

**DIRECTORATE FOR EDUCATION
EDUCATION POLICY COMMITTEE****TOWARDS AN OECD SKILLS STRATEGY****Draft Paper****7-8 April 2011
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The OECD has launched a global Skills Strategy, aiming to integrate the work on skills carried out in different Directorates across the Organisation and to support countries in developing better skills policies for economic growth and social inclusion. The work is funded, in part, through the Secretary General's Central Priority Fund in the 2011-12 biennium. The first output of the Skills Strategy is the attached short paper for the Ministerial Council Meeting in May 2011 setting out the rationale for a Skills Strategy, the issues it will cover and the way forward. Future deliverables include an Interim Report for the Ministerial Council Meeting in 2012 and a Skills Outlook publication in early 2013.

The preparation of the paper has been aided by the input of the members of the Skills Strategy Advisory Group, composed of representatives from five Committees steering the work: EDPC, CERI Governing Board, ELSAC, LEED Committee and the Committee on Fiscal Affairs. The paper has also been circulated to these Committees for information. The Advisory group has so far met twice – on 28-29 October 2010 and 24 February 2011.

Delegates are asked to NOTE and DISCUSS the attached paper and give guidance for the further development of Strategy.

Contact:

Andreas Schleicher, Education Directorate (Andreas.Schleicher@oecd.org; Tel: +33-1 45 24 93 66)
Kathrin Hoeckel, Education Directorate (Kathrin.Hoeckel@oecd.org; Tel: +33-1 45 24 93 50)

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TOWARDS AN OECD SKILLS STRATEGY

The OECD Skills Strategy

Skills and skills-formation policies are high on the agenda of countries both within and outside the OECD and of many international organisations. In an environment of increased global competition, high unemployment and aging populations, ensuring an adequate supply of skills, maximising their use and optimising further development of skills in the workforce is key to boosting employment and economic growth, and to promoting social inclusion.

Public spending on education and training already represents around 13% of total public expenditure in OECD countries. While the need for fiscal consolidation in the wake of the crisis is putting pressure on all elements of public expenditure, including education and training, this is precisely the time when investment in skills is most necessary to boost economic growth and facilitate the (re)integration of individuals into the labour market. Governments must ensure that expenditures on skills formation are efficient and effective and appropriately shared between public and private sectors.

Many countries have developed skills strategies to address some or all of these issues from their national perspectives; but their success in implementing those strategies varies widely. To facilitate a cross-government approach and peer-learning on effective skills policies, and to address the global dimensions of the supply and demand for skills, the OECD is preparing a global Skills Strategy. This Skills Strategy seeks to help both OECD countries and non-member countries to improve: (1) responsiveness - ensuring that education/training providers can adapt to changing demand; (2) quality and efficiency in learning provision - ensuring that the right skills are acquired at the right time, right place and in the most effective mode; (3) flexibility in provision - allowing people to study/train what they want, when they want and how they want; (4) transferability of skills - ensuring that skills gained at school are documented in a commonly accepted and understandable form and skills acquired over the course of the working life are recognised and certified; (5) ease of access - e.g. by reducing barriers to entry, such as institutional rigidities, up-front fees and age restrictions, and by providing a variety of entry and re-entry pathways; and (6) low costs of re-entry - e.g. by granting credits for components of learning, and offering modular instruction, credit accumulation and credit-transfer systems.

This paper sets out the rationale for the OECD Skills Strategy, the issues that it will address and the way forward.

1. THE IMPORTANCE OF SKILLS

The benefits of a sound skills policy are great - as are the costs of failure

1. Skills¹ are key to the prosperity of nations and to better lives for individuals in the 21st century. They contribute to economic growth both directly, through increased productivity,² and indirectly, by creating greater capacity of workers and firms to adopt new technologies and ways of working and to spur innovation (OECD, 2010a; OECD, 2011; Martinez-Fernandez and Sharpe, 2010). Conversely, skills shortages and mismatches between the supply of and demand for skills lower potential for growth and waste resources if they are more than just temporary adjustments (Quintini, 2011).

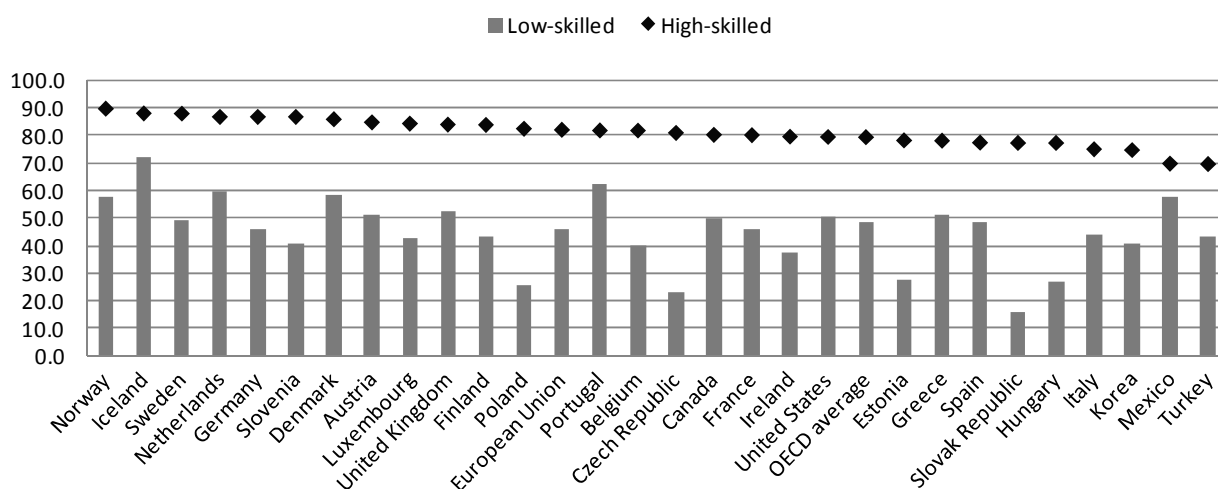
2. Skills also improve the lives of individuals. The economic benefits of higher levels of initial education are well documented (*e.g.* Psacharopoulos and Patrinos, 2004). Higher levels of attainment are associated with lower rates of unemployment and higher earnings, on average (see Figures 1 and 2), even after accounting for selection and allowing for heterogeneity in returns (Machin and Vignoles, 2005, p. 135). Moreover, ongoing OECD work strongly suggests that up-skilling – measured as the share of post-secondary graduates in the population – played a key role in countering the long-term trend of growing inequality in earnings in OECD countries (OECD/SPD, 2011). Adult education and training also have a significant positive impact on worker productivity and wage levels (OECD, 2005a, p. 35; OECD, 2004a, chapter 4). On the other hand, having to support poorly skilled people who are under- or unemployed can be very costly for governments.

3. Education has a positive impact not only on economic performance but also on social outcomes. Adults with higher levels of education are more likely to report that their health is at least good, and they tend to have a greater interest in politics and higher levels of interpersonal trust (OECD, 2010b, Indicator A9). Skills – both cognitive and non-cognitive – play an important role in empowering individuals to follow healthy lifestyles and to be active citizens (OECD, 2010c). By extension, these benefits accrue to society as a whole, as they reduce social costs – for example, in health expenditures – and foster social cohesion.

1. In the context of the OECD Skills Strategy, the concepts of ‘skill’ and ‘competence’ are used interchangeably. By skill (or competence) we mean: the bundle of knowledge, attributes and capacities that enables an individual to successfully and consistently perform an activity or task, whether broadly or narrowly conceived, and can be built upon and extended through learning.

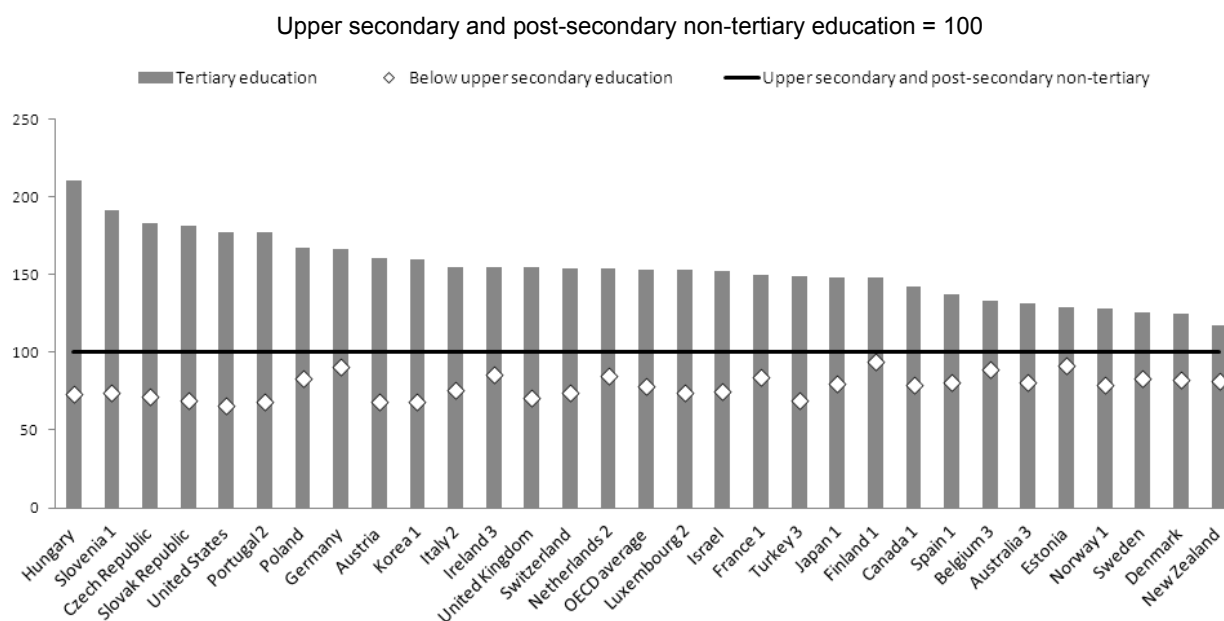
2. Schwerdt and Turunen (2007) find that the contribution of labour quality (*i.e.* educational attainment and labour-market experience) to labour productivity has increased over time, accounting for up to one-fourth of euro-area labour productivity growth. See also the OECD Growth Project (OECD, 2003) and numerous academic studies using different measures of human capital (Sianesi and van Reenen, 2003; Hanushek and Woessmann, 2010; Coulombe and Tremblay, 2006).

