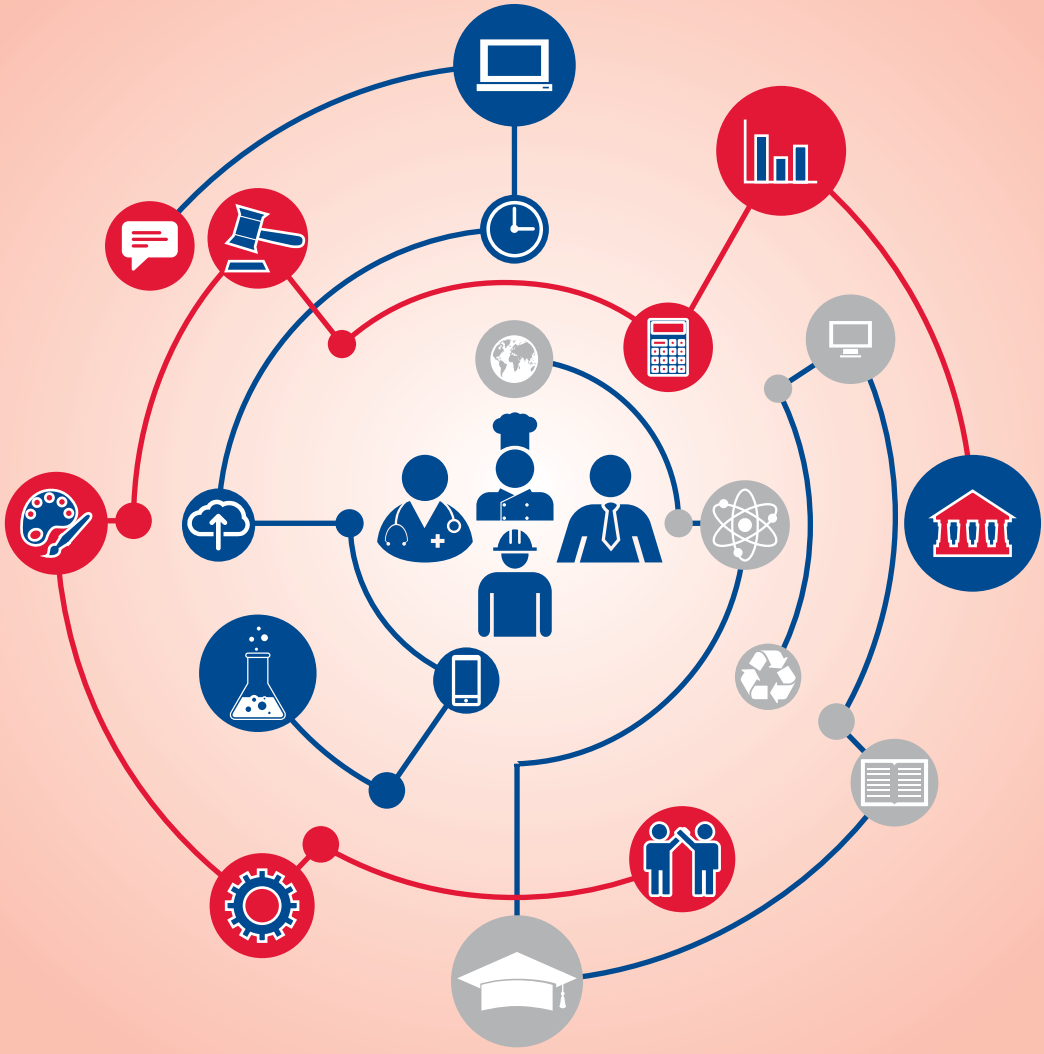
Getting Skills Right

United Kingdom



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Getting Skills Right: United Kingdom

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Foreword

Across countries, tackling skill mismatch and skill shortages is a major challenge for labour market and training policies in the context of rapid and substantial changes in skill needs. In most countries, a substantial share of employers complain that they cannot find workers with the skills that their businesses require. At the same time, many graduates face difficulties in finding job opportunities matching their qualifications.

In light of this challenge, OECD has undertaken an ambitious programme of work on how to achieve a better alignment of skill supply and skill demand, with a focus on: i) understanding how countries collect and use information on skill needs; ii) investigating cost-effective training and labour market policies to tackle skill mismatch and shortages; iii) studying the incentives of training providers and participants to respond to changing skill needs; and iv) setting up a database of skill needs indicators.

This work builds on the extensive programme of work of the OECD in the area of skills, including the OECD Skill Strategy and its follow up national implementation strategies, the Survey of Adult Skills (PIAAC) and its rich analyses in the areas of skills mismatch, vocational education and training and work-based learning.

This policy review is one of a series on skill imbalances aiming to identify international best practice in addressing skill imbalances in order to minimise the associated costs to individuals, enterprises and economies. The review involves an in-depth assessment of the country's skills system, leading to a set of policy recommendations backed by analysis and input from country stakeholders.

The work on this report was carried out by Katharine Mullock from the Skills and Employability Division of the Directorate for Employment, Labour and Social Affairs under the supervision of Glenda Quintini (team manager on skills) and Mark Keese (Head of the Skills and Employability Division). The report has benefited from helpful comments provided by Stefano Scarpetta (Director for Employment, Labour and Social Affairs) and staff at the JPMorgan Chase Foundation.

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Acronyms and abbreviations

AEB	Adult Education Budget
ASHE	Annual Survey of Hours and Earnings
BIS	Department for Business Innovation and Skills
BG	Burning Glass
CEC	Careers & Enterprise Company
DWP	Department for Work and Pensions
EEA	European Economic Area
ESOL	English for Speakers of Other Languages
ESS	Employer Skills Survey
EU	European Union
FE	Further Education
GCSE	General Certificate of Secondary Education
HEFCE	Higher Education Funding Council of England
IAG	information, advice and guidance
ICT	information and communications technology
JCP	Jobcentre Plus
JSA	Jobseekers' Allowance
LEO	Longitudinal Education Outcomes database
LFS	Labour Force Survey
LMI	labour market information
MAC	Migration Advisory Committee
NCOP	National Collaborative Outreach Programme
NCS	National Careers Service
NEET	not in employment, education or training
NGO	Non-government organisation
NOMIS	Office Labour Market Statistics
Ofqual	Office of the Qualifications and Examinations Regulator
Ofsted	Office for Standards in Education, Children's Services and Skills
ONS	Office of National Statistics
PES	Public employment service
R&D	Research and development
RARPA	Recognising and Recording Progress and Achievement policy
RLMT	Resident labour market test
RPL	Recognition of Prior Learning
SAA	Skill assessment and anticipation
SME	Small and medium-sized enterprises
SOL	Shortage occupation list
SSC	Sector skills councils
SSDA	Sector Skills Development Agency
STEM	Science, technology, engineering and mathematics
UC	Universal Credit
UKCES	UK Commission for Employment and Skills
VET	Vocational education and training

Executive summary

Developing the right set of skills and making full use of them in the economy is a recipe for higher productivity, growth and inclusiveness. A strong recovery in the United Kingdom has led to record-high employment rates and an unemployment rate that is expected to remain low for the next couple of years. However, labour productivity growth, which is closely related to the use of skills, remains low. Many workers are trained in a field of study that is not associated with their occupation. While the strong recovery in the United Kingdom has not yet significantly raised the share of employers reporting skill shortages, the share of vacancies that are considered skill-shortage vacancies has risen. The OECD Skills for Jobs database reveals shortage pressure in knowledge related to education and training, health services and STEM subjects, as well as in more transversal skills like verbal abilities, quantitative skills, complex problem solving, reasoning and social skills. Manual and physical skills are found to be in surplus. Migration policy change under Brexit could reduce the flow of skills from the European Economic Area, possibly adding to shortage pressure.

To better align skill demand and skill supply, timely access to rich and accurate information about current and future skill needs is necessary. Several high-quality skill anticipation and assessment exercises are in place in the United Kingdom. The Migration Advisory Committee's (MAC) skilled shortage list combines qualitative and quantitative information to produce a list of high-skilled occupations in shortage which is used to facilitate migration decisions. Among the data sources that MAC relies upon is the Employer Skills Survey (ESS), co-ordinated by the now-closed UK Commission for Employment and Skills (UKCES). The UKCES also managed the Working Futures forecast exercise, which together with the ESS, informed education policy. The government will need to ensure that the critical role played by the UKCES in co-ordinating the collection and use of data on skill needs for policy making is handed over to another body, perhaps to the new "single authoritative source" alluded to in the United Kingdom's recent green paper on industrial strategy.

The UK's commitment to resolving skill imbalances is reflected in a number of national skills policy documents and a tapestry of policies are in place to improve matching of skill supply and skill demand. Recent reforms to the regulation of apprenticeships aim to bring the classroom portion of apprenticeship training more in line with the needs of employers. The new apprenticeship levy, too, is intended to encourage employers to take more responsibility for training. The move from grants to income-contingent loans for higher education students is likely to promote better alignment of choice of degree with market signals, as are the Advanced Learner Loans for further education, though take-up for these remains low. Planned devolution of the Adult Education Budget could also help to improve responsiveness of further education to local labour market needs. Substantial funding is allocated to higher education to stimulate provision of education related to science, technology, engineering and mathematics (STEM), as these skills are in shortage. In employment policy, Universal JobMatch facilitates matching of job seekers with vacancies through an online website, and the Sector-Based Work Academies have proven successful in activating and reskilling the unemployed. A recent UK green paper sets out an industrial strategy that has a strong

skills focus, and proposes investing more in science, research and innovation which could promote stronger demand for higher-level skills.

But challenges remain in matching skill supply with skill demand in the United Kingdom. Poor literacy and numeracy impair the employability of young adults. Career guidance services fail to inform students about vocational pathways and engagement with employers is weak. Incentives for lifelong learning for individuals are in place (including free basic skills training, Union Learning and Advanced Learner Loans) but could be expanded and better tied to skill needs, as could training opportunities for the unemployed. With respect to the apprenticeship system, the new apprenticeship levy is likely to incentivise employers to rebadge existing training as apprenticeship, and assuring the quality of apprenticeship training must be prioritised. Finally, demand for higher-level skills is low relative to the supply of such skills, and more efforts are needed to improve skills utilisation and to stimulate innovation and growth in knowledge sectors.

The main recommendations to better address skill imbalances in the United Kingdom are listed in the box below and more detailed recommendations are provided in Chapter 4.

Key recommendations

Career guidance services

- Repeated employer interactions during secondary schools should become a cornerstone of career guidance strategies. Facilitate navigation of the abundance of available career guidance information by incorporating the use and analysis of online data portals (e.g. LMI for All, National Career Service website) into secondary school curriculum.
- Consider expanding Jobcentre Plus' role in sourcing career guidance to include not only the unemployed and Universal Credit recipients, but also employed workers who do not receive benefits. Providing the employed with access to fee-for-service career guidance counselling provided by approved recruitment agencies, with waivers for those facing redundancies, would facilitate career shifts in the face of evolving skills demand.

Lifelong learning

- Stronger incentives could be put in place to encourage lifelong learning among adults. To encourage workers to upskill to meet the changing needs of the economy, the Advanced Learner Loans could be made more attractive for low-skilled workers by tying waivers of repayment to employment in certain shortage occupations. Consider also introducing other training incentives which are tied to individuals rather than jobs, e.g. personal learning accounts or paid training leave, with use limited to in-demand skills.

