifications; and the role of language proficiency in immigrants' labour-market outcomes and occupational choices.
- **Digital literacy, problem solving in technology-rich environments, and using information and communication technologies**: The survey will help build a better understanding of how well adults cope with an increasingly hi-tech environment, both in and outside the workplace. They can be used to examine inequalities in cognitive foundation skills, particularly among young people, and the factors that drive those differences, including parental background, educational attainment, tracking, the quality of education and ICT-related practices.

An online version of the Adult Skills Survey is being developed in partnership with the European Commission. This tool will allow individuals, firms, regions and other sub-national entities to assess their foundation skills (literacy, numeracy and problem solving in technology-rich environments) and to benchmark them against the national and international results available for the participating countries.

However, countries operate in different economic and social contexts, are in different phases of their development trajectories, and differ in their capacity to collect and analyse skills data. In addition to engaging in a large-scale measurement exercise like the OECD Survey of Adult Skills, the challenge for many developing and emerging countries is to establish the statistical infrastructure that can regularly collect a wide range of data needed for policy purposes. In its Multi-Year Action Plan on Development, G20 leaders requested that the OECD, ILO, UNESCO and The World Bank collaborate on formulating a set of internationally comparable indicators of skills for developing countries. A report with recommendations is due to be published shortly. In addition, as a follow-up to the 2011 Busan High-Level Forum on Aid Effectiveness, the OECD has developed a framework on *Education for Development* in the context of the OECD Strategy on Development. The framework aims to complement the Millennium Development Goals by providing a range of indicators that examines what education systems deliver, not only in terms of school completion rates but also in terms of the actual skills with which students are – or are not – equipped by the time they leave school.

Since skills policies need to tackle local imbalances to be effective, governments need data on skills supply and demand that can be disaggregated at the level of local labour markets, including in emerging economies, where the local variation can be particularly large. However, many countries do not have the right instruments to assess, or the capacity to analyse, their skills problems at the sub-national level. To support countries in developing the necessary disaggregate skills data, the OECD collects and analyses disaggregated data on supply and demand to help countries determine whether their local economies are experiencing low- or high-skills equilibria, skills surpluses or skills shortages. This data will be available at *http://skills.oecd.org*.

SUPPORTING THE DEVELOPMENT AND IMPLEMENTATION OF NATIONAL SKILLS STRATEGIES

Several countries have already published or are developing national skills strategies.[1] The key challenge, however, is putting such strategies into practice and adopting a holistic approach that includes all relevant actors at the national and local levels. Flexibility and agility is required to respond to emerging needs and to be effective in different local contexts. Some countries are already advanced in establishing institutions specifically concerned with skills policies that can analyse the current situation, design a strategy and support its implementation (Box 4.2); for other countries, this remains a major challenge.

As a follow-up to development of the Skills Strategy, the OECD will be devising a methodology for providing guidance on how to develop national skills strategies. It will be based on such questions as: What elements characterise a good strategy? What kind of institutional infrastructure helps to support implementation, and how might it work within specific national contexts? Which countries are the most advanced in designing and implementing cross-government skills policies and can serve as models for peer learning? How can education and vocational training systems be made more flexible so that they meet local needs while maintaining accountability and achieving national policy goals?

To help puts its Skills Strategy into action, the OECD will take into consideration ongoing efforts at the national and international levels to build on the work already begun in some countries (Box 4.3). In the end, we are all in this together.

Box 4.2 Specialised agencies for co-ordinating national skills policies

Skills Australia is an independent, statutory body that provides advice to the Minister for Education, Employment and Workplace Relations on Australia's current and future workforce skills needs. It analyses current and emerging skills needs across industry sectors, assesses evidence from commissioned research and industry stakeholders, and provides the government with recommendations to help inform decisions related to skills formation and to drive ongoing reforms to the education and training sector. From 2012, Skills Australia will be replaced by the national Workforce and Productivity Agency, which will oversee co-ordination. An implementation steering committee, with representatives from all responsible agencies, will report to government as a whole.