Figure 1: Employment rates by skill level (3rd quarter 2010)



Source: OECD estimates based on National Labour Force Surveys.

Figure 2: Relative earnings of the adult population with income from employment, by educational attainment, 25-64-year-olds (2008 or latest available year)



Notes:

1. Year of reference = 2007.
2. Year of reference = 2006.
3. Year of reference = 2005.

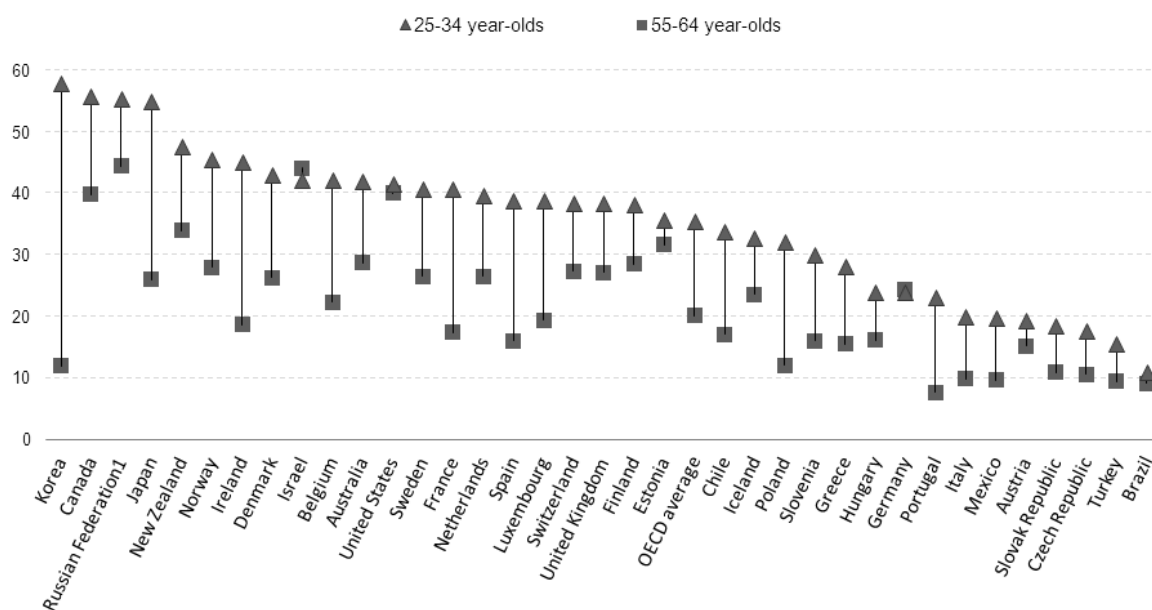
Source: Education at a Glance 2010, OECD, Table A7.1 (www.oecd.org/edu/eag2010).

Skills policies have been successful in boosting attainment

4. Governments have invested heavily in skills over the past decades. Their support for participation in education and training has resulted in marked increases in educational attainment, particularly among younger age groups. Completion of upper secondary education is now close to universal in many OECD countries (OECD, 2010b). Tertiary-level attainment has also risen sharply and is now at 35% for 25-34-year-olds as compared to 20% for 55-64-year-olds (see Figure 3; OECD, 2010b). Countries outside the OECD are catching up too.

Figure 3: Percentage of population that has attained tertiary education (2008)

This chart compares the percentage of 25-34-year-olds with tertiary education with the percentage of 55-64-year-olds with tertiary education in 2008,



Note:

1. Year of reference = 2002.

Source: *Education at a Glance 2010*, OECD, Table A1.3a (www.oecd.org/edu/eag2010).

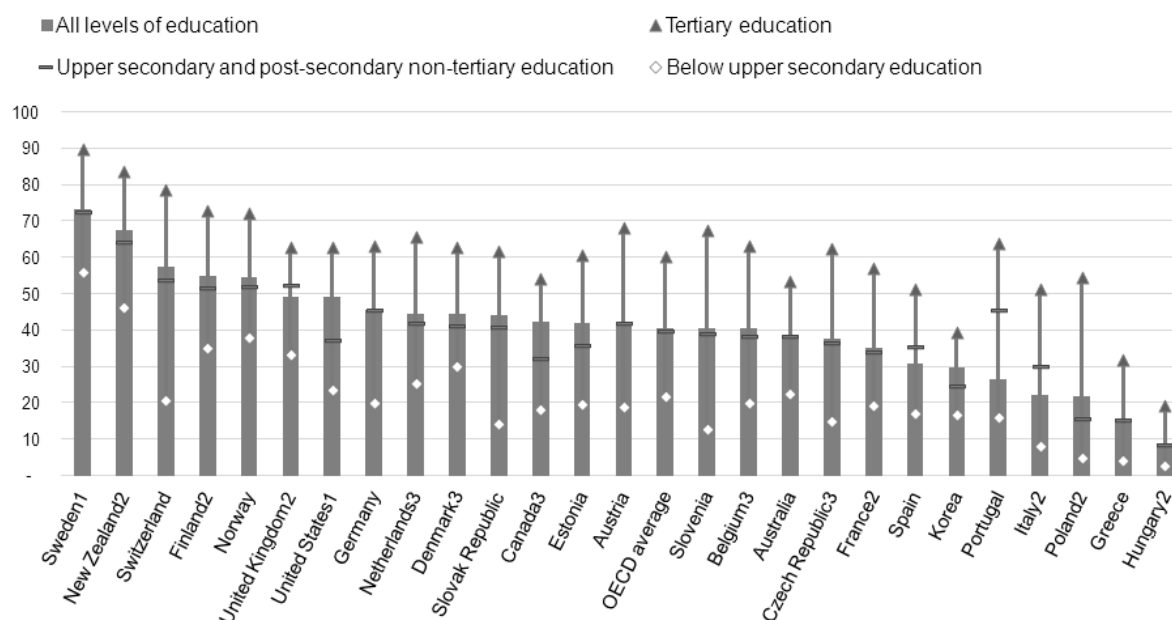
5. In general across OECD countries, this increase in educational attainment has so far not resulted in a drop in the wages of qualified workers relative to those with few qualifications, nor led to greater difficulties in finding employment. This would suggest that the demand for high-skilled labour has grown at least as much as the increase in supply, if not more (Machin and Vignoles, 2005, p. 10 on US and UK data and OECD, 2010b, Indicators A6 and A7).

At the same time, important challenges remain

6. Skills are unequally distributed between and within countries. While some countries managed to improve their performance in education between 2000 and 2009, as measured by the OECD's Programme for International Student Assessment (PISA), others have stagnated or even declined (OECD, 2010d). Substantial numbers of people remain without the most basic skills. International surveys of literacy and numeracy suggest that, depending on the country, between one-third and two-thirds of the population do not master minimum levels of the core skills considered necessary to engage in further learning and function in modern economies (OECD/Statistics Canada, 2005). Lifelong learning is not a reality for all:

Figure 4 shows that participation in adult education and training varies considerably across and within countries.

Figure 4: Participation in formal and/or non-formal education, by educational attainment



Notes:

1. Year of reference = 2005.

2. Year of reference = 2006.

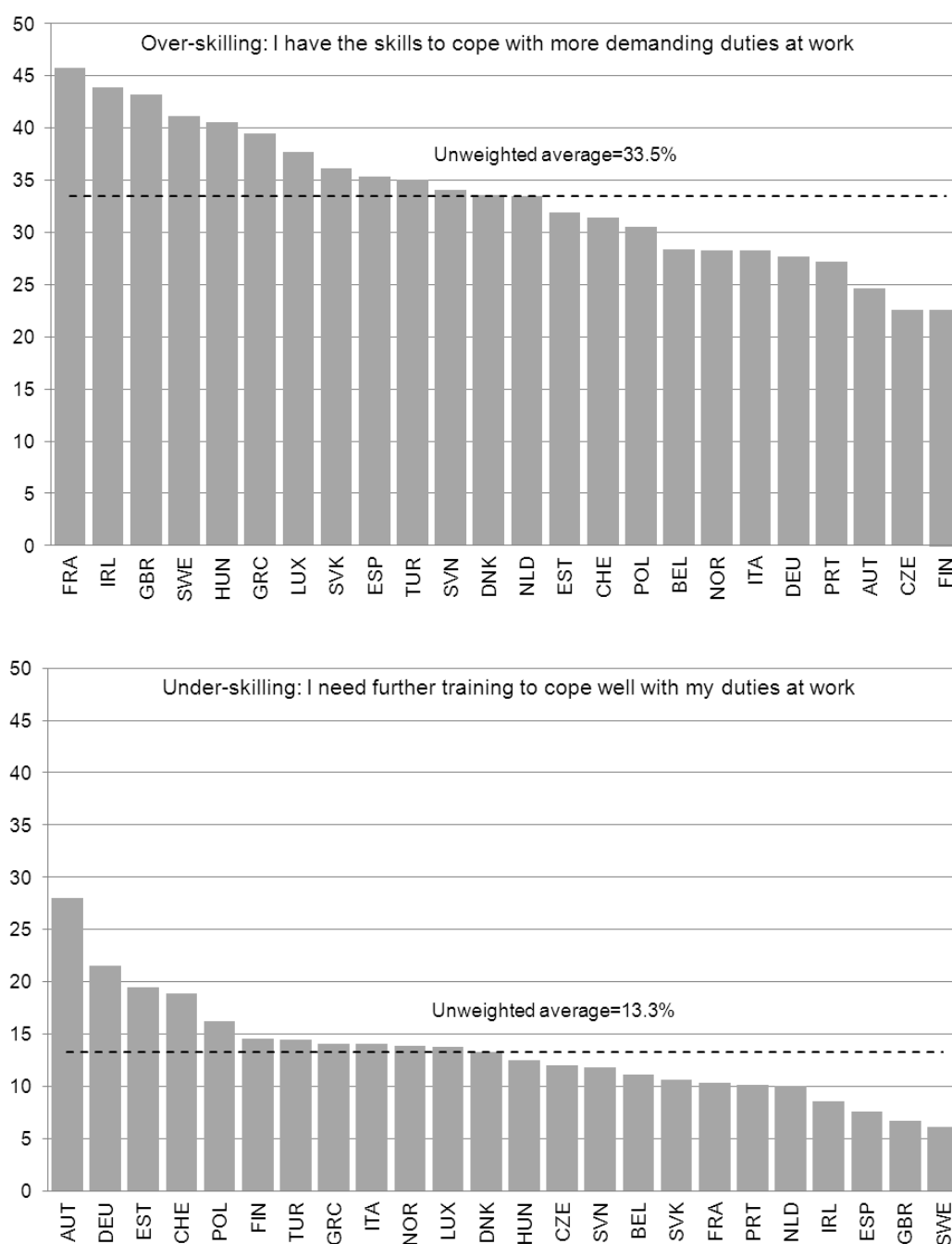
3. Year of reference = 2008.