Apprenticeship system

- Improve the business case for training among employers. Unless employers are convinced that low levels of training are a problem, incentives to encourage more training are unlikely to lead to new training activities. Building an evidence base of successful employee training examples that have led to high return on investment for employers could help to raise awareness among employers about the potential value of training.
- Survey evidence suggests that many employers plan to use the new apprenticeship levy by rebranding general training as apprenticeships. To preserve the quality of the apprenticeship brand, consider reframing the apprenticeship levy as a broader "training levy," with the requirement that most levy funds be spent developing in-demand skills.

Key recommendations *(cont.)*

Weak demand for higher-level skills

- Develop a skills utilisation policy by funding a set of pilot initiatives to test "what works" in terms of adapting work organisation and management practices to make better use of employees' skills.

Access to quality schooling

- Strengthen efforts to attract STEM graduates to teaching, by expanding bursaries for STEM students that are conditional on a commitment to teach after graduation. Enhance incentives to attract and retain higher quality teachers to schools in lower socio-economic areas in order to reduce disparities in access to quality schooling.

Use of skill needs data in policy making

- To strive for consistency in skill policy over time, improve evaluation of policies, and ensure that large-scale policy initiatives are preceded by a pilot. Ensure that the critical role played by the former UKCES in co-ordinating skill needs data collection and its use in policy making is handed over to another body, perhaps the new "single authoritative source" alluded to in the United Kingdom's recent green paper on industrial strategy.

Chapter 1

Key drivers of skills demand and supply in the United Kingdom

Skills imbalances are driven by structural and cyclical factors that shape the demand for and supply of skills. For instance, economic growth, changes in the composition of economic output and broad-based trends like globalisation, technological advancement and demographic change are all important macroeconomic factors influencing the demand for skills. On the other hand, the supply of skills is affected by labour market trends, migration, and skills and education outcomes. This chapter discusses the main factors influencing the demand and supply of skills in the United Kingdom, and describes the current state of skills imbalances.

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

Key economic trends

Economic growth, changes in the composition of economic output over time, and the country's openness to trade and migration are all important macroeconomic factors influencing the demand for skills. In the United Kingdom,[1] a strong recovery has taken hold, with GDP having grown faster than both the EU and OECD averages between 2012 and 2015 (Figure 1.1). While the economy grew by 1.8% in 2016, down from 2.2% in the year before, the referendum vote on membership in the European Union ("Brexit") in June 2016 has not had as strong a negative short-term impact on growth as many forecasters predicted, due in part to supportive monetary policy which mitigated the effect of increased uncertainty on consumer spending and business investment.

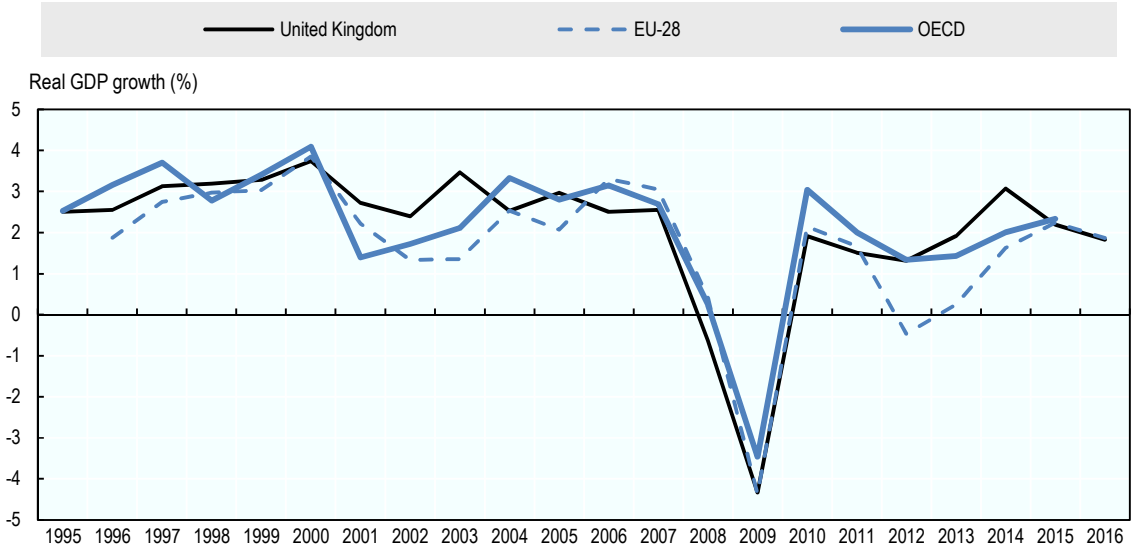
Relatively strong growth has translated into employment growth and low unemployment rates. Since 2012, the proportion of working-age Britons (age 15 to 64) who are employed has grown, and this percentage reached a record 73.3% in the first quarter of 2016, well above the OECD average of 66.8%. Consequently, the unemployment rate fell to 5.0% in 2015, its lowest level since 2005 (Figure 1.2), and the Bank of England projects that the unemployment rate will remain at 5% until early 2019. At 30.7%, the share of unemployed who stay unemployed for a year or more (the long-term unemployment rate) is now below crisis levels, below the OECD average of 33.8%, and well below the EU average of 50%.

Another indicator of how successful the United Kingdom has been at activating skills, the youth unemployment rate (the share of youth aged 15-24 in the labour force who are unemployed) declined from a recessionary peak of 22.2% to reach 13.4% in Q4 2015, which is on par with the OECD average (OECD, 2016a). The share of young people neither employed nor in education or training (NEET), an additional measure of the labour market status of youth, has also declined to lower than pre-crisis levels (13.6% of young people age 15-29 in 2015, vs 14.6% in 2007), and is lower than the OECD average of 14.6% (OECD, 2016a). Furthermore, few NEETs have a low education level (below upper secondary schooling), and are therefore at an elevated risk of permanent economic disadvantage because of their poor skills (4.7% relative to OECD average of 5.6%).

The share of part-time employment is another telling measure of the degree of skills activation in an economy. While employment rates in the United Kingdom are relatively high, the recovery in employment since the crisis has largely resulted from increases in part-time work and self-employment (OECD, 2015a; Wales and Amankwah, 2016). Part-time jobs now account for 25% of the workforce, while self-employed work accounts for 14% (Colebrook et al., 2015). Much of the recent growth of part-time work and self-employment is among older workers, many of whom report preferences for this type of work (Wales and Amankwah, 2016). However, the proportion of total employment in involuntary part-time work in the United Kingdom doubled during the crisis, from 2.3% in 2007 to 4.9% in 2013. While this proportion has since come down to 3.8% in 2016, it still represents a big jump relative to other OECD countries, and points to a pocket of unused skills at risk of depreciation and obsolescence.

Figure 1.1. GDP volume growth, United Kingdom, European Union and OECD, 1995-2016

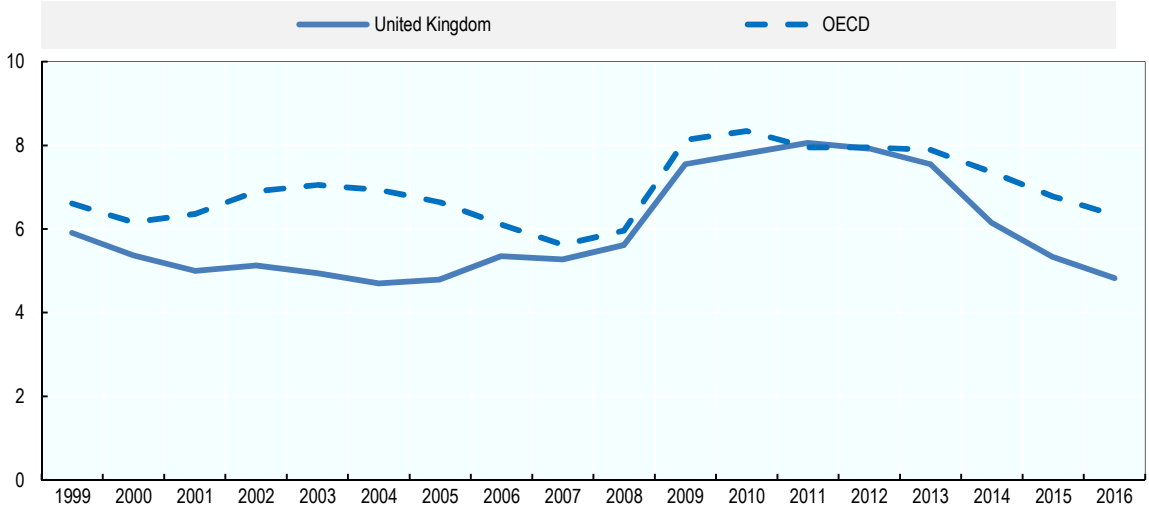
Real GDP growth rate (%)



Source: *OECD National Accounts Database.*

Figure 1.2. Unemployment rate, United Kingdom and OECD, 1999-2016

Harmonised unemployment rate (%)



Note: Harmonised unemployment rates define the unemployed as people of working age who are without work, are available for work, and have taken specific steps to find work. The uniform application of this definition results in estimates of unemployment rates that are more internationally comparable than estimates based on national definitions of unemployment. This indicator measures the number of unemployed people as a percentage of the labour force and it is seasonally adjusted.

Source: OECD Short-Term Labour Market Statistics.

Flows of labour into and out of the United Kingdom through migration have an important impact on the supply of skills. Sustained inflows of well-educated immigrants have boosted the skills and size of the working-age population in the United Kingdom over the last 20 years, and the share of the working-age population born outside of the UK is now double the 1995 level and on par with other OECD countries (OECD, 2015a; Wadsworth, 2015). Currently, labour migration consists of free movement of European Economic Area (EEA) citizens and restricted migration from outside the EEA via a points-based system that facilitates entry of skilled migrants. Over the last few years, the goal of UK immigration policy has been to encourage immigration of skilled migrants while reducing overall immigration (Home Office, 2015). As a result of this selective migration, immigrants to the United Kingdom are younger and more educated than their UK-born counterparts, and this educational attainment gap has risen over time (Rienzo, 2016; Wadsworth, 2015). With Brexit, the government has reiterated its policy objective to reduce net immigration, while emphasising the importance of attracting "the right skills" to the United Kingdom, possibly through extending the work permit system – points-based or not – to EU citizens.