The **UK Commission for Employment and Skills** (UKCES) was established in 2008, following the recommendations of the Leitch Review assessing the UK's skills needs, which also set skills targets for the United Kingdom for 2020. The UKCES assesses the UK's progress towards skills targets, advises ministers on strategy, targets and policies, monitors the VET system, and oversees the Sector Skills Councils. It is mainly composed of business leaders, but also includes trade union, third-sector and provider representatives. The remit of UKCES was modified in 2011 to have a greater emphasis on driving employer investment and ambition, and using public investments competitively to increase employer investment in skills.

The **Expert Group on Future Skills Needs in Ireland** advises the Irish Government on current and future skills needs of the economy and on other labour-market issues that affect Ireland's enterprise and employment growth. Composed of experts from industry, education and training, and unions, it has a central role in ensuring that labour-market needs for skilled workers are anticipated and met. Established in 1997, the EGFSN reports to the Minister for Jobs, Enterprise and Innovation and the Minister for Education and Skills. Forfás, Ireland's policy advisory board for enterprise, trade, science, technology and innovation in conjunction with FÁS, the National Training Authority, provides the EGFSN with research and analysis support. The FÁS Skills and Labour Market Research Unit provides the Group with data, analysis and research and manages the National Skills Database. The Expert Group on Future Skills Needs provides advice to the government on skills issues that affect enterprise through skills foresight and benchmarking, strategic advice on building skills through education and training, and data collection and analysis on the demand and supply of skilled labour.

Box 4.3 Linking EU lifelong learning policies with the OECD Skills Strategy: Romania

The National Qualifications Authority of Romania, established in 2011, develops national skills policies and strategies. Working closely with the Ministry of Education, Research, Youth and Sport and the Ministry of Labour, Family and Social Protection, it is also developing the National Qualifications Framework, which aims to be comparable and compatible with EU lifelong learning policies (e.g. European Qualifications Framework) and with other international frameworks/initiatives such as the OECD Skills Strategy.

The Authority is supported by an Advisory Council, which is composed of representatives of ministries, the National Centre for VET, the National Agency for Employment, pre-university education, higher education, students, and other relevant stakeholders, including trade unions, employers organisations, professional associations, and sectoral committees. Romanian authorities have indicated that the country plans to develop a national skills strategy based on the OECD framework.

Source: National Qualifications Authority, Romania.

Note

1. Twenty-seven countries replied to the OECD's Skills Steering and Financing Questionnaire sent to OECD member and partner countries in November 2011. Twenty-two countries (over 80%) have a skills strategy and one (Italy) is developing such a strategy. In two cases the situation is unclear: in one case there is no national, but there are state strategies, and in only one case is there no skills strategy.

References and further reading

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Better Skills, Better Jobs, Better Lives

A STRATEGIC APPROACH TO SKILLS POLICIES

Skills have become the global currency of the 21st century. Without proper investment in skills, people languish on the margins of society, technological progress does not translate into economic growth, and countries can no longer compete in an increasingly knowledge-based global society. But this "currency" depreciates as the requirements of labour markets evolve and individuals lose the skills they do not use.

The global economic crisis, with high levels of unemployment, in particular among young people, has added urgency to fostering better skills. At the same time, rising income inequality, largely driven by inequality in wages between high- and low-skilled workers, also needs to be addressed. The most promising solution to these challenges is investing effectively in skills throughout a lifetime: from early childhood, through compulsory education, and during the working life.

The OECD Skills Strategy provides a strategic framework to help countries understand more about how to invest in skills in a way that will transform lives and drive economies. It will help countries to identify the strengths and weaknesses of their existing national skills pool and skills systems, benchmark them internationally, and develop policies for improvement. In particular, the strategy provides the foundations upon which governments can work effectively with all interested parties – national, local and regional government, employers, employees, and learners.

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