For all other countries, Year of reference = 2007.

Source: *Education at a Glance 2010*, OECD, LSO network special data collection, Adult Learning Working Group, Table A5.1b. See Annex 3 for notes (www.oecd.org/edu/eag2010).

7. Higher skills levels do not automatically translate into higher prosperity and sustained growth (Rodríguez-Pose and Vilalta-Bufi, 2005). Substantial proportions of the working-age population are out of work and not using their skills productively at all. Skills mismatches have emerged in a number of countries where up to one-third of workers consider themselves over-skilled for their current job, and another 13% believe that they have some skills deficit (see Figure 5).³ Such mismatches between the demand for and supply of skills imply a loss of human capital and reduction in productivity – both of which negatively affect a country's economic growth (Quintini, 2011). At the same time, a match between a low supply of skills and a low demand for skills can lead to a 'low-skills equilibrium', a problem that particularly affects rural areas and countries where mobility between regions is limited (Green and Martínez-Solano, 2011); local incomes and productivity suffer as a result (Froy, Giguère and Hofer, 2009).

3. The European Survey of Working Conditions (2005) compiles self-reported indicators of skills mismatch, both in terms of over-skilling – when individuals consider that they have the skills to cope with more demanding duties at work – and under-skilling – when individuals consider that they would need further training to handle their duties at work.

Figure 5: Incidence of over- and under-skilling in selected OECD countries, 2005

Source: Quintini (2011). Secretariat estimates based on the European Survey of Working Conditions, 2005.

8. Skills shortages are a potential concern in all countries and currently pose immediate challenges in some OECD countries (see *e.g.* Skills Australia, 2010 and Skill New Zealand Tripartite Forum, 2008). Even at the height of the crisis in 2009, more than 40% of employers in Australia, Japan, Mexico and Poland reported difficulties in finding people with the appropriate skills (Quintini, 2011, p. 8). This is also a problem also in a number of emerging economies (World Bank, 2010). While this evidence has to be

interpreted with caution as there are many reasons for skills gaps and shortages, including unattractive pay in certain professions (OECD, 2011, p. 70, Froy and Giguère, 2010a), genuine skills shortages can put a brake on economic growth, primarily through their negative effect on labour productivity (*e.g.* Tang and Wang, 2005; Bennet and McGuinness, 2009).

9. A longer-term challenge facing all countries is in producing the right skills mix not only for the present but also for the future needs of dynamic labour markets, be it through initial education, further training of the existing workforce at all ages or by attracting skilled people from abroad. A number of projection exercises suggest that countries might need to adjust to ensure that their skills supply meets their future skills demands – though exact dimensions of future demands are unclear. While some projections assume that there will be an over-supply of highly skilled workers in the future because increasing numbers of highly qualified graduates cannot be absorbed by the labour market (Cedefop, 2010), other studies warn that a lack of skilled labour in certain professions might hamper future productivity and growth (see *e.g.* BMAS, 2009).

A strategic approach is needed

10. These challenges suggest that skills policies have to be developed systematically, integrating a range of policy fields to cope with the complexity of the task. Skills policies must be conceived within a framework that has both a short-term and a longer-term perspective. On the one hand, skills-formation systems must respond effectively to the immediate needs of individuals and firms; on the other, preparing young people to enter the workforce requires a vision of the evolution of the labour market and of the dispositions, knowledge and skills that will permit students to prosper in the future world of work. At the same time, policies must be attuned to the varying demands and constraints that individuals face at different stages in their lives, and to the pathways that they follow through education and training into work. The remainder of this paper raises the issues a skills strategy needs to cover and discusses the way forward towards creating an OECD Skills Strategy that will support countries in developing their skills policies.

2. IMPLEMENTING EFFECTIVE SKILLS-FORMATION POLICIES

Skills policies ensure that the supply of skills meets the demand in the labour market

11. A key objective of skills policies is to ensure that the stock of skills available in the economy supports overall economic objectives as well as the skills needs of various branches of the economy.

How is the demand for skills evolving?

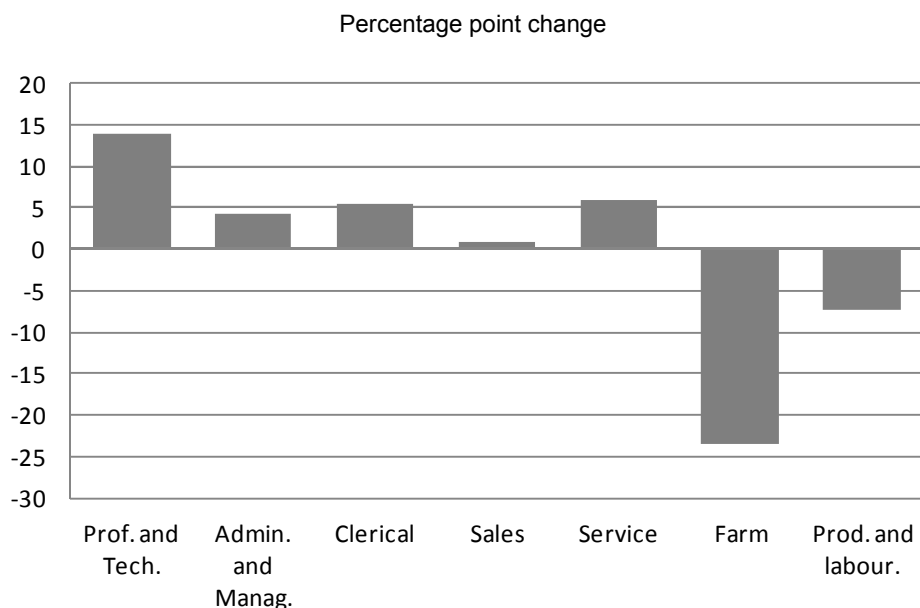
12. In designing policies that influence the supply of skills, it is essential first to understand the demand for skills in the economy. This demand depends on a number of factors, including a country's level of industrialisation, industry composition, trade and migration openness and labour-market regulation. These vary substantially, not only among countries but also among local labour markets within countries. Nevertheless, there are some global trends that provide a general framework for skills policies.

13. Over recent decades there has been a steady change in the industrial and occupational structure of employment and in the skills level of the workforce in OECD countries (Figure 6). Employment in agriculture and manufacturing has declined, while that in services has grown. There has been considerable growth in occupations requiring higher skills.⁴ While these broad trends are expected to continue (see *e.g.* Cedefop, 2010 for projections for the European area), the employers' needs for specific skills are constantly changing – and are difficult to predict.

14. A number of countries struggle with the effects of demographic change and the related phenomenon of aging societies. The combined effects of living longer and low fertility rates increase the proportion of those aged 65 and over compared to the working population of 15-64-year-olds (OECD, 2010e, p. 34). The ratio of older, inactive persons per worker is expected to almost double from around 38% in the OECD area in 2000 to just over 70% in 2050 (OECD, 2006a). As a result, the demand for skills is expanding in the health sector, which will need greater numbers of care and health specialists, and also in services that provide leisure and well-being activities. More broadly, this means that economies cannot afford to waste talent and exclude people from the labour market.

4. For example, 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 (Levy, 2010).

Figure 6: Changes in employment shares by occupation, 1960-2009, selected OECD countries^a



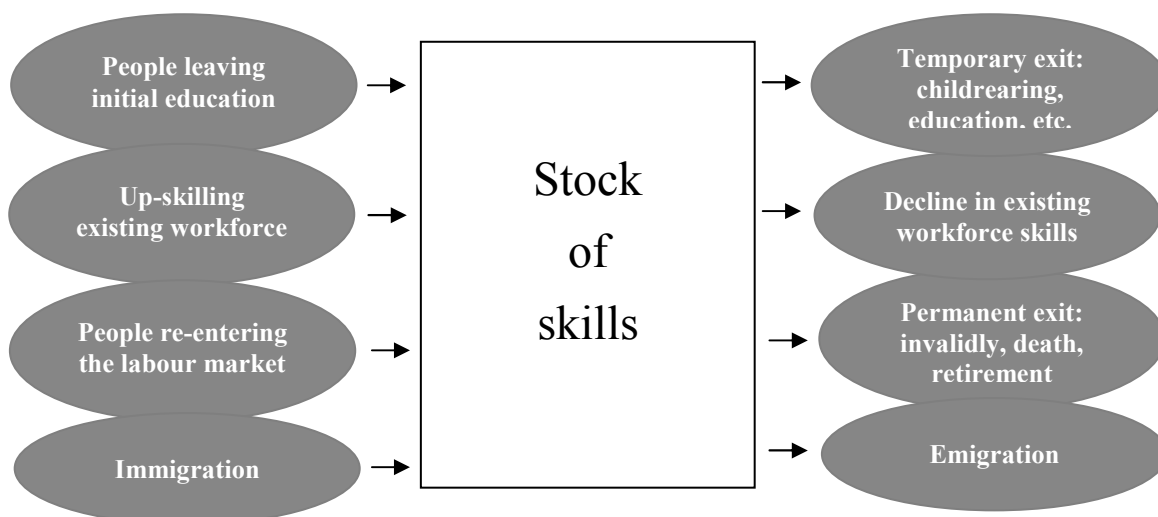
a. Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

Source: Handel (2011), forthcoming.