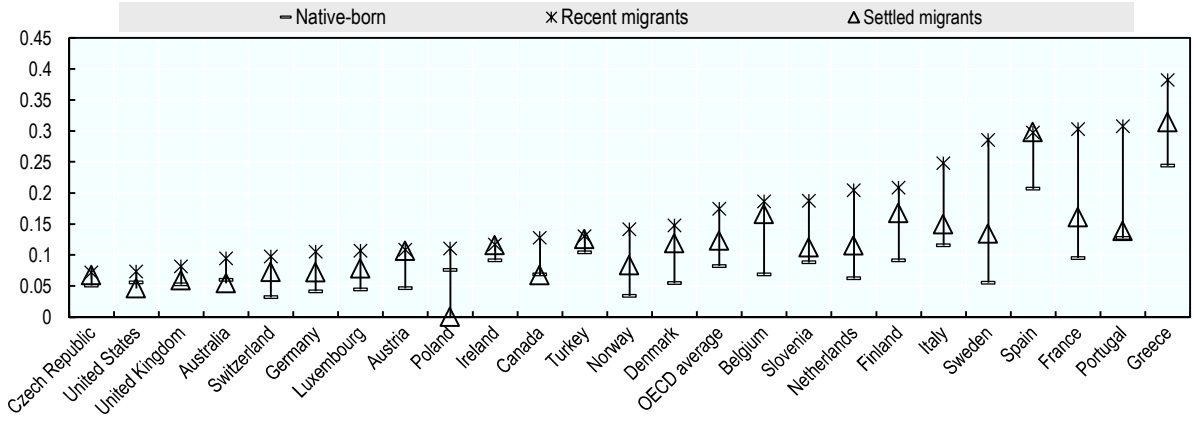
The United Kingdom also attracts an impressive 12.6% of the worldwide market share of international tertiary-level students, second only to the United States (16.4%). The UK's share of the global market has grown more than any other country since 2000, suggesting its tertiary educational system presents a strong draw for foreign talent (OECD, 2015b). However, the number of international students coming to the United Kingdom has fallen since 2010 (Blinder, 2016a), possibly owing to changes to visa requirements for international students which restricted their ability to remain in the United Kingdom after graduation (Blinder, 2016a). Indeed, the number of people who previously held study visas who were granted extensions to remain in the United Kingdom under a new visa category (work or family) fell since 2012 when the 'post-study work' route was closed, from 44 100 to 11 100 people in 2015 (Blinder, 2016a).

The foreign-born population in the United Kingdom has better labour market performance than the OECD average for foreign-born populations. In 2015, settled working-age migrants faced an unemployment rate of 5.9%, compared with 5.2% for the native-born, a gap of only 0.7 percentage points, which is low relative to the OECD average gap of 4.1 percentage points (see Figure 1.3). Even for migrants who arrived within the last five years, their unemployment rate is only 2.9 percentage points higher than the native-born, compared with an average gap of 9.2 percentage points across the OECD. This difference is larger for highly-educated immigrants than for low-educated immigrants: highly-educated immigrants face unemployment rates that are 2.7 percentage points higher than their native-born counterparts, while low-educated immigrants in the United Kingdom face nearly identical unemployment rates to their native-born counterparts (15.0% vs. 14.3%) (OECD, 2015c).

Labour productivity growth, which is closely related to the skills of the workforce and how they are allocated in the workplace (Adalet McGowan and Andrews, 2015), has generally remained near pre-downturn levels since the crisis, and below the OECD average (see Figure 1.4; Office for National Statistics, 2016a, 2016b). Labour productivity varies significantly across regions in the United Kingdom, reflecting differences in education and skills, along with management practices, transport access and exposure to foreign markets (CBI, 2016). The city of London is estimated to have 70% higher labour productivity than the UK average (HM Government, 2017).

Figure 1.3. Unemployment rate by place of birth and duration of stay, available OECD countries, 2015

Unemployment rate, population aged 15-64

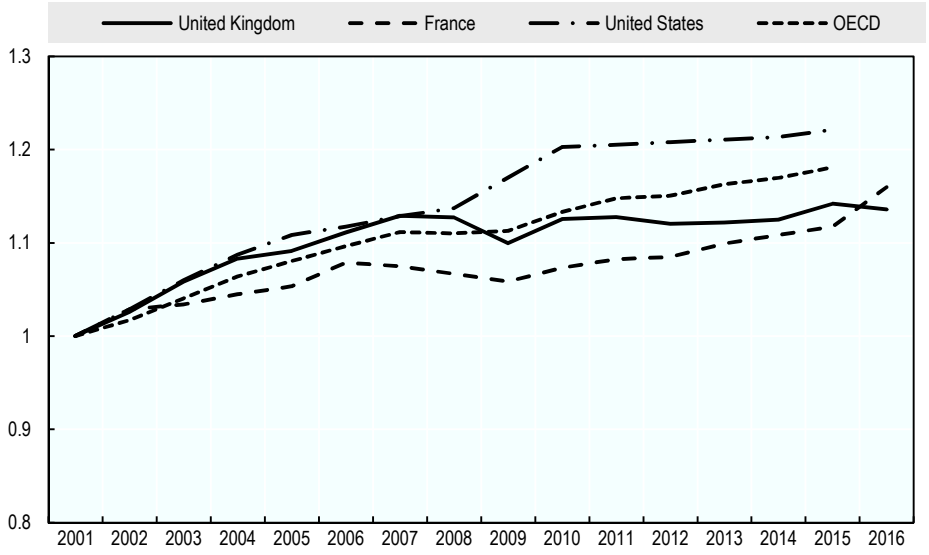


Note: Recent migrants are those who arrived within the five years preceding the survey and settled migrants are those who arrived at least five years before the survey. The OECD average excludes Poland.

Source: *OECD International Migration Outlook 2016*.

Figure 1.4. Labour productivity has generally remained near pre-crisis levels

GDP per hour worked, 2001=1, 2001-16



Source: OECD (2017), GDP per hour worked (indicator).

A mixed picture emerges regarding the demand for higher-level skills in the United Kingdom, and several indicators suggest strong demand for both higher-level and lower-level skills. As in other OECD countries, the UK economy has shifted away from manufacturing and towards services, with services as a share of output having increased from 69.3% to 77.9% from 1997 to 2014, while the share of manufacturing declined from 18% to 11% (Office of National Statistics).[2] Growth in services has taken place in both

knowledge-intensive services like finance, business services, and information and communications technology (ICT), but also in lower-skill service sectors, like personal care and sales (Department for Business Innovation and Skills, 2012; Salvatori, 2015). Declines in manufacturing activity have led to a drop in employment in middle-skill occupations, particularly in craft occupations (namely bricklayers, tillers and builders and jobs in metal, electrical and electronic trades) and plant and machine operatives (Salvatori, 2015). While growth in employment since the early 1980s was observed in both the highest-paid (top two deciles) and lowest-paid (bottom two deciles) occupations, most employment growth took place in the highest-paid occupations (Green, 2016; Salvatori, 2015).

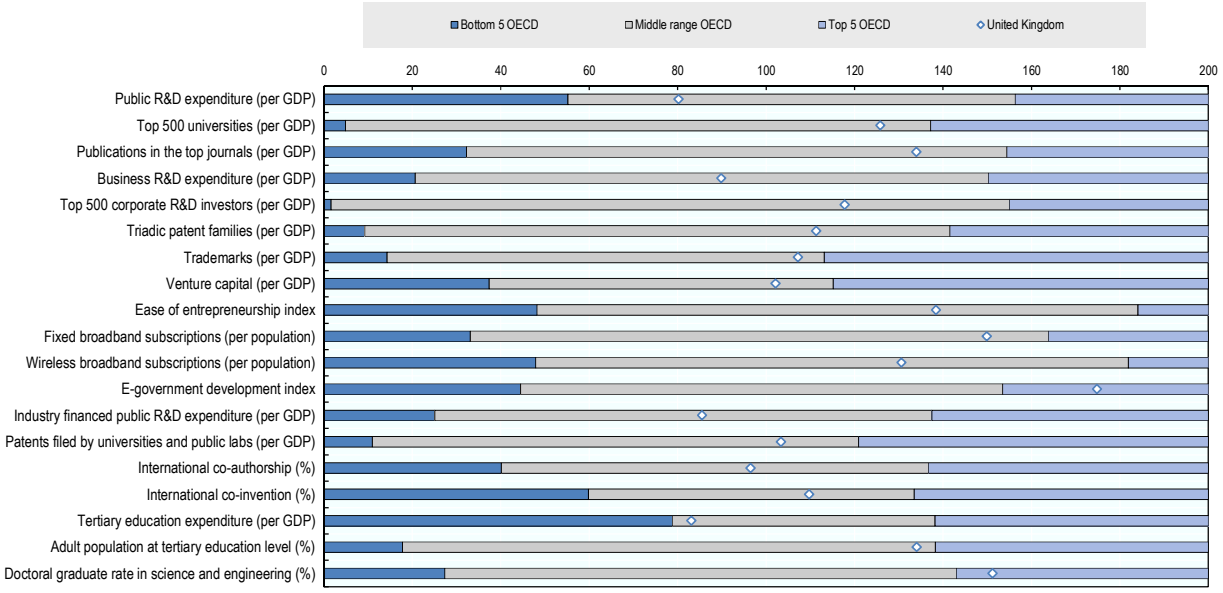
UK export trends also point to strong demand for higher-level skills. Exports are dominated by goods (60% of exports), particularly manufactured goods, though the share of services in exports has been rising and the country now exports a larger value of services than any other EU member state (both within the European Union and outside) (Eurostat). Most of these services exports are in knowledge-intensive services: in 2010, the United Kingdom exported 18% of the world share of financial services, 8% of the world share of business services and 5% of the world share of ICT services, which together represented nearly 90% of all services exported from the United Kingdom (Department for Business Innovation and Skills, 2012). Also, about 21% of the UK's manufactured exports have high R&D intensity (i.e. spending on R&D divided by total sales), which is above average relative to other high-income countries (17.9%) and Europe and Central Asia (16.1%), and points to relatively strong demand for higher-level skills in the export manufacturing sector.

On the other hand, science and innovation indicators provide weak evidence of demand for higher-level skills in the UK economy. Most notably, public and private spending on R&D is low (1.7% of GDP versus OECD average of 2.4% in 2014), and falls far behind Germany (2.9%), the United States (2.7%), and France (2.3%). On many science and innovation indicators, the United Kingdom is in the middle of the pack (see Figure 1.5). The only science and innovation indicators where the United Kingdom leads are in e-government development (a measure of ICT use in public administration), and the doctoral graduate rate in science and engineering.

In terms of educational qualifications, demand is highly polarised: there are many jobs with high educational requirements, but also many jobs with low educational requirements. Figure 1.6, based on the OECD Survey of Adult Skills, shows that the United Kingdom (specifically, England and Northern Ireland) is second from the top (only behind Spain) in terms of percentage of jobs that require lower-level qualifications: 22% of jobs in the United Kingdom require only primary education or less, whereas in all other G7 countries this share is less than 10%, and in Germany it is 0%. Demand for lower-level qualifications in the United Kingdom is in line with supply: 22% of jobs in the United Kingdom require only primary education or less (Figure 1.6), and 21% of adults have this level of qualification (Figure 1.7). On the other hand, demand for higher-level qualifications falls short of supply, with only a third of jobs requiring a tertiary education, while 43% of UK adults have this level of qualification.

Figure 1.5. Comparative performance of national science and innovation systems, United Kingdom and OECD, 2014

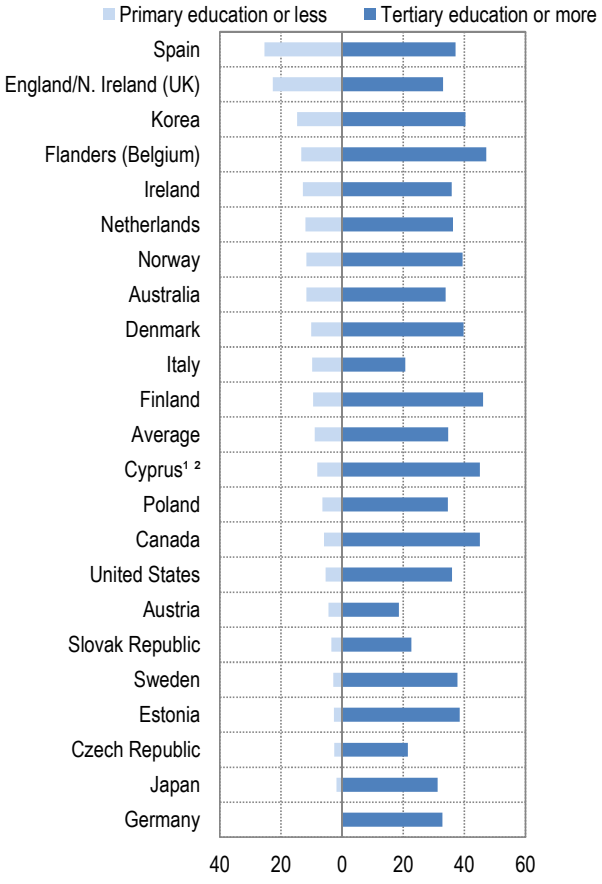
Normalised index of performance relative to the median values in the OECD area (Index median = 100)



Source: *OECD Science Technology and Industry Outlook* (2014).

Figure 1.6. Polarised demand for high and low skills in the United Kingdom

Percentage of workers in jobs requiring primary education (ISCED-1) or less and in jobs requiring tertiary education (ISCED-5 or higher)



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

2. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: *OECD Skills Outlook* (2013), Figure 4.24. Based on data from the Survey of Adults Skills (PIAAC) 2012.

Key education and skills trends

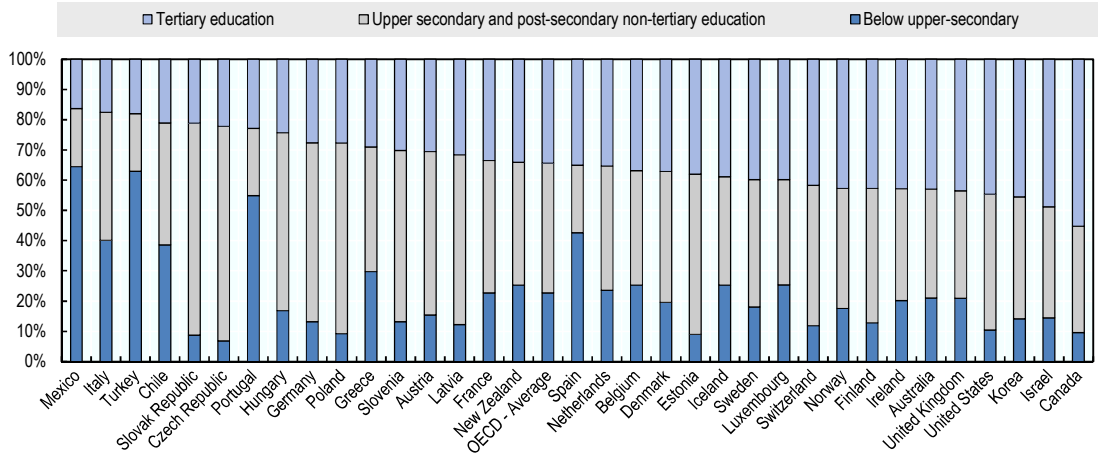
In addition to labour market trends, the supply of skills in the labour market also depends on the availability and quality of education and training. While the United Kingdom has more university graduates per capita than the OECD average, many young adults have low levels of literacy and numeracy.

Educational attainment in the United Kingdom has been rising, and now compares favourably to other OECD countries. In 2014, 42% of UK citizens aged 25-64 had completed tertiary education, compared with only 34% across OECD countries (see Figure 1.7). The share of the population with a tertiary degree surged since 2000, when

only 26% had attained this level. At the same time, a much smaller share now has only a high-school education: 21% compared to 37% in 2000. This expansion of access to tertiary education in recent years was brought about by government reforms which raised the tuition fee cap, while simultaneously introducing more generous loans and grants, and scholarships for high-achieving students from low-income households (OECD, 2014a, 2015d). Education is strongly linked to labour market outcomes in the United Kingdom, with tertiary graduates enjoying one of the lowest unemployment rates across OECD countries at 2.7% in 2015, only higher than Japan (2.6%), Norway (2.5%), Germany (2.3%), Hungary (2.2%), and the Czech Republic (2.2%).

Figure 1.7. Educational attainment of the adult population, OECD countries, 2015

Percentage of population aged 25-64



Note: Data refer to 2013 for Chile and 2014 for France.

Source: OECD Education at a Glance 2016.

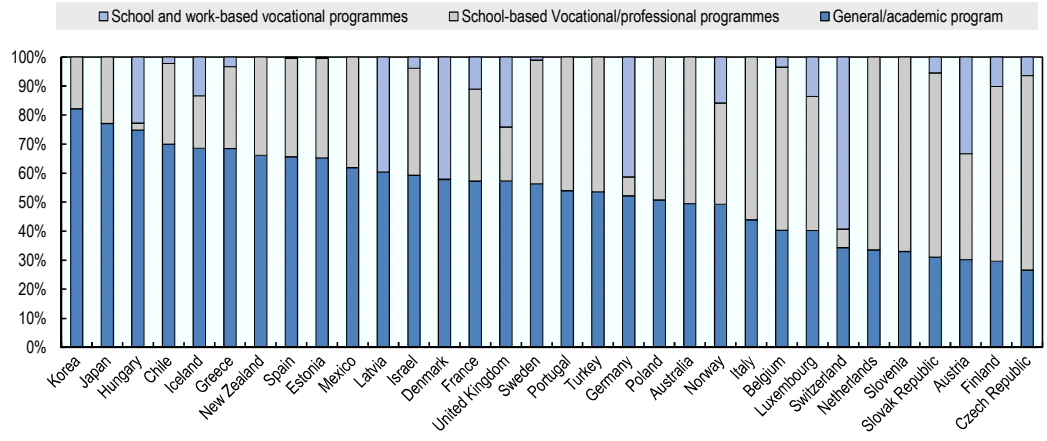
Several indicators suggest that the UK education system actively encourages the development of STEM skills (science, technology, engineering and mathematics). Sixteen per cent of tertiary students graduate in the field of sciences in the United Kingdom – more than in any other OECD country. Among students with a bachelor's or equivalent, one out of five graduates from a science programme, which is twice the OECD average for this level. At the doctoral level, a third of graduates earn a PhD in sciences, which is higher than the OECD average of 27%. Furthermore, nearly half of science graduates in the United Kingdom are women – a higher proportion than in most other OECD countries (OECD, 2015d). Although the UK education system produces many STEM graduates, more than half of them end up in non-science-related occupations, such as finance or the public sector (BIS, 2011).

While the production of technical skills has been increasing in the United Kingdom, the level of qualifications remains low. Among upper secondary students, those enrolled in initial vocational education and training rose between 2011 and 2014, from 36% to 43% (European Commission, 2015). This is still far below the level observed in many European countries, including Austria (69.3%), the Czech Republic (73.4%), and Finland (70.4%) (see Figure 1.8). About 24% of upper secondary students in the United Kingdom pursue apprenticeships, which is lower than other countries which offer apprenticeships at this level, like Switzerland (59%), Germany (41%) and Denmark (42%) (Figure 1.8).

While participation in apprenticeships increased between 2010 and 2014, the level of qualification acquired through apprenticeships remains low, with the highest level of apprenticeships (Levels 4-7,[3] equivalent to a Foundation degree[4] and above) making up only 3.3% of total apprenticeships in 2014/15, though this share appears to be rising (Figure 1.9). In 2014, only about 10% of adults in the United Kingdom held technical education as their highest qualification, placing the United Kingdom 16th out of 20 OECD countries (HM Government, 2017; OECD, 2014b).

Figure 1.8. Distribution of students enrolled in upper-secondary education, by programme orientation, 2014

Percentage of all secondary students

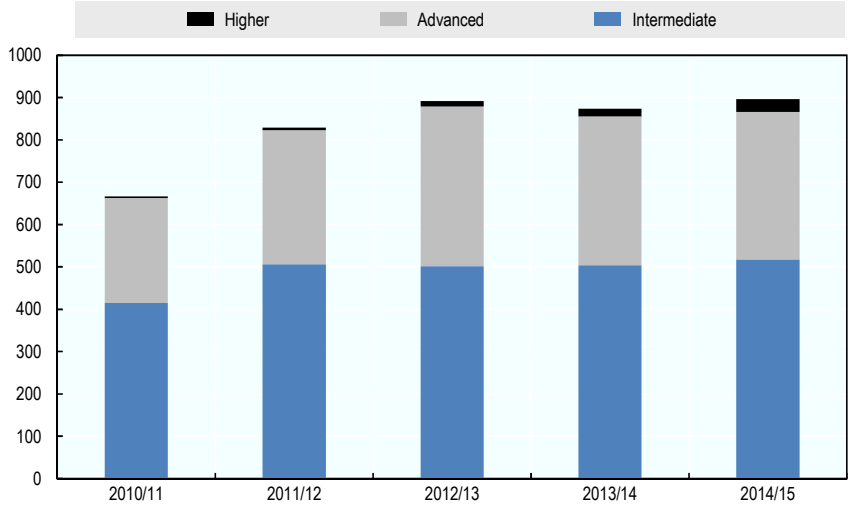


1. When no separate data on school and work-based vocational programmes is available, the students from this category are included in the school-based programmes category.
2. 2013 data used for Canada and Iceland.

Source: OECD Education at a Glance Database.

Figure 1.9. Apprenticeship participation by level, England

Number of apprentices (x 1,000), 2010/11-2014/15



Source: Statistical First Release (23 June 2016). UK Department for Business, Innovation & Skills.

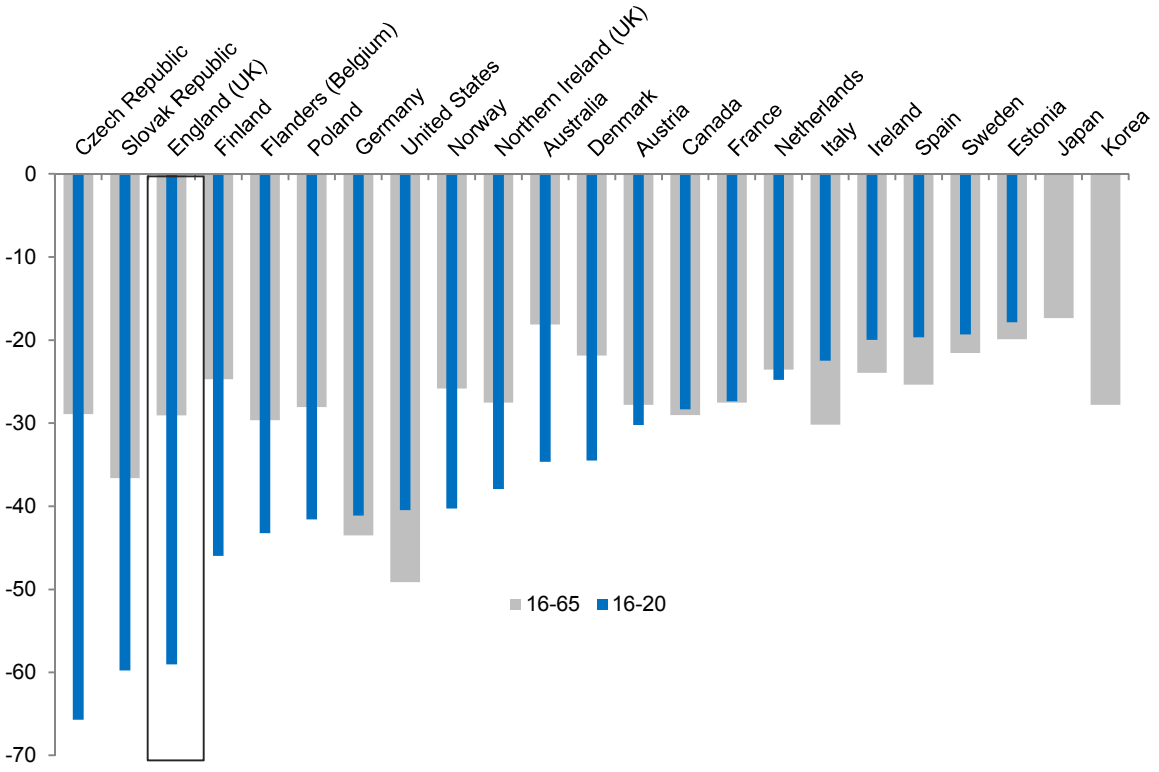
International skills assessments provide an indication of the quality of education and training. In 2015, 15-year-old students in the United Kingdom performed at around the OECD average in mathematics, with above-average scores in science and reading, based on the Programme for International Student Assessment (PISA). Average student performance remained unchanged over previous rounds of the PISA (2000, 2003, 2006, 2009 and 2012).