The stock of skills available to the economy depends on a number of factors

15. Policies can seek to influence the stock of skills through measures that affect inflows as well as outflows, as represented in the diagram below (Figure 7).

Figure 7: Factors influencing the stock of skills



Initial education: Which skills development should policies support?*Skills quantity – boosting participation and attainment*

16. Boosting the level of participation in initial education and training and the level of educational attainment has been, and continues to be, an important element of skills-formation policies. Since the 1980s, most countries have set and updated targets for increasing secondary school completion rates and increasing participation in post-secondary and higher education.⁵ An important question to consider when developing skills policy is whether promoting increased educational participation is warranted on the demand side and/or feasible on the supply side, and in which sector of education (vocational or general) this should take place. As noted above, there is no consensus regarding the possible under- or over-supply of tertiary graduates. Some studies suggest that a greater supply of high-level skills could outstrip demand and could coincide with a shortage of mid-level, vocationally qualified workers; others argue that supply of tertiary graduates must be further boosted to meet desired levels of economic growth (Skills Australia, 2010; Blumsztajn *et al.*, 2010).

17. The rate of participation of 20-29-year-olds in tertiary education and training levelled out between 2004 and 2008 in most OECD and partner countries following a period of growth between 1995 and 2003 (OECD, 2010b, Table C1.2). The reasons for this, and the extent to which it represents a trend that is likely to continue, are difficult to assess, particularly as data collected during the economic crisis are not yet available. However, given a decline in the number of adults leaving education in most OECD and partner countries over the next decade, there could be an absolute fall in the number of tertiary graduates entering the labour market. In a number of countries, the decline could be quite dramatic. For example, in Poland the average size of the cohort leaving education will decline by about 30% between 2010 and 2020 (OECD calculations).

Skills mix – a focus on basic and generic skills

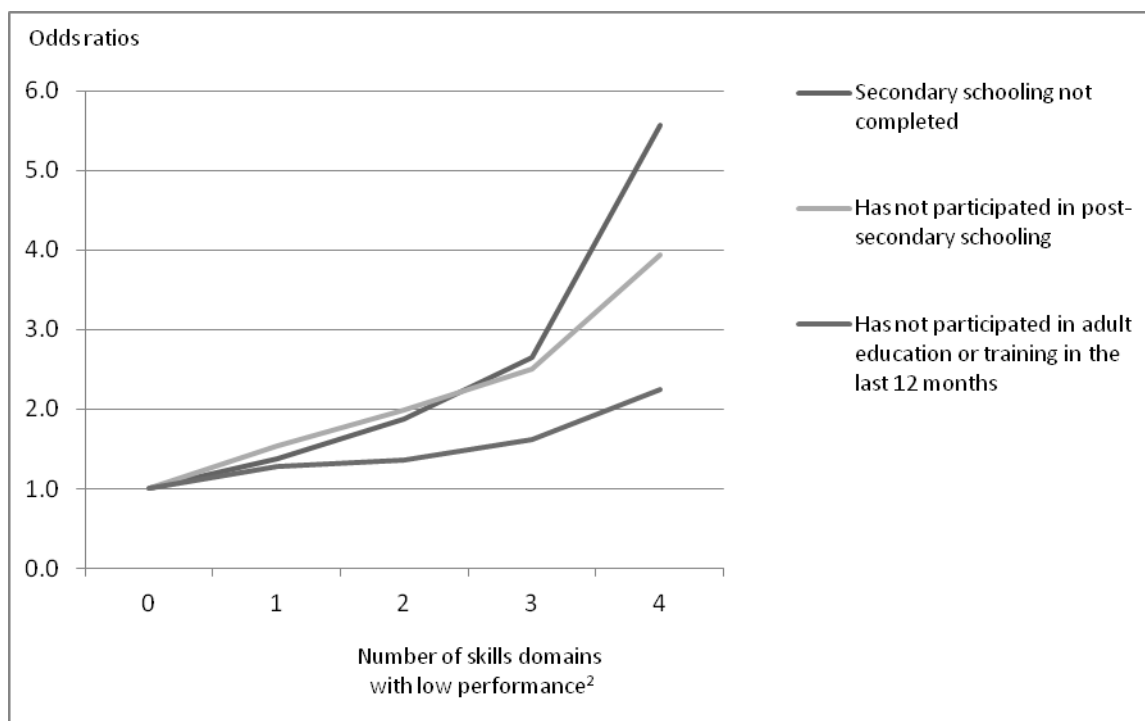
18. Young people entering the labour market now may well have to change employers and even occupations several times over their working lives. Seen in this light, preparing for the modern labour market requires being able to manage uncertainty and change. It is therefore essential to provide people with a good set of both occupation-specific and general skills that enable them to do this. Evidence from skills surveys shows that people who start off with low levels of skills have difficulties in continuing to learn later in life. As Figure 8 shows, compared to adults who perform well in all four domains of cognitive skills (prose literacy, document literacy, numeracy and problem-solving), those who show poor performance in any of these domains are much more likely to drop out of secondary school and not participate in post-secondary schooling or adult education and training. The effect is particularly striking among people who perform poorly in at least three domains.⁶

5. For example, European Union's Europe 2020 Strategy sets targets of reducing school dropout rates below 10% and ensuring that at least 40% of 30-34-year-olds complete third-level education or the equivalent (European Commission, 2010).

6. More detailed analysis on the relationship between foundation skills and skills development over a lifetime will soon be possible based on data from the Programme for the International Assessment of Adult Competencies.

Figure 8: Relationship between foundation skills and participation in education and training

Adjusted¹ odds ratios showing the likelihood of non-participation in education and training opportunities, by number of skills domains with low performance, adults aged 16 to 65



Notes:

1. Odds are adjusted for age, gender, education, parents' education, and labour force, occupational, income, immigrant and language status.
2. Low performance is defined as scoring at Levels 1 or 2 on the prose literacy, document literacy and numeracy domains, or Level 1 on the problem-solving domain.

Source: Adult Literacy and Lifeskills Survey, 2003-2008.

19. Since the 1980s, national and international projects have sought to identify and group the key generic competencies that should be imparted alongside occupation-specific skills to underpin employment preparation for young people.⁷ There is broad consensus on the results. Most frameworks identify similar clusters of skills, including basic or foundation skills, such as literacy and numeracy; higher-level cognitive skills, such as problem-solving and analytic reasoning; interpersonal skills, including communication skills; working in teams and ability to negotiate; ability to use technology, particularly ICTs; and learning skills, essentially knowing how to learn. Where these frameworks differ is the extent to which they encompass personal qualities, such as dispositions, attitudes and values.

20. With innovation considered key to economic growth, much attention has focused on the development of skills such as 'creativity' and 'entrepreneurship'. While entrepreneurial skills⁸ are not yet

7. See for example, Mayer (1992), SCANS (1991), Rychen and Salganik (2003), European Union (2006), ATCS (2010).

8. Defined as "specific skills for creating and running new business ventures and innovative projects in existing firms, such as risk-assessment and warranting, strategic thinking, self-confidence, the ability to make the best of personal networks, motivating others to achieve a common goal, co-operation for success, and the ability to deal with other challenges and requirements met by entrepreneurs" (OECD, 2010f, p. 166).

usually part of national curricula, teaching those skills in schools, vocational education and training programmes, and universities is becoming more common (OECD, 2010f, chapter 4; OECD/LEED, 2009). Public policy can help to promote the development of entrepreneurial skills by incorporating courses in entrepreneurship into formal curricula, supporting small businesses in providing workplace training, providing kick-off funding to entrepreneurship programmes in universities, and supporting the creation of co-operative projects with the private sector (for a complete list of recommendations, see OECD, 2010f, chapter 4).

Equity – ensuring all talent can develop

21. Unequal access to initial education and training is a potential waste of talent and has long-term consequences for individuals. OECD work has long confirmed that equity and excellence are not mutually exclusive. The latest PISA results show that the best school systems are also the most equitable ones (OECD, 2010g). To support countries that fail to integrate disadvantaged individuals in their initial education system, the OECD has identified a list of ten policy measures to improve equity (see Box 1).

Box 1. Ten steps to equity in initial education

Design

1. Limit early tracking and streaming and postpone academic selection.
2. Manage school choice so as to contain the risks to equity.
3. In upper secondary education, provide attractive alternatives, remove dead ends and prevent dropout.
4. Offer second chances to gain from education.

Practices

5. Identify and provide systematic help to those who fall behind at school and reduce grade repetition.
6. Strengthen the links between school and home to help disadvantaged parents help their children to learn.
7. Respond to diversity, provide for the successful inclusion of migrants/minorities within mainstream education.

Resourcing

8. Provide education for all, giving priority to early childhood education and basic schooling.
9. Direct resources to students and regions with the greatest needs.
10. Set concrete targets for more equity, particularly related to low school attainment and dropouts.

Source: Field, S., M. Kuczera and B. Pont (2007), *No More Failures: Ten Steps to Equity in Education*, OECD Publishing.

22. Adopting a long-term perspective and investing early in overcoming problems of inequity is efficient, as education disadvantages tend to persist and are often reflected in lower rates of participation in higher-level and further education and training (OECD, 2005a) and, as a consequence, poorer chances in the labour market (see Section 1). Tackling equity in education helps to avoid wasting talent and the high costs of fixing problems later in people's lives. Equity-conscious skills policies also have an impact on social mobility: for example, higher enrolment in child care and early childhood education correlates with a lower influence of parents' socio-economic background on a teenager's cognitive skills, which suggests a positive effect on social mobility. Conversely, educational and school practices that group students into different programmes or curricula according to proficiency level, for instance early tracking and ability grouping within classes, correlate with a stronger influence of parents' socio-economic background on teenagers' cognitive skills (see Causa and Johansson, 2009).