But while 15-year-old Britons perform at or above the OECD average in basic skills, many young adult Britons have low levels of literacy and numeracy. Based on the OECD Survey of Adult Skills (PIAAC), young adults (16-24 year-olds) in England and Northern Ireland have lower literacy and numeracy skills than their peers in almost all other participant countries. Even among university students, about one in ten have low numeracy or literacy levels (see Figure 1.11), which contributes to the wide variation in wages observed among tertiary graduates (OECD, 2014a). Whereas tertiary-educated adults who have the lowest proficiency in literacy earn 50% less than tertiary-educated adults with the highest literacy proficiency in England and Northern Ireland, this difference is only 30% among countries participating in the survey. England is also among a minority of countries where young people perform worse on literacy and numeracy than either prime-aged adults (25-54) or seniors (55-65). This decline in test scores from generation to generation could suggest deterioration in the quality of schooling over time (OECD, 2016b).

Basic skills of young adults are also strongly related to parental education in England (see Figure 1.10), much more so than in other OECD countries. Young people born into households where neither parent attained at least upper secondary education face inherent disadvantages in accessing quality education and labour market opportunities.

Figure 1.10. Basic skills are strongly related to parental education in England

Score point difference in numeracy between (a) persons for whom neither parent attained at least upper secondary education and (b) persons for whom at least one parent did. Comparison of two age groups

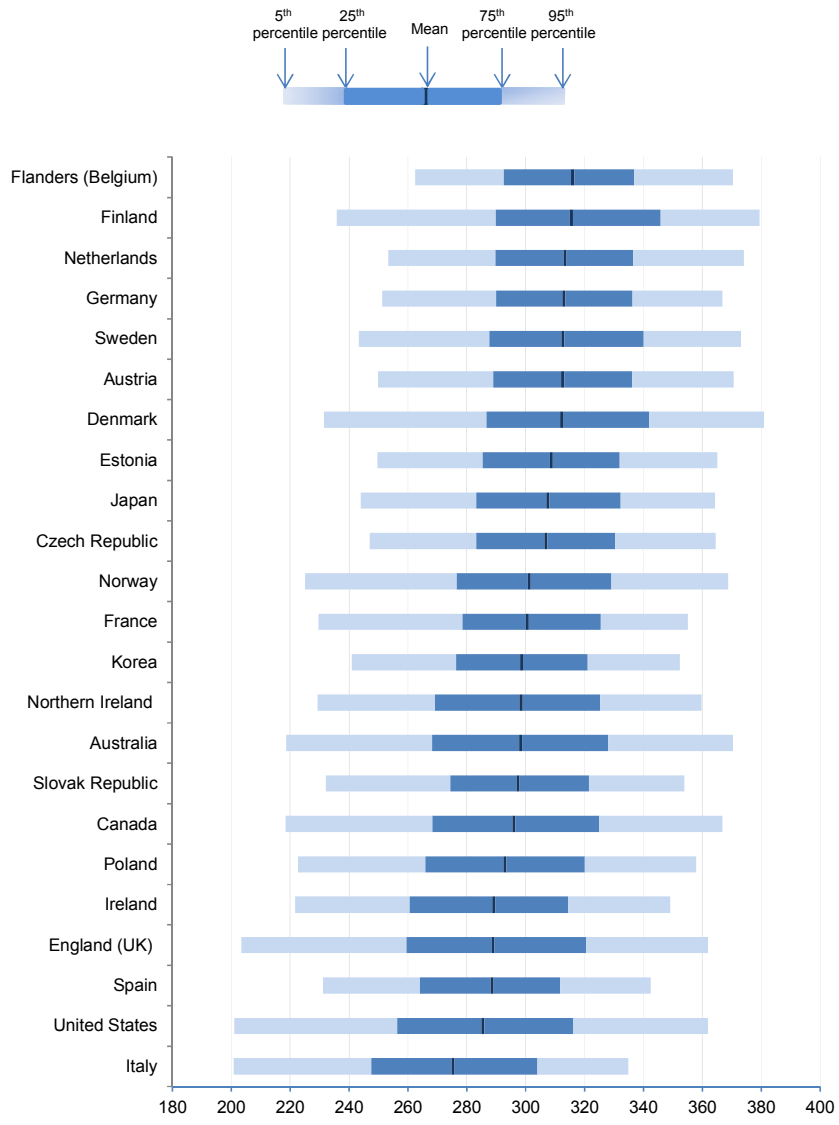


Note: Only statistically significant results are reported: in Japan and Korea, parental education is not significantly associated with numeracy performance of 16-20 year-olds.

Source: OECD (2016), "Building Skills for All: A Review of England", Figure 1.3. Based on the Survey of Adult Skills (PIAAC) 2012.

Figure 1.11. England has more university students with weak literacy and numeracy skills than most countries

Distribution of numeracy (chart on the right) and literacy (chart on the left) skills among current university students, 16-34 year-olds



Source: OECD (2016), "Building Skills for All: A Review of England", Figure 3.2. Data from the Survey of Adult Skills (PIAAC) 2012.

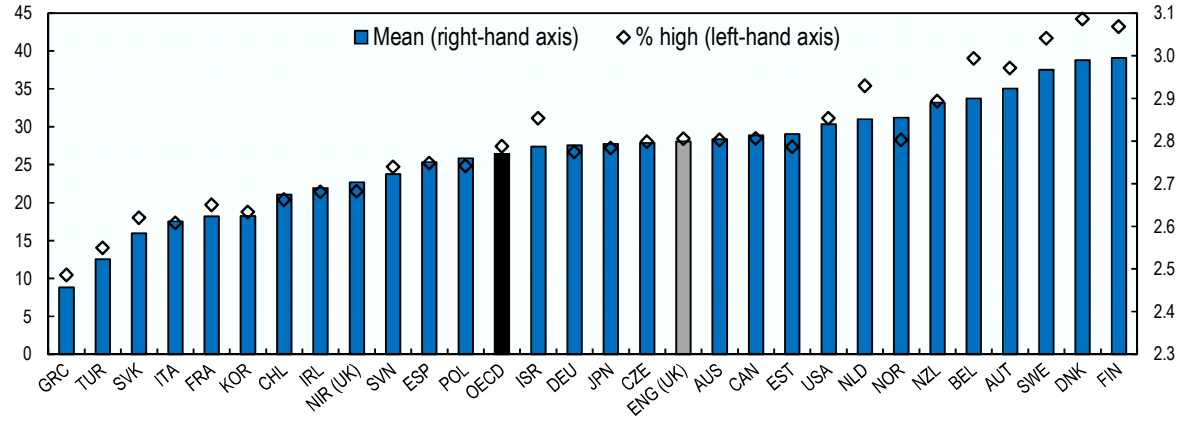
Given that many working-age adults have low basic skills, opportunities to continue learning while working are particularly critical to equip workers with the necessary skills to benefit from globalisation and technological change. In England and Northern Ireland, 56% of adults aged 25-64 participated in at least one learning activity, in either formal and/or non-formal education and whether work-related or not, in the year prior to the 2012 Survey of Adult Skills. This level of adult learning is above the average across countries (51%), and compares with that observed in Canada (58%) and Australia (56%),

though it is lower than that observed in the Netherlands (64%) and the Nordic countries (66% in Sweden, Denmark and Finland and 64% in Norway) (OECD, 2014a). Like in other countries, participation in learning activities is strongly correlated to skill proficiency, with higher-skilled adults more likely to take up training (OECD, 2014a). About a quarter of unemployed (age 15-64) in the United Kingdom report having participated in some form of education and training in the last four weeks, which is high relative to the EU average of 13.7%, and on par with Switzerland, Norway, Finland, and the Netherlands, but lags behind Iceland (49.7%) and Sweden (53.6%) (Eurostat).

In addition to accessing lifelong learning, it is also important that employees' skills be used on the job – otherwise they depreciate, representing a costly lost investment. High-Performance Work Practices (HPWP) contribute to greater skill use at work, and as a result, to higher productivity (OECD, 2016a). HPWPs can increase a firm's ability to adapt job tasks to the skills of employees, and include emphasis on teamwork, autonomy, mentoring, job rotation and application of learning, as well as management practices that provide incentives for workers to deploy their skills at work more fully, like bonus pay, training provision and flexibility in working hours (OECD, 2016a). Figure 1.12 shows that England performs at the OECD average in terms of the share of jobs that implement HPWPs (about 28%). Scandinavian countries lead the pack, with just less than 50% of jobs implementing HPWPs.

Figure 1.12. High-Performance Work Practices

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



Source: OECD Survey of Adult Skills (PIAAC), 2012, 2015.

Skills shortage and mismatch

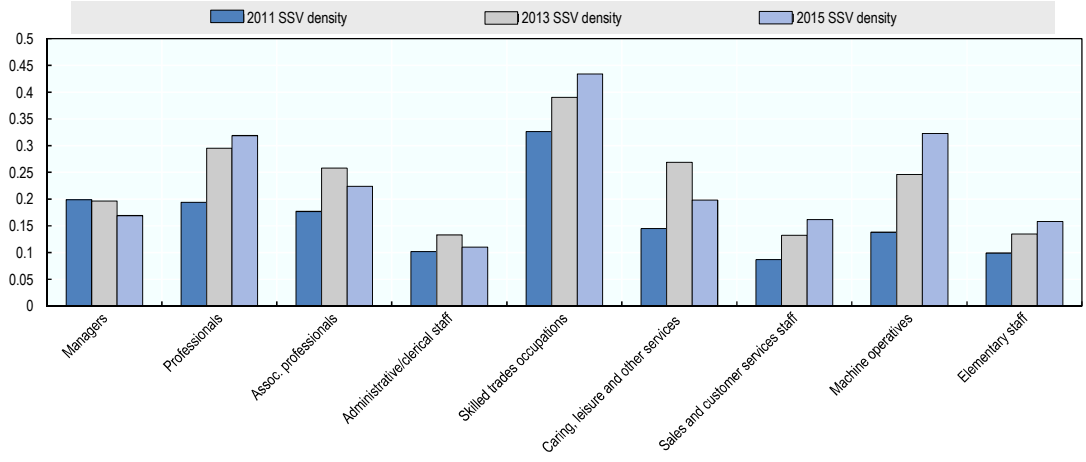
The UK Government recognises skill imbalances as a costly challenge that warrants a policy response. For instance, the UK Commission for Employment and Skills (UKCES),[5] a non-departmental public body sponsored by the Department for Business, Innovation and Skills (BIS), which was dismantled in March 2017, assessed that skill shortages, gaps and mismatch represent barriers to UK economic growth and productivity (UKCES, 2015a), while the UK Government's Post-16 Skills Plan identified weaknesses in the skills base as a contributor to the UK's long-standing productivity gap with France, Germany and the United States (BIS, 2016a). In its recent green paper mapping out a new industrial strategy, the UK Government also argued that skills shortages in some parts of

the country contribute to imbalances in productivity in the United Kingdom (HM Government, 2017).

That said, skill shortages at the national level are relatively low in the United Kingdom, as suggested by employer surveys. According to the UK Employer Skills Survey (ESS), a nation-wide employer survey run by the UKCES, only 6% of all employers had at least one skill-shortage vacancy in 2015, and this had not changed much since 2011 when 3% of employers reported skill-shortage vacancies. As a percentage of all vacancies, skill-shortage vacancies increased between 2011 and 2015, from 16% to 23%, with smaller firms reporting close to a third. Furthermore, some sectors have more difficulty filling vacancies due to skills shortages than others. Both construction and financial services were identified as sectors facing "heightened difficulties in recruiting staff", while employers also reported ongoing skills shortages in manufacturing, despite declining employment levels (UKCES, 2015a). In terms of occupations rather than sectors, skilled trades comprise nearly half of all occupations with skill-shortage vacancies (43%), while recruitment of machine operators and professionals also pose a recruitment challenge for employers (see Figure 1.13). In 2013, 43% of vacancies for professionals working in science, research, engineering and technology were deemed hard to fill due to skills shortages, which was almost twice the average for all occupations. Moreover, the reported skill shortages in STEM professions were primarily due to a lack of technical skills (as opposed to soft skills, for example). This evidence established a strong case for policy to boost supply of STEM skills (UKCES, 2015b).

Figure 1.13. Density of skill-shortage vacancies, by occupation

Percentage of total vacancies that are deemed to be skill-shortage vacancies



Note: SSV – skill-shortage vacancy.

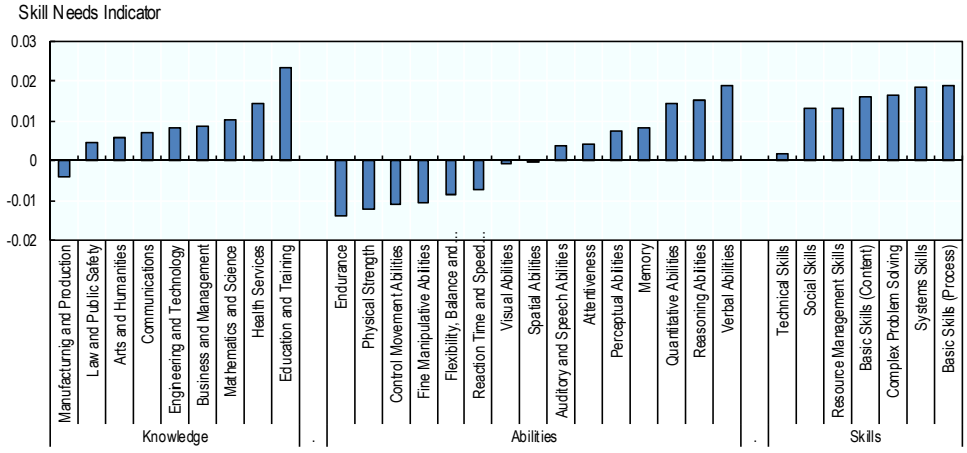
Source: Employer Skills Survey 2011, 2013, and 2015.

The 2016 Manpower Global Talent Shortage Survey reports higher levels of skill shortages but still places the United Kingdom well below the international average, with 18% of employers in the United Kingdom having difficulties filling jobs compared to the global average of 40%. This share has increased slowly since plunging from 34% to 12% between 2007 and 2008 due to the financial crisis, when poor economic growth meant that employers had much lower demand for labour and skills. In line with the findings of the ESS survey, the biggest skill recruitment difficulties are reported for jobs in skilled trades, engineering, transportation (drivers), and sales.

But employer surveys are subjective in nature, and should not be solely relied upon to assess skill shortages. The new OECD Skills for Jobs database offers an alternative measure of skill shortage and skill surplus that relies upon quantitative information about wages, employment and talent pressure, rather than subjective reports from employers.[6] Figure 1.14 shows that many skills are in shortage in the United Kingdom, and only a few physical abilities (e.g. endurance, physical strength, control movement) and knowledge of manufacturing and production are in surplus. The biggest skill shortages are evident in knowledge related to education and training, health services and STEM subjects, as well as in more transversal skills like verbal abilities, quantitative skills, complex problem solving, reasoning and social skills. Under the umbrella of STEM-related skills, and at a more disaggregated level (not displayed in Figure 1.14), knowledge of computers and electronics emerges as one of the biggest skill shortages.

The OECD Skills for Jobs database also provides measures of qualification and field-of-study mismatch. Figure 1.15 shows that in 2015, 40% of British workers were employed in an occupation for which they did not have the correct qualification. One in four employees work in occupations for which a higher level of qualification is generally required, i.e. they are under-qualified for their occupation. An additional 15% of employees work in occupations which normally require a lower level of qualification (i.e. they are over-qualified). While the level of over-qualification in the United Kingdom is close to the EU average, the United Kingdom exhibits one of the highest levels of under-qualification across the European Union.[7] Field-of-study mismatch – the share of workers who are employed in a field that is different from their area of specialisation in school – is higher in the United Kingdom (39.8%) than across the EU on average (31.5%). To the extent that field-of-study mismatch originates from the fact that workers are able to use their skills in a number of different fields, it is not a problem. However, 34.5% of workers who are mismatched by field of study in the United Kingdom are also over-qualified (Skills for Jobs database), suggesting that they may have had to accept a job below their educational level, possibly as a result of a skill surplus in their area of study.

Figure 1.14. Skills shortage and surplus, United Kingdom, 2013

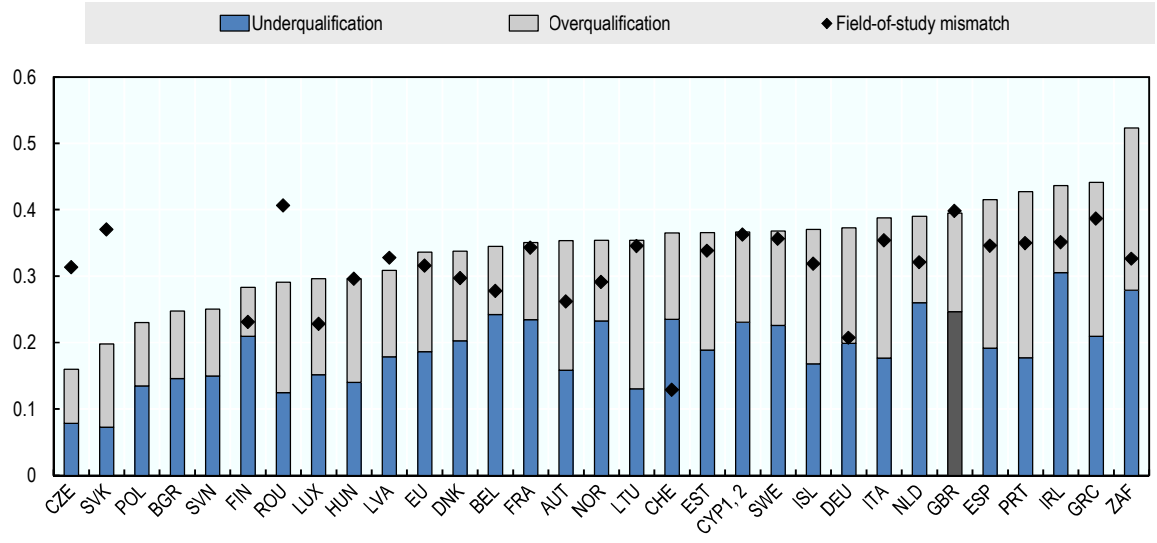


Note: Positive values indicate shortages while negative values indicate surpluses. Basic skills (Process) refer to those that contribute to the more rapid acquisition of knowledge and skill across a variety of domains (e.g. critical thinking, active learning, etc.). Basic skills (Content) refer to foundational structures needed to work with and acquire more specific skills in a variety of domains (e.g. reading comprehension, listening, writing, speaking, basic math and science).

Source: *OECD Skills for Jobs Database 2017*.

Figure 1.15. Qualification and field-of-study mismatch, European countries and South Africa, 2015

Share of employees, 15-64



Note: 2013 for qualification and field-of-study mismatch in Germany. Field-of-study mismatch not available for Poland, Bulgaria and Slovenia

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

2. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: *OECD Skills for Jobs Database 2017.*

Notes

1. This country review will present data and analysis about skill imbalances in the United Kingdom as a whole. However, each of the United Kingdom's four countries (England, Northern Ireland, Scotland and Wales) is responsible for its own education policy and funding arrangements. In reviewing education and training policies aimed at tackling skill imbalances, this review confines itself to England.
2. A similar shift from manufacturing to services can be observed in employment.
3. See Table 1.2 for an explanation of apprenticeship levels.
4. A foundational degree is a combined academic and vocational qualification in higher education, introduced by the UK Government in 2001. It is equivalent to the first two-thirds of an honours bachelor degree.
5. The UKCES was an executive non-departmental public body of the Department of Business, Innovation and Skills. It was comprised of social partners that include CEOs and representatives from trade unions and the voluntary sector. Government funding for BIS and UKCES was withdrawn in late 2016.
6. See OECD (2017) for more details about the methodology and results from the Skills for Jobs database.
7. These estimates contrast notably with estimates from Cedefop which are instead based on workers' perceptions of the educational requirements of the job. Cedefop finds that close to 35% of workers report being over-qualified for their jobs, while less than 5% report being under-qualified. The discrepancy between the two estimates relates to differences in methodology (Cedefop, "Evidence from Cedefop's European Skills and Jobs Survey.)

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Chapter 2

Skills assessment and anticipation system in the United Kingdom

In order to design policies that effectively tackle existing or anticipated skills imbalances, countries must thoroughly analyse their demand for and supply of skills. The findings from these skills assessment and anticipation (SAA) exercises can feed into a range of policies, including education and training, employment and migration policies. This chapter documents the different SAA exercises in place in the United Kingdom, highlighting the various information sources and involved stakeholders.

To be successful, policy intervention to address skill mismatch and skill shortages requires access to high-quality information about the current and future skill needs of the labour market. The United Kingdom already has a number of skill assessment and anticipation exercises (SAA) in place that generate this type of information.

A key player in the production and co-ordination of skill needs assessment exercises in the United Kingdom, the UK Commission for Employment and Skills (UKCES) was a publicly-funded, industry-led organisation that provided guidance on skills and employment issues before being dismantled in March 2017. UKCES produced two major employer-based surveys: the UK Employer Skills Survey (ESS) and the Employer Perspectives Survey (EPS). The Employers Skills Survey, first conducted at the UK-wide level in 2011, is based on over 91 000 telephone interviews with businesses across all sectors. Operating on a two-year cycle, it provides evidence about unfilled job vacancies at the occupational level, including those that are hard to fill due to skill shortages. The Employer Perspectives Survey is another large-scale, telephone-based survey of over 18 000 businesses across the United Kingdom that was conducted in alternate years with the ESS. It complements the ESS by collecting information on employer recruitment trends, including those skills ranked as most critical to employers. The survey also captures employers' perspectives about training and apprenticeships.[1] With the closure of the UKCES, the ESS and EPS will now be administered by the Department for Education.