Further education and training: Which policies promote lifelong skills development?

23. Skills upgrading and (re)training for the existing workforce must be at the heart of a skills policy. The workforce of ten and even twenty years in the future will largely consist of people now in the labour market. Much of the demand for new skills will thus have to be met by training existing workers. Yet adult participation in both formal and informal training and education varies widely among countries (see Figure 4 above).

24. In order to maximise participation by adults, best results are achieved if education and training systems offer flexibility, allowing adults to learn what they want, when they want, and how they want; facilitate access by reducing barriers to entry, such as institutional rigidities, up-front fees and age restrictions; offer a variety of entry and re-entry pathways for people who need a second chance or want to upgrade their skills or learn new ones later in life; and recognise all education acquired throughout a working life, by ensuring that credit is granted for components of programmes, offering training modules, and providing credit accumulation and credit-transfer systems.

25. Policies can also help tackle various inequities in training programmes, including ‘age training gaps’ and ‘gender training gaps’, where older workers and women, respectively, are often less involved in training than their younger and male counterparts (OECD, 2005a). The bias towards large firms in providing skills development should also be addressed (participation in training activities is 50% lower in SMEs than in large firms, see Martinez-Fernandez, 2008; Dalziel, 2010; Kubitz, 2011; Box 2).

Box 2. Challenges for skills development in SMEs

SMEs have a particularly difficult time accessing education and skills development programmes. The reasons include: (1) lack of time, workload pressures, resources and cost; (2) complicated paperwork/red tape; (3) lack of enterprise/managers skills, experience, data and support; (4) operational culture does not include training; (5) learning preferences differ from what is offered; (6) different training needs; (7) lack of awareness; (8) market position (Martinez-Fernandez, 2008).

More recent analysis in selected OECD countries shows that one of the most important obstacles for SMEs to participate in skills and training activities is the lack of customised training (Martinez-Fernandez and Sharpe, 2010). Firms indicate that available training is often generic, and the more sophisticated management and technical training they require is either not available or too expensive (Kubitz, 2011).

Migration: What is the link between migration and skills policies?

26. In many OECD countries, immigrants contribute significantly to the skills supply. On average, the numbers of new permanent immigrants represent the equivalent of 50% of the cohort of young adults entering the work force; in some countries, they represent the equivalent of 100% of this group. Conversely, the effect of emigrant outflows can be equally significant. In 2008, for example, the outflow from Bulgaria represented 1% of the country’s total population, and that from Romania and Poland represented 0.8% and 0.6% of the respective populations (OECD, 2010h).

27. Most countries are now managing labour migration more concertedly. This reflects concerns about emerging labour shortages in some occupations and regions, and increasing international competition for highly skilled workers. Several countries have implemented points-based systems that reward highly skilled applicants and those with certain skills with liberalised or simplified entry procedures for work-related migration. Concerns about the loss of highly skilled individuals, particularly in the sciences, have led some countries to implement programmes designed to retain these individuals or entice highly skilled nationals who had emigrated to return to their country of origin (OECD, 2008a). At the same time,

pressure from migrant flows can encourage poorly-educated nationals to upgrade their skills so that they do not have to compete for low-skilled jobs. Not all migrants make full use of their skills in the host country, sometimes because of language barriers, sometimes because their foreign diploma is not recognised. Policies to tackle these problems are necessary if countries want to take full advantage of their migrants' skills.

28. Countries increasingly see international students as a source of well-integrated, qualified labour and facilitate the entry of students through simplified visa arrangements and measures to make international study more attractive. These include reducing tuition and other costs connected with the stay, offering language instruction, facilitating credit transfers and allowing part-time work while studying (OECD, 2010h). Immigrant students comprise 10% to 20% of the student population in many OECD countries; the most popular countries of destination are the United States and the United Kingdom, followed by Germany (OECD, 2010i). The proportion of international students among all students in higher education nearly doubled in OECD countries from 4.5% in 1998 to 8.7% in 2007 (OECD, 2010b). Those who hold doctorates are even more mobile internationally, both in terms of where they acquire their doctoral degree and where they find work afterwards (Auriol, 2010).

Labour-market activity: Which policies help to boost and maintain attachment to the workforce?

29. Encouraging labour-market participation is another way of increasing the stock of skills. This requires combining education policies with other policies to maximise participation in the labour force. One of the four pillars in the restated OECD Jobs Strategy (OECD, 2006b) provides guidelines to countries on how to remove impediments to labour-market participation and job search. It recommends implementing well-designed unemployment benefit systems and active labour-market policies, making other non-employment benefits more work-oriented, facilitating family-friendly arrangements, and adjusting taxes and other transfer programmes to make work pay. Training opportunities for hard-to-place jobseekers might complement other forms of unemployment policies, particularly in a recession, as the opportunity costs of time spent in training are lower. In addition, recessions may result in accelerated structural change, increasing the requirement for workers to shift occupations and therefore the need for training (OECD/ELSA, 2010). Career counsellors and various intermediary agencies concerned with helping people to find the right training and, eventually, the right job after a period of unemployment also become more important.

30. In addition to developing policies to boost participation in general, targeted interventions may be needed to support certain groups that tend to be marginalised in the labour market. Integrating immigrants and minorities into the labour market is an issue of major concern in most OECD countries (OECD, 2010i). Countries have had varying success in addressing this issue by improving qualifications and language skills (OECD, 2008b). School dropouts are another group at risk. Key policy actions for this group include early interventions to support young people at risk of leaving the education system without a recognised qualification, implementing measures to assist young people in finding jobs, and removing barriers to entry into the labour market (OECD, 2010j). To activate older workers, co-ordinated policies are needed, including reforming pension schemes, increasing the retirement age, introducing age-discrimination legislation and encouraging greater investment in training older workers (OECD, 2006a).

31. Women represent the largest underutilised pool of human capital in OECD countries. Over the past decades, women's educational attainment has increased significantly. Young women now show higher educational attainment levels than young men. While labour-force participation rates among women have increased over that period, the gender gap remains substantial: on average in OECD countries, only about 60% of women participate in the labour force compared with 80% of men (OECD/ELSA, 2011). In addition, OECD research shows that the gender gap in wages is sizeable (OECD, 2008c). A number of policies have a positive impact on gender imbalances. More neutral tax treatment of second earners in a

household, compared with single earners, leads to greater female participation; childcare subsidies and paid parental leaves boost female participation, but child benefits reduce participation; and more part-time work opportunities can narrow some of these gender gaps, if there are policies in place to remove distortions against part-time work (Jaumotte, 2004). Through its Gender Initiative, the OECD is exploring these issues and helping countries to address these inequalities (OECD/ELSA, 2011).

3. POLICY LEVERS TO OPTIMISE THE USE OF SKILLS

Skills policies also concern the demand side

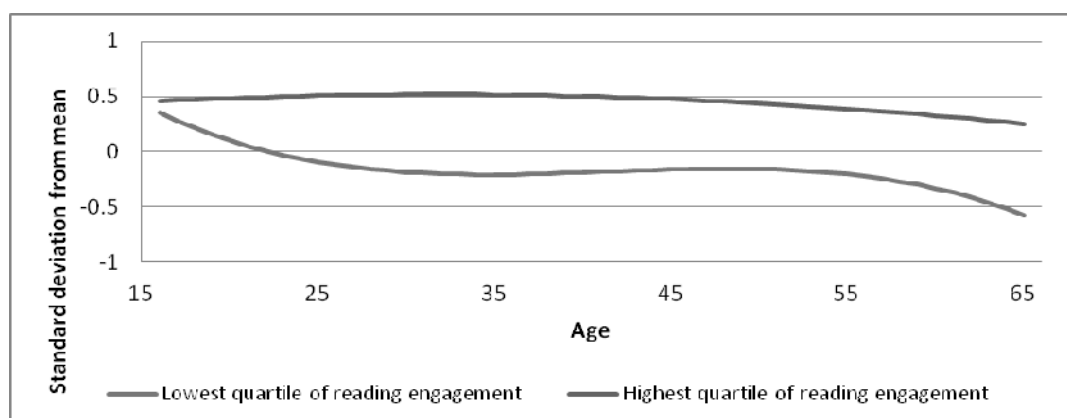
32. The focus of skills policies is often on the supply side – on increasing the stock of available skills through education and training, migration and activation. However, more skills are not necessarily better skills, and the mere existence of skills does not automatically lead to improved economic performance. Making optimal use of existing skills, preventing waste and attrition of skills due to mismatch or lack of use, and encouraging employers to demand higher level of skills in stagnating regions or sectors are equally important elements of skills policies.

What are the effects of skills under-utilisation?

33. Under-utilisation of skills – either because of a mismatch between workers' skills and those demanded by the job (see also Section 1 above) or because individuals are out of the labour market altogether – represents a waste of the resources that were invested in nurturing these skills. In addition, failure to make active use of skills may lead to depreciation of existing skills; it might even lead to a loss of the skills already acquired. Research shows that skills must be used if they are to be maintained over a lifetime. Neuroscience has revealed that the capacities of the human brain are plastic: they grow in response to experience and shrink when parts become unnecessary (OECD, 2007a). Hence, the more individuals study, the more they can learn. At the same time, reducing learning activity leads to diminished capacity to process information. Evidence from international assessments of literacy skills supports this finding. Figure 9 below suggests that for every age group there is a substantial difference in reading proficiency between those who read a lot at work and those who do not, even after adjusting for years of schooling, and that this difference is largest among older people. Moreover, reading frequently at, and outside of, work appears to mitigate the cognitive declines associated with ageing.⁹

Figure 9: Reading engagement at work and performance

Proficiency of literacy skills among adults aged 16 to 65, by reading engagement, adjusted for years of schooling and foreign-born status



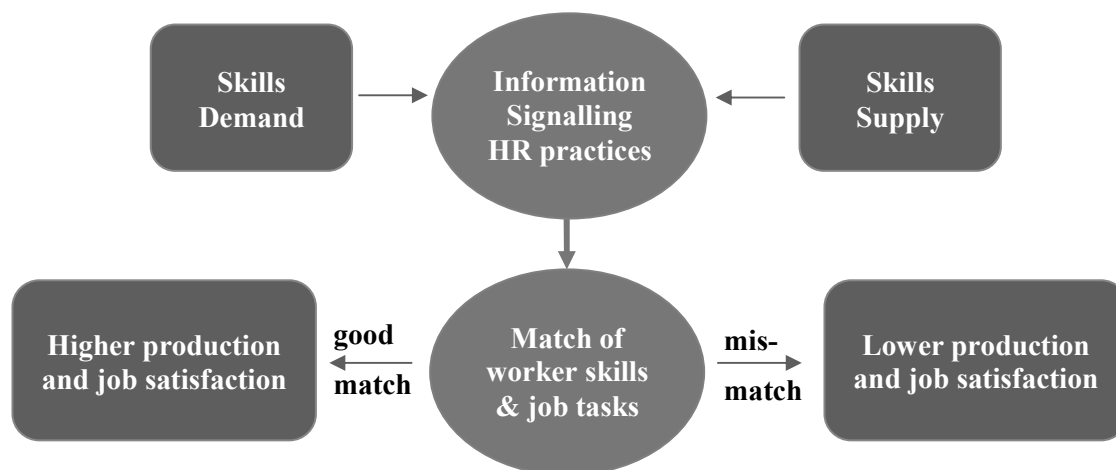
Source: *International Adult Literacy Survey, 1994-1998.*

9. More detailed analysis on skills gain and decline in the adult population will soon be possible based on data from the Programme for the International Assessment of Adult Competencies.