The UKCES also oversaw a "Working Futures" model that generated long-term macro-economic projections of employment demand by sector, occupation and qualification level. Drawing upon data from the UK National and Regional Accounts, Input-Output Supply and Use Tables, the Labour Force Survey and census data, the model used econometric techniques to forecast sectoral and occupational employment change, and linked these forecasts to qualification requirements, taking into account labour supply projections and occupational replacement needs. In the latest round of results, industry projections were made for the period 2014-24 for English regions and the nations of the United Kingdom (Wilson et al., 2016).

The results of the Working Futures model were used by the UKCES to manage a foresight exercise of labour market and skill demand. The aim of the foresight exercise was to better prepare for the future UK labour market by exploring possible future scenarios and their implications for skills needs. Scenario development was informed by analysis of trends that shape the future of UK jobs and skills (e.g. demographic change, globalisation, technological change and change to organisational structures), as well as forecasts of the most likely disruptions to those trends. The research of trends and disruptions was based on a literature review, an expert conference and interviews with UK and international experts (Stormer et al., 2014). Discussions are underway as to whether to continue funding the Working Futures model and foresight exercise. All outputs from the Working Futures programme are available in a web portal launched by the Institute for Employment Research at Warwick University.[2]

The Migration Advisory Committee (MAC) is a non-governmental public body commissioned by the UK Government to develop and periodically review the high-skill shortage occupation list[3] that governs Tier 2 (i.e. skilled workers with a job offer) immigration decisions for non-EU work migrants. Modelling accepted best practice of combining the use of quantitative and qualitative information, the MAC uses both a "top-down" and "bottom-up" method to produce a list of occupations deemed to be facing skill shortages. Top-down evidence comes from an examination of national-level data sources,

while bottom-up evidence stems from an examination of individual occupations and job titles and is informed by engagement with stakeholders.[4] Occupations are included on the shortage list if they pass set thresholds for the majority of quantitative indicators (top-down approach), and if bottom-up evidence confirms that they should be included on the list. Consultation with stakeholders can result in the addition or removal of occupations to or from the list.

Box 2.1. UK Sector Skills Councils

Introduced in 2002, the Sector Skill Councils (SSCs) used to be central to identifying and meeting skill needs in the United Kingdom. Licensed by the government through the UKCES, SSCs were required to collect sector-level data on the drivers of skill demand, current skill needs and anticipated future skill demand. The UKCES outlined a common framework approach for all SSCs to follow when collecting this data (UKCES, 2009), which facilitated comparison of labour market performance between sectors. SSCs were required to provide labour market information for all countries of the United Kingdom, identifying any differences across countries and regions and highlighting the most serious skill issues. SSCs were encouraged to take a holistic approach to forecasting local skill needs, an approach which included the use of econometric methods, surveys of employers' opinions, skill audits, Delphi methods, case studies, focus groups, scenario development and consultation with experts and employers (Cedefop, 2008).

SSCs were also instrumental in organising apprenticeships and facilitating linkages between training providers and firms, in order to encourage employer participation in apprenticeships.

Prior to 2012, SSCs were funded by the government through a system of grants – with the intention that SSCs would eventually be self-funded. The funding system was changed in 2012 in an effort to foster greater employer leadership and co-investment. Now SSCs charge membership fees to firms that can afford to (though SSCs provide services to all firms within a given sector). SSCs continue to be licensed by the UK Government to develop occupation standards and skills solutions for their industry sectors, but are no longer funded by the government to produce information on skill needs. In 2015, there were 18 SSCs covering 90% of occupations in private, public and voluntary employment.

MAC recently revised its set of quantitative indicators, due to changing availability of data. Two of the old indicators relied on vacancy statistics discontinued by the Department for Work and Pensions in 2012. In place of these vacancy statistics, MAC opted to use data from Burning Glass, an online data analytics company which scrapes job advertisements from the web. The new set of indicators consists of an analysis of wages, unemployment, employment and vacancies, as measured by the nine indicators listed in Table 2.1.

MAC's use of online vacancy data in its shortage occupation list represents an innovative development in the assessment of skill needs for policy making, one which no other OECD country has yet implemented to the same degree. MAC emphasises that the use of Burning Glass (BG) online vacancy data is experimental, as the data has only been collected since 2012 and the methodology is continually improving. Compared to traditional vacancy statistics collected from public employment services, BG data have a number of advantages, including timeliness and large sample size. Drawbacks of the BG data include that it only scrapes from free-to-access sites, which could introduce bias in the type of occupations deemed to be in shortage. Also, Brown and Souto-Otero (2016) compare vacancy rates in the United Kingdom using both BG data and LFS data, and find that high-skilled occupations (e.g. professional occupations, managers, directors and senior officials) are over-represented in the BG data relative to the LFS data, while low-skilled occupations (e.g. elementary occupations, and caring, leisure and other service

occupations) are under-represented. Granted, this bias does not pose a problem for the MAC shortage list, since it focuses exclusively on high-skilled occupations. BG has developed a robust algorithm to avoid double-counting of vacancies, i.e. the risk that the same advertisement, having been posted several times on different sites, may be counted as multiple vacancies. For the time being, the indicator based on the Burning Glass data (ratio of vacancy postings to unemployment in the occupation) will be used only to complement the other eight indicators (Migration Advisory Committee, 2017a).

Table 2.1. Skill shortage indicators used by the UK Migration Advisory Committee

	Indicator	Data source
Employer-based indicators	Skill shortage vacancies as a percentage of employment by occupation	ESS
Price-based indicators	Per cent change in median real pay (1 year)	ASHE
	Per cent change in median real pay (3 years)	ASHE
	Relative premium to a skilled occupation, holding age and region constant	LFS
Volume-based indicators	Change in claimant count by occupation (%)	NOMIS
	Change in employment (%)	LFS
	Change in median hours for full-time employees (%)	ASHE
	Change in proportion of workers in occupations for less than one year (i.e. new hires)	LFS
Indicators of imbalance	Ratio of vacancy postings to unemployment in the occupation	Burning Glass and NOMIS

Note: ASHE: Annual Survey of Hours and Earnings, ESS: UK Employer Skills Survey, LFS: Labour Force Survey, NOMIS: Office Labour Market Statistics. The LFS provides monthly labour market information about employment and unemployment by occupation, while the ASHE provides annual wage data and hours worked by occupation.

Source: Migration Advisory Committee (2017), "Assessing labour market shortages: A methodology update", Migration Advisory Committee, London.

Notes

1. Apart from these large-scale employer surveys, there are also smaller-scale employer surveys that monitor skill needs. For instance, the Confederation of British Industry (CBI) runs the Employment Trends Survey which interviewed 342 businesses in 2015.
2. http://www2.warwick.ac.uk/fac/soc/ier/research/wf/.
3. The shortage occupation list applies to the whole of the United Kingdom, but a separate list of additional shortage occupations for Scotland is also produced.
4. Stakeholders include private and public sector employers, trade unions, government departments, representative bodies, and private individuals.

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Chapter 3

Policies to address skills imbalances in the United Kingdom

As skills imbalances can be costly for individuals and societies, countries try to reduce them by implementing policies that steer the demand for and supply of skills. The demand for skills can, for example, be influenced by industrial policy, while education and training, employment and migration policies can alter the supply of skills. This chapter reviews the policies that government and other stakeholders have implemented in the United Kingdom to tackle skills imbalances. The main focus of the chapter is on policies implemented in England.

National skills policies: A shift to more focus on technical education

The United Kingdom has set in motion a range of national skills policies over the years with a strong supply-side focus, reflecting the belief that raising skill levels will lead to higher competitiveness and productivity. These strategies establish the general direction that the United Kingdom takes in skills development, setting targets and introducing new policies and agencies to assist in achieving these targets. For instance, the *Leitch Review* (2006), which was tasked by British Government to address the UK's long-term skill needs, cast a vision for the United Kingdom to become a "world leader in skills" by 2020, and established targets to enhance educational attainment. The *Leitch Review* also recommended the creation of a commission to co-ordinate skill needs assessment work and skill policy more generally, leading to the introduction of the UK Commission of Employment and Skills (UKCES) which replaced the former Sector Skills Development Agency (SSDA) and the National Employment Panel (OECD, 2015).

With the change in government in 2010, the Coalition Government introduced a new skills strategy for England, *Skills for Sustainable Growth*, which abandoned the Leitch targets and aimed to expand and improve the apprenticeship system. The government emphasised incentivising employers and individuals to take ownership for their learning and skill needs by sharing the costs of training. In *Fixing the Foundations: Creating a More Prosperous Nation* (2015), the government committed to increase the number of apprenticeship starts in England to 3 million by 2020,[1] and to improve the quality of apprenticeships. To encourage new apprenticeships among young people, the government abolished employer National Income Contributions for most apprentices under the age of 25 as of April 2016.

Most recently, the *Post-16 Skills Plan,* introduced in 2016 by the UK Government, has the goal of revamping technical education. The Skills Plan starts from the view that the current system of technical education is not sufficiently employer-led, is overly complex, and does not produce enough apprenticeships (particularly higher-level degree apprenticeships) to meet demand. In keeping with the former *Skills for Sustainable Growth,* the Skills Plan emphasises employer-led responses to resolving skill imbalances, the centre point of which is the creation of new technical routes, as recommended by the Sainsbury Review. To help young people better plan their careers, the Skills Plan proposes a common framework of 15 technical routes. Students will receive a "T-level" certificate in their chosen route when they secure a new technical qualification, meet English and maths requirements, and complete a work placement. The new Institute of Apprenticeships (introduced in April 2017) will co-ordinate employer panels to establish apprenticeship standards, approve or reject them, and quality assure some end-point assessments. The Institute for Apprenticeships will also be responsible for working with employers to articulate a common set of transferable workplace skills to be required by each technical pathway. The government also proposes to create colleges for high-level technical skills training (mostly Levels 4 and 5), called National Colleges, for the development of skills known to be in high-demand, including high-speed rail, digital skills, nuclear, onshore oil and gas, and the creative and cultural industries. Furthermore, to meet recognised demand for higher-level STEM skills, Institutes of Technology will be introduced to co-ordinate technical education in STEM subjects at higher levels (Levels 3, 4 and 5) across higher education, further education and private providers and industry. Students studying in National Colleges and Institutes of Technology at Levels 4 to 6 will be eligible for income-contingent Advanced Learning Loans, similar to those offered to university students.

Education and training: Policies targeting individuals

Investment in education and training is needed to meet the increasing demand for skilled workers that comes with technological change, globalisation and demographic change. But in addition to *more* skills, investing in the *right* skills is equally important. Targeted financial incentives can promote access to higher education for individuals from disadvantaged backgrounds, or encourage the development of specific high-demand skills. Facilitating lifelong learning among adults is also important, in order to promote resiliency in the face of technological change. Making high-quality information, advice and guidance (IAG) available also promotes the development of skills needed by the labour market.