Which policies facilitate better matching and use of existing skills?

34. A number of policy instruments support matching skills available in the population with skills required in jobs (Figure 10).

Figure 10: Matching skills supply with demand

*Developing management in firms to improve the use of skills*

35. A firm's organisational structures and managerial decisions can have an impact on the extent to which workers' skills are optimally used on the job and productivity is improved (Toner, 2011). A number of human resource, management and working practices, including flexible working practices, high training commitment and improved communication channels, have been found to have positive effects on productivity (UKCES, 2009, p. 125). However, some firms, particularly SMEs, may need support from skills polices to develop approaches to management and work organisation that make the fullest use of their workers' skills.

Information and guidance to facilitate the matching of skills

36. Skills policies can also help to ensure that skills are effectively matched to demand in the recruitment process. Direct flows of information between labour markets and skills-formation systems are needed to ensure that the skills developed are the ones needed by the economy and can be employed efficiently. Information is needed by all concerned: students who choose careers and seek employers requiring the skills they possess; workers who want to upgrade their skills to boost their careers and make the most of their talent; unemployed people who want to get back into the labour market; firms that are looking for the right skills; and governments that design education programmes and make investment choices.

37. Countries vary in the extent to which they use labour-market information to inform students, parents, workers and firms, and to guide policy. A review of career-guidance policies in OECD countries concludes that, at present, services are available only to limited numbers of groups, at fixed points in life, and are focused upon immediate decisions (OECD, 2004b). Conversely, systematic career guidance from competent personnel and informed by up-to-date labour-market information, possibly combined with brief workplace experience, help reduce the incidence of dropout from post-compulsory education and later mismatch.

38. At the same time, methods to assess labour-market needs, including forecasting future skills needs, and communicate those needs to the supply-side institutions have improved (Lüdemann, 2011). Some countries have launched initiatives, in collaboration with industry bodies, to map job profiles more precisely across sectors and clusters, while encouraging those who provide training to offer modular, flexible training that will allow individuals to increase their mobility within and between sectors over their lifetimes (Froy and Giguère, 2010a). This can help support school-to-work transitions and foster lifelong learning. In some countries, brokerage agencies support skills-policy development by linking information from external research agencies to the administration (OECD/PSD, forthcoming).

Making skills explicit through national assessments and qualifications frameworks

39. Systems of national assessment and qualifications frameworks play an important role in optimising the use of skills by ensuring transparency of qualifications. In countries that have no national assessment of education, standards are often decided locally; as a result, qualifications are not comparable and lose their value as a way of identifying a potential employee's set of skills (Backes-Gellner and Veen, 2008; Woessmann *et al.*, 2007).

40. Similarly, clear and simple qualifications frameworks help employers to understand the value and level of a qualification and facilitate the match between employers and potential employees. At the same time, a multitude of qualifications and titles complicate the hiring process for employers and have little value for the individual in the labour market. Such is the case, for instance, in countries where a plethora of vocational qualifications means little to employers because the value of those qualifications is not transparent (OECD, 2008d).

Recognition of skills acquired through learning and experience outside formal education

41. Many skills are learned outside the formal education system, through experience or learning in informal settings. This type of learning is particularly used by small and medium-size firms that may find it challenging to stop production or release workers to attend formal training. At the same time, firms acknowledge the usefulness of skills development through informal knowledge activities that affect innovation and product/service development (OECD 2006c, Martinez-Fernandez and Miles 2011). Skills acquired in this way are often not fully recognised in wages. Recognition of non-formal and informal learning does not, in itself, create human capital; but it makes the stock of human capital more apparent and more valuable to society. Recognition makes it easier to match the right job with the right skills, thus generating economic benefits; it can also help individuals to access higher levels of formal education (Werquin, 2010). However, in many OECD countries, recognition processes are often used on a small scale, as they are too complex and costly to be used more broadly. Good recognition systems require well-established and well-functioning competency-based qualification frameworks and reliable assessment procedures; many countries are only starting to work on these basic requirements. As a result, recognition should not necessarily be seen as a solution applicable to all under-qualified workers, but could be helpful for specific groups.

42. Migrants, for example, can benefit from this kind of recognition. They often perform jobs that are below their abilities because the qualifications they acquired in their country of origin are not recognised where they are now working. Hence, another way to formally recognise skills is by providing qualifications equivalent to foreign diplomas in the national qualifications system. This would ensure that skills are fully recognised and used in the labour market and that human capital is not wasted (OECD, 2010i; OECD, 2007b). The OECD Council and UNESCO have adopted guidelines to facilitate the recognition of foreign qualifications and diplomas (OECD, 2004c; OECD, 2005b).

Policies influencing the demand for (high-level) skills

43. Some countries have attempted to go even further and boost the demand for (high-level) skills through specific policy programmes to enhance economic performance (OECD, 2010k; Scottish Government, 2007). This can be particularly important for certain sectors and also at the regional and local levels. While some regions find themselves with skills gaps and shortages, others suffer from a low supply of skills matched by a low demand for skills among local employers – what is known as low-skills equilibrium (Finegold and Soskice, 1988). Not all businesses and not all labour markets progress as fast as others in adopting new technologies and adapting to changing markets. In the meantime, employers can gain competitive advantage by keeping skills levels, and therefore salaries, at a minimum. When these employers become concentrated in a particular region, a vicious circle can develop, as it is not worthwhile for individuals to remain in education if local companies are not seeking higher-level skills. Those who do train tend to migrate to better jobs elsewhere. At the same time, managers will be unable to raise their level of productivity and make use of skills if there is a lack of well-educated workers within their locality. While it is a priority to improve the supply of skills locally, policy makers also need to improve demand through knowledge-based economic development strategies (Froy, Giguère and Hofer, 2009).

4. MAKING INVESTMENT IN SKILLS DEVELOPMENT MORE EFFICIENT

Investing in skills

44. Skills formation represents a considerable investment. On average, OECD countries spend about 6% of GDP on educational institutions; in some countries, education spending can be close to 8% of GDP (OECD, 2010b, Indicator B2). Education spending varies across countries and by level of education (see Figure 11), reflecting such factors as teachers' salaries, class size, instructing time per student and teaching time per teacher (OECD, 2010b, Indicator B7).

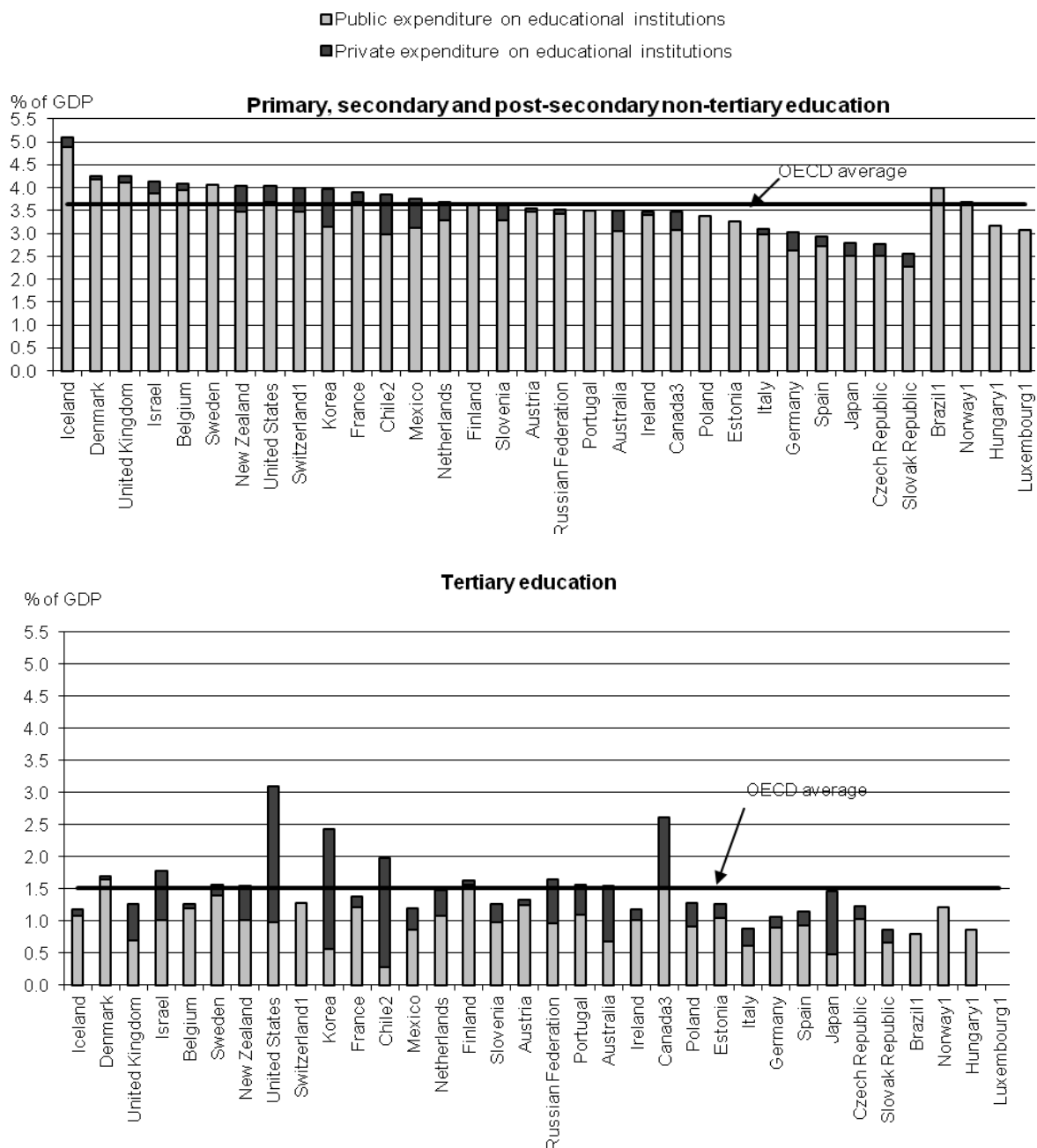
45. Even though people continue to participate in education later in life, the bulk of the investment in education, both private and public, is currently made in the early stages of people's lives. Countries vary considerably in shares of private expenditure on education, in particular at the tertiary level and in the extent to which individuals and firms invest in adult education and training. While private spending on educational institutions increased, on average in OECD countries, over the past eight years, in 2007, 83% of overall expenditure was still from public sources (OECD, 2010b). The ongoing demographic decline (OECD, 2010e; OECD, 2010b)¹⁰ is likely to ease at least some of the pressures on public finances that arose from greater demand for initial education and training. However, fiscal consolidation will exert its own pressures on education and training budgets. Irrespective of the evolution of demand, it is probable that many governments will need to consider introducing co-financing arrangements for tuition and, in countries in which such arrangements already exist, increasing the level of private contributions.

46. To establish a strategy for skills financing, a natural starting point would be to identify who reaps the benefits of different kinds of skill investments. In most cases this will be a mix: the individuals concerned may often be the biggest beneficiaries in terms of better labour-market outcomes and higher earnings, but education also offers benefits to the wider society. Meanwhile, not all young people or parents will fully perceive the benefits that studying can bring; some may face financial constraints to extending their studies, others may be uncertain as to whether more education or training will ultimately be worth the investment. These obstacles can be overcome, and social equity can be strengthened, in part, by designing effective financial instruments and incentives and ensuring that they are known by all individuals, including those from socio-economically disadvantaged backgrounds.

10. Between 2000 and 2020, the size of the population aged 5-14 is projected to decline in 27 out of 36 OECD and partner countries – by 8% on average in OECD countries, but by more than 30% in a few countries (OECD, 2010b, p. 209).

Figure 11: Expenditure on educational institutions as a percentage of GDP (2007)

From public and private sources, by level of education and source of funds



1. Public expenditure only (for Switzerland, in tertiary education only).

2. Year of reference 2008.

3. Year of reference 2006.

Countries are ranked in descending order of expenditure from both public and private sources on educational institutions in primary, secondary and post-secondary non-tertiary education.

Source: OECD (2010b)

Increasing the efficiency of investment in skills

47. Fiscal consolidation will also increase pressure to ensure that public spending on skills formation is efficient. Most countries have room for improvement in this regard. Efficiency of education spending varies markedly in OECD countries but also within countries across education institutions (OECD, 2008e). Spending inefficiencies can arise *e.g.* from duplication of programmes and facilities due to a lack of cross-institutional co-operation (OECD, 2008f, p. 236ff); and it can be the result of high dropout rates at upper secondary and tertiary levels, which can be costly for countries.

48. In order to combine efficiency and equity in education investment, the core principles of funding (Box 3) should guide countries in developing systems to finance skills formation. Sound policies for financing skills development over a lifetime will be a key pillar of the OECD Skills Strategy.

Box 3. Principles for financing skills formation

Principle 1: Systems to finance skills formation should be efficient, providing enough resources to respond to the demand by individuals and employers, but avoiding investment in skills beyond what is needed in the labour market.

Principle 2: Skills development should be financed by a mix of sources, reflecting the benefits to individuals, employers and society as a whole.

Principle 3: Public spending should be allocated in ways that encourage the responsiveness of educational providers to the preferences of learners and the needs of the economy.

Principle 4: Financing incentives, including through taxes, should underpin private investment in education and training, both from individual households and from employers.

Principle 5: Financial instruments, such as loans, should be available to ensure that up-front costs are not a barrier to accessing skills formation for disadvantaged students.

Principle 6: Financing mechanisms should be designed with the whole system in mind, so as to avoid distorting student choice, such as that between vocationally-oriented and general education at the post-secondary level.

Principle 7: Financing systems should be simple and transparent.

Improving the quality of skills formation

49. An increase in the returns to investment in education can also be reached by focusing on the quality of education at all levels.¹¹ PISA has demonstrated that there are significant variations in the quality of schooling both between and within countries that are not accounted for by demographic or socio-economic characteristics. Such variation is likely to exist at other levels of education and training systems. For example, the results of international adult literacy surveys demonstrate significant variation in literacy skills among individuals with similar levels of qualification (OECD/Statistics Canada, 2005).

50. Countries have been increasingly concerned about quality at all levels of education, and have developed a number of policy tools, such as education standards, national assessments and accountability measures, to address those concerns. Quality in education is also central to the OECD's work (see Box 4).

11. Large economic gains can accrue by raising the quality of education and, through this, improving the quality of human capital (Hanushek and Woessmann, 2010).

Box 4. Ongoing OECD work on quality in education

The **Teaching and Learning International Survey (TALIS)** explores students' learning environments and teachers' working conditions. It examines the issues of leadership and management in schools and teacher appraisal, and establishes profiles of countries with regard to teaching practices. The first study surveying teachers in lower secondary education and the principals of the schools in which they work has been conducted in 24 countries across four continents, and future rounds of TALIS are planned.

Assessment of Higher Education Learning Outcomes (AHELO) is a test of what students in higher education know and can do upon graduation. It will provide data on the relevance and quality of teaching and learning in higher education. The validity of testing instruments is assessed through a feasibility study.

The **Programme for the International Assessment of Adult Competencies (PIAAC)** assesses the level and distribution of adult skills across countries. The survey focuses on key cognitive and workplace skills that are required for successful participation in today's economies and societies. First results will be released in 2013.

Learning for Jobs, a review of upper secondary vocational education and training (VET) (OECD, 2010I), and **Skills beyond School**, an ongoing review on post-secondary/tertiary VET, consolidate the knowledge about how to design good-quality VET systems that are responsive to the needs of the labour market. Quality in VET not only helps to improve the education offered, it also improves the reputation of both VET and the students who follow this course of study.

The ongoing review of **Assessment and Evaluation Frameworks for Improving School Outcomes** provides analysis and policy advice to countries on how different assessment and evaluation tools (student assessment, teacher appraisal, school assessment and system evaluation) can be embedded within a consistent framework to bring about real gains in performance across the primary and secondary school system. A comparative report is due in mid 2012.

51. Four rounds of PISA data allow researchers to observe longer-term trends in international student performance and to better understand which features of school systems are associated with high levels of performance among 15-year-olds (OECD, 2010m). A combination of local autonomy and accountability seems to be associated with positive results, and high-performing systems allow individual schools to design curricula and establish assessment policies but do not necessarily allow competition for students. In contrast, countries where students repeat grades more often tend to have worse results overall, and the widest gaps between socio-economically advantaged and disadvantaged students. School systems that track students at an early age into different school programmes, such as general or vocational, often show less equitable outcomes without an overall performance advantage.

52. In addition, the broad research consensus is that the quality of teaching affects student achievement in schools (OECD, 2005c, p. 26). Developing policies to attract, maintain and develop effective teachers will help to ensure quality at all education levels. Quality-assurance systems have also been developed for higher education institutions (OECD, 2008f). There is a wide variety of these activities, ranging from generic guidelines and guidance to self-reviews and external reviews. These can be categorised as accreditation, assessment or audit systems, and are practised by countries at different levels, with varying scope and frequency.

5. MOBILISING ACTORS TO IMPLEMENT SKILLS POLICIES

A co-ordinated whole-of-government approach

53. Skills policies touch on many policy areas. To be effective and efficient, they need to be based on a functioning partnership among a variety of stakeholders. Skills policies typically straddle different ministries, including education, family, science and technology, and employment. In addition, there are links to most other policy fields: economic development, including regional development, migration and integration; social policies (*e.g.* comparing the cost of welfare benefits vs. skills development); industry policies (optimising the use of skills and stimulating the demand for high-level skills to foster innovation and growth); and fiscal policies (to stimulate private investment). Creating linkages between policy areas is essential for ensuring efficiency and avoiding duplication, and also for bridging or avoiding gaps in service (Froy and Giguère, 2010b). A co-ordinated approach helps to link skills supply and demand and allows policy makers to detect policy trade-offs, such as between immigration and labour-market integration, and to optimise investment of scarce resources.

54. In addition to different ministries and agencies at different tiers of government, a large array of other stakeholders needs to be involved (see Table 1) to co-ordinate the various skills policies outlined in this paper.

Table 1: Actors involved in skills policies

	Policies	National government	Sub-national government	Social partners	Other
Skills formation	Initial education	Education Ministry (schools) Labour Ministry (VET) Science, Technology, and Innovation Ministry (HE)	Municipalities Local government	Employer orgs. Trade unions Firms (VET)	Schools Universities Providers
	Further education	Education Ministry Labour Ministry Ministry of Finance	Municipalities Local government	Firms Employer orgs. Trade unions	Providers Universities
	Migration	Immigration Ministry Labour Ministry	Municipalities	Firms Chambers of Commerce	Communities NGOs, Charities
Skills use	Activation	Social Policy Ministry Family Ministry	Local labour market office		Career guidance service
	Matching	Education Ministry Labour Ministry	Local labour market office	Sector Skills Councils	Career guidance service
	Demand-side	Economics Ministry Industry Ministry		Firms Employer orgs.	

55. In many countries, co-operation is complicated by a lack of clarity of roles and responsibilities, or geographical and administrative boundaries. Fragmentation can also occur when a variety of different providers offer education programmes in “silos” that are not linked to each other or do not combine basic skills with more specialised occupational skills in an effective way (Froy and Giguère, 2010b).

Level of governance

56. With local variations in the demand for and supply of skills within one country, there is a strong rationale for addressing the issue of skills formation at the sub-national level. Localities are being asked to develop strategies that tackle local problems and combine elements of attracting and retaining skilled people, integrating disadvantaged groups into the labour market, improving workers’ skills and stimulating the demand for such workers to optimise the use of those skills (see Box 5). Having a detailed understanding of the local demand for and supply of skills is essential for developing a balanced local strategy. Local institutions need flexibility and sufficient autonomy to adapt their policies to their needs (Froy, Giguère and Hofer, 2009). Vertical alignment of different government agencies and horizontal co-ordination of different departments can maximise policy coherence (a particular challenge in developing countries, see Martinez-Fernandez *et al.*, 2011a). However, to avoid inequities, disadvantaged localities might need assistance from the central government in handling some of these challenges.

Box 5. Good practice in designing local skills strategies

OECD analysis (Froy, Giguère and Hofer, 2009) shows that the most effective local skills strategies integrate human resource and training policies into wider economic development strategies, so that the focus is not only on how skills can be developed but also how they can be deployed. Designing such an approach means looking beyond immediate skills shortages and understanding how investment in human resources can help capitalise on local comparative advantage, and local employment sectors, and capture new opportunities from global and national trends.

It also means looking at how the public sector can help support existing skills ‘ecosystems’, self-sustaining concentrations of workforce skills and knowledge in an industry or a region (Finegold, 1999), through public-funded training and knowledge transfer. Such strategies involve not just education and training institutions but a wider range of stakeholders, including firms, employer associations, economic-development agencies, employment agencies, trade unions, and non-profit organisations that can work together to develop skills and training ecosystems (Martinez-Fernandez and Weyman, 2011). Competent brokers or facilitators who are capable of working across the private and public sectors are also of key importance.

Role of the social partners in skills policies

57. Skills shortages and mismatches can be the result of poor communication of labour-market needs to education and training providers and individuals; they can also be the consequence of a lack of responsiveness on the part of providers to information about the skills demanded. The capacity to react to information on changing skills needs can be facilitated by the direct engagement of the social partners (employers and trade unions) and external advisory bodies, such as Sector Skills Councils or arms-length government agencies responsible for providing labour-market intelligence and advice on design and implementation of skills policies.

58. Employers are also important partners in providing initial training and the training needed to fill skills gaps. Labour-market outcomes, especially for the first transition from education to the workforce, have been found to be much better in (vocational) education systems that collaborate with employers and include some element of workplace training (OECD, 2010l). Conversely, employers are more likely to provide education and training if they understand the system, and that is facilitated by including them, both as individual firms and through related associations, as the system is being designed.

59. However, while social partners can be important facilitators for skills policies, they can also be obstacles, slowing down or blocking necessary reform processes. The involvement of social partners thus needs to be supported by institutional structures that are representative of all employers, including SMEs, and that facilitate communication and constructive co-operation.

Using evidence for skills-policy design and implementation

60. Designing and implementing skills strategies and setting priorities for skills policies require the government's capacity to process complex information. Countries need information to analyse the status quo, set objectives for policy development, understand barriers to and vehicles for implementation, and monitor the progress towards these objectives. They also need information to identify policy trade-offs (welfare spending vs. investment in education and training) and synergies (co-ordination of employment and education policies governing VET) and to set priorities for investment (investing in early childhood education and care vs. tertiary education). Countries vary in the extent to which they use relevant evidence. A number of sources provide disaggregated data (by sector, region or local labour market) according to which skills strategies can be conceptualised, operationalised and evaluated. These include:

- Assessment of student performance and of skills levels in the adult population;
- Graduate surveys providing information about the labour-market outcomes of different education programmes;
- Basic labour-market data on employment and earnings of individuals by levels of education and experience, and the skills composition of the unemployed population;
- Employer surveys containing information on employers' skills needs and satisfaction with the supply of skilled labour;
- Analyses of job advertisements, providing information on demand for skills in the economy;
- Projections of demand for and supply of skills in the future, by sector; and
- Policy evaluations to monitor the effect of reform initiatives.

6. THE WAY FORWARD

61. Work under the Skills Strategy will continue during 2011 through 2013 and will be guided by the issues outlined above. The major areas of focus will be:

Establishing a common language

62. A first objective is to establish a common terminology and language in the field of skills and skills policies that can be used to facilitate internationally comparative analysis and policy evaluation. This will include establishing a framework with definitions of core concepts related to skills and skills policies.

Improving the measurement of skills

63. The evidence base for skills policy is limited by the absence of good information about the skills of the adult population. The most commonly used proxies for the skills endowment of individuals and nations – educational attainment or years of schooling – are only partial and imprecise measures of skills. After completing initial education or training, individuals both gain and lose skills. Moreover, in comparing the skills endowment of countries, it is evident that the quality of education and training received can vary, sometimes dramatically, both between countries and, over time, within the same country. Direct measures thus have the potential to provide a more accurate picture of the skills of individuals and nations at any particular point in time.

64. The OECD's PISA survey already provides internationally comparable measures of the competences of 15-year-olds in the domains of reading, mathematics and science. Beyond that, the Programme for the International Assessment of Adult Competencies (PIAAC) will provide comparable measures of the proficiency of adults in the core skills necessary for participation in the knowledge economy: literacy, numeracy and problem-solving in technology-rich environments. Information will also be collected on the use of important generic skills at work. These data will add significantly to our understanding of the stock of human capital in participating countries, how skills are acquired and lost over a lifetime, and how the acquisition of skills affects individuals and society. A feasibility study and extensive field trials have been successfully completed and PIAAC is now being implemented in 25 developed countries, with results to be available in 2013. Plans are underway to extend PIAAC to additional countries as part of a second wave of the assessment and to adapt the assessment for use in middle-income countries.

65. The Assessment of Higher Education Learning Outcomes (AHELO) was designed to improve the evidence base on skills learned in higher education institutions. Feasibility studies in the domains of generic skills, economics and engineering are being conducted in 16 advanced and middle-income countries to gauge the possibility of developing this initiative into a full-fledged study. Conclusions as to the feasibility of such assessments are due in late 2012.

Identifying essential skills for the future

66. It is commonly argued that a range of basic and generic skills are becoming increasingly valuable as a result of changes in labour-market demands and the related uncertainty about individual career trajectories. Numerous efforts have been made to identify 'key competencies' or 'employability skills'

over the past decades. However, apart from the universally acknowledged importance of basic literacy and numeracy skills, there is little hard evidence of what other skills are required for workers to obtain better labour outcomes and cope with a more fluid labour market. The Skills Strategy will investigate the relative importance of occupation-specific skills versus basic and generic skills in this new employment climate. It will also identify the skills needed to support innovation.

Understanding skills mismatch

67. While measures to ensure an adequate and appropriate supply of skills are central to good skills policy, so is an understanding of the needs of the labour force. There is increasing concern that mismatches between workers' qualifications and skills and the tasks they undertake in their jobs may lead to significant economic losses. As part of the Skills Strategy, the OECD will undertake a range of activities to investigate the level, extent and economic impact of mismatch and identify policies that help reduce its impact and costs. Data from PIAAC, which will provide information on what people do in their jobs and direct measures of key cognitive skills, will help in understanding and evaluating the impact of skills mismatch.

Improving skills training for the unemployed

68. After job loss, skills are likely to deteriorate if left unused during a spell of unemployment. In addition, for individuals displaced from declining sectors, many industry-specific skills may no longer be valued by prospective employers. While training programmes are key to improving the re-employment chances of these workers, little is known of what type of training works best for whom. For instance, up-skilling may be preferable for older, long-tenured displaced workers while re-training in a completely different area may be more effective for younger displaced workers who could take advantage of better long-term employment opportunities in emerging sectors. The forthcoming OECD project on Job Displacement aims to shed light on these issues and identify the most cost-effective policies to tackle them.

Developing sound strategies for skills financing

69. To understand the complexity of skills-financing systems, the Strategy will attempt to calculate an estimate of the investments in skills made by different stakeholders at different levels of the system at different points of people's lives. The Strategy will explore ways in which countries can make investing in learning cost-effective for individuals and their employers. This will include identifying good practices in the design of funding mechanisms and instruments that balance costs, access, equity and quality. The role of tax systems, and instruments to encourage individuals and firms to invest in skills, will be central.

Guiding policy development and implementation

70. A primary objective of the Skills Strategy is to develop practical tools to assist countries in designing and implementing appropriate and effective policies regarding the supply, improvement and use of skills. To this end, the Strategy will offer a framework identifying the components and action points for skills policies, a set of principles to guide the development and review of these policies at national and regional levels, and examples of good practice in the design, implementation and evaluation of skills policies.

71. To support the implementation of skills policies, the Skills Strategy will focus on ways to create effective partnerships across governments and between agents and institutions involved in skills development at the national and local levels. OECD work in this area has offered insights into how education providers can work more effectively with local businesses, employment agencies, economic-development actors, non-governmental organisations and social innovators to better match skills supply with demand. The Skills Strategy will build on this work.

Next steps and deliverables

72. There will be an interim report to Ministers at the 2012 Ministerial Council Meeting. A complete Skills Strategy, providing a framework and principles to guide countries' skills policies, will be launched in early 2013. It will prepare the ground for a regular OECD Skills Outlook publication based on improved OECD data sources, such as the Programme for International Assessment of Adult Competencies (PIAAC).

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