Post-16 reform is helping to boost basic skills

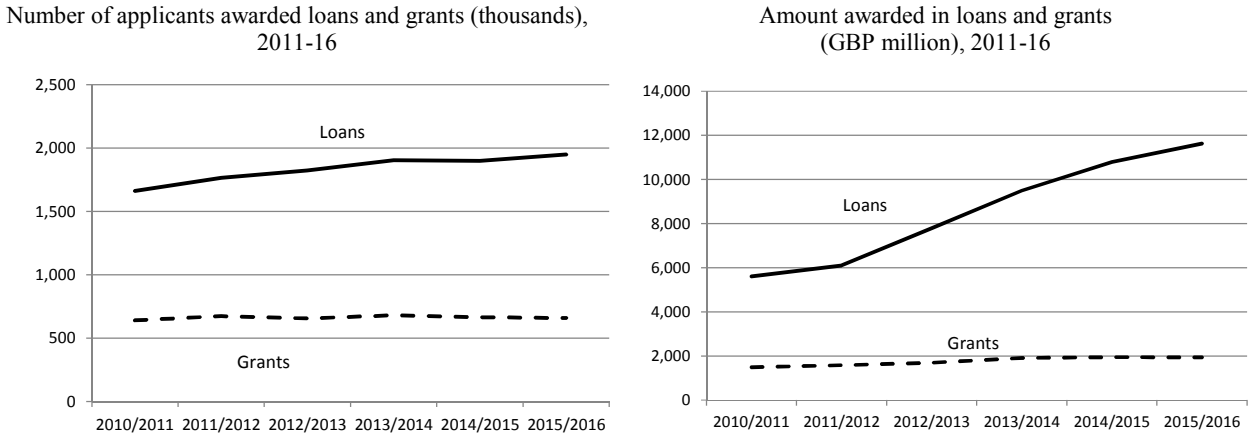
To address low numeracy and literacy skills among young adults, in 2015 the UK Government raised the age of compulsory education or work-based training for all students from age 16 to age 18, and made maths and literacy training a funding requirement for all 16-19 year-olds beginning a study programme who have not met minimum standards (BIS, 2016; OECD, 2016). This funding requirement means that no institution will receive public funding to teach students up to the age of 19 unless the student continues working towards achieving minimum standards in maths and English, whether in school, college or as an apprentice.[2] It is still too early to tell whether these policies are working to boost basic skills among this age group, but relative to 2014, there were over 4 000 more passes in English and over 7 500 more passes in maths than in 2015 (BIS, 2016). For adults with low basic skills, free further education in maths and English continues to be available to anyone who has not achieved Level 2 in these subjects. In 2015/16, the government funded 803 800 adult learners to participate in English, maths or English for Speakers of Other Languages (ESOL) course. An evaluation of this policy finds that learners who achieve Level 2 in English and/or maths will earn 11% more than someone who did not succeed in passing the same course (BIS, 2016b).

Shift to income-contingent loans: Higher responsiveness to market signals, but with possible equity cost

Higher education institutions currently charge a flat tuition fee, regardless of subject, and student income-contingent loans are available to cover tuition and living costs. The Student Loans Company is a government-owned agency that was established in 1989 and is responsible for managing all loans and grants to students in universities and colleges in the United Kingdom. In recent years, the United Kingdom has shifted away from grants and towards income-contingent loans for students, primarily due to their lower public cost (Figure 3.1). Relative to grants, loans may also make students more responsive to market signals in their degree selection, as most students must eventually repay the money, unlike with grants. In 2015, the government announced it would end grants for students from low-income households, but would raise total financial support via income-contingent loans. With income-contingent loans, students in university can apply for loans to cover both their tuition fees and living expenses, and only start repaying the loan once their courses end and their annual income exceeds GBP 21 000 (this repayment threshold is to be frozen for five years from 2016). While previously these loans applied only to students in university education, the recent budget announced that they would be extended to include higher vocational education as well. Moving from grants to income-contingent loans is expected to push the average debt upon graduation among poorer students up

from GBP 40 500 to around GBP 53 000, while there will be no impact on students from richer households (Bolton, 2016). Higher debt upon graduation could dissuade some individuals from poorer households from investing in higher education and training, thus worsening equality of access to education.

Figure 3.1. Student loans company: Loans vs. grants



Note: Loans include Maintenance Loans and Tuition Fee Loans. Grants include Maintenance and Special Support Grants, Disabled Students Allowance (DSA) and other targeted support.

Source: Student Support for Higher Education in England 2016: 2015/2016 Payments, 2016/2017 Awards: Statistical First Release.

Bursaries for higher education are limited

Publicly-funded bursaries for particular subjects in higher education are limited, and such support is typically offered by individual universities and colleges, which receive endowments from public bodies, such as the UK Research Council or the National Health Service (NHS). The NHS provides bursaries for institutions to distribute to students in dental, medical or healthcare courses in England. Under new eligibility rules, however, students entering nursing will no longer be eligible, despite continued shortages in nursing; only students studying to be doctors, dentists, dental hygienists or dental therapists will be eligible. As part of the UK Cyber Security strategy, the government introduced bursaries for students pursuing STEM subjects, to be paired with paid summer work in the government intelligence agency, GCHQ. In order to improve the quality of maths and science teaching and also to address teacher shortages, the UK Government in 2015 also invested GBP 67 million to offer bursaries to maths and physics students, provided that they commit to teach for at least three years after graduation.

Advanced Learner Loans provide incentives for lifelong learning

To encourage adults to upskill and retrain over the course of their lives, *Advanced Learner Loans* were introduced in England in 2013/14. With a similar income-contingent repayment scheme as student loans for higher education, Advanced Learner Loans are meant to encourage adults (age 19+) to pursue further education courses at Level 3 or above in awarding institutions which are recognised by the Office of the Qualifications and Examinations Regulator (Ofqual). Loans are intended to be focused on technical qualifications that support entry into employment and progression to higher-level skills (Skills Funding Agency, 2017). Unlike regular commercial loans, Advanced Learner

Loans do not depend on income and there are no credit checks. Since being introduced in 2013/14, take up has increased from 57 000 learners to 80 000 learners in 2016/17. An evaluation of the loan programme by the Learning and Work Institute (2016) argued that take up of loans has been low due to poor awareness among individuals and employers about the programme. The evaluation uncovered that loan users are mainly learners who had already decided to return to study, and were informed about the Advanced Learner Loan when they contacted an education provider for course information or to enrol. Most of them were not aware of the loan programme before contacting their education provider, and so, were not induced to pursue further education as a result of the loan. Employer engagement is poor, despite efforts by providers to inform employers about the loans. However, participation is high in some types of courses, including professional qualifications at Level 3 that are popular among career changers. In response, education providers are moving to recruit learners to courses that deliver professional and vocational qualifications for which there is local demand (Learning and Work Institute, 2016).

Union Learning Fund: Targeting low-skilled and older workers

Trade unions are also involved in promoting workplace training, in partnership with the Department for Education. The *Union Learning Fund* receives public funding (GBP 12 million in 2016-17) to develop the capacity of trade unions to work with employers, employees and learning providers to encourage greater take up of learning in the workplace. The learning offer generally reflects government skills policy, with the current focus on basic skills and apprenticeships. The 2016 Union Learning Evaluation survey revealed that learners acquire both soft skills (self-confidence, professional development and planning skills) and hard skills (vocational, literacy, numeracy, language and IT skills), and most believed that the skills they developed could be transferrable to a new job. Union learning representatives perform an advocacy role in promoting learning to their colleagues, both union members and not. These representatives engage with low-skilled workers, who are less likely to participate in training. Indeed, union learners are disproportionately older workers and those with no formal prior qualification (Stuart et al., 2016). Low-skilled learners achieve the most significant outcomes, with over two-thirds of learners with no previous qualification moving to a higher qualification level (Stuart et al., 2016).

Careers guidance in schools fails to promote apprenticeships and employer engagement is low

High-quality careers guidance can be of real value at several critical moments in a career: when a young person is deciding between future education or career pathways, or when an adult is exploring whether to change careers or upskill. Provided they are well-organised and informed by relevant and up-to-date labour market information, career guidance services can help steer individuals towards careers or training pathways for which they are well-suited and for which employment prospects are good.

The *Post-16 Skills Plan* (2016) called for the need to reform careers guidance and the Industrial Strategy green paper (2017) included a commitment to publish a comprehensive careers information, advice and guidance strategy for Britons of all ages later this year. Under current policy, schools have a duty to secure independent careers guidance for all year 8-13 pupils (age 12 to 18). However, an evaluation of the first year of operation of this duty in 2013[3] found that only 20% of schools surveyed were providing adequate careers advice, while the majority of information provided was narrow in scope, and failed to make students aware of the full range of options open to them, particularly vocational routes or apprenticeships (Ofsted, 2013). Only half of the 55 schools surveyed saw *any*

students progress to an apprenticeship in 2011/12. Furthermore, Ofsted found employer engagement to be the weakest aspect of career guidance provision (Ofsted, 2013).

To address low employer engagement in schools, the *Careers & Enterprise Company* was established by the Department for Education and began operating in 2015. Receiving funding from government (GBP 5 million, with another GBP 4 million from programme providers) to strengthen links between employers and schools, it supports employer encounters with students, mentoring programmes, and enterprise adviser networks that work closely with Local Enterprise Partnerships. The CEC is currently working with half of secondary schools and colleges in England to develop stronger careers and enterprise plans and connections to local employers.

Another initiative, *Support for Schools,* was introduced by the Department for Work and Pensions in 2016 to improve the quality of careers information that students receive while in school. Jobcentre Plus staff members go into schools to provide labour market information and advice to teachers, students and parents, with a special emphasis on routes into traineeships and apprenticeships and promoting the parity of vocational and academic pathways into work. A qualitative evaluation of Support for Schools revealed that the programme has been well-received by participants.

While plenty of careers guidance information is available, it fails to make students more knowledgeable about career paths

England's *National Careers Service* includes both a website and a telephone service, though services are shifting to an online focus. Face-to-face interviews with careers professionals are also available to adults aged 19+. The website offers access to information on over 800 jobs, including qualifications needed, starting salary, progression possibilities (for some jobs), hours, and links to current vacancies. However, the Ofsted review assessed that National Career Services are not promoted effectively in schools (Ofsted, 2013).

Another source of careers guidance information is *LMI for All*, an online data portal developed by the now-closed UKCES, which combines existing sources of labour market information (LMI) to inform career choices. LMI for All includes information from the Annual Survey of Hours and Earnings, the Labour Force Survey, the UK Employer Skills Survey, Working Futures, Universal JobMatch as well as data on interests, skills and abilities derived from the United States' O*NET database. Users can access information about broad occupation groups (SOC2010) through a user-friendly web-based application. Information includes salary, hours, projected growth, and common tasks on the job. A number of smaller online data portals have also emerged to provide careers information and guidance (see Box 3.1). LMI for All remains live after the dismantling of UKCES and its management has transferred to Department for Education.

Prospective university students can also consult *Unistats*, a website which allows users to search and compare tuition fees, course satisfaction, earnings, and employment outcomes associated with a range of higher education programmes at particular training institutions. Data are based on the Destination of Leavers from Higher Education (DLHE) survey as well as the National Student Survey. A similar database does not yet exist for vocational education. More rigorous data on employment outcomes and returns to different higher education programmes are currently being produced in the Department for Education's pilot initiative, the Longitudinal Education Outcomes database, which tracks the labour market performance of a cohort of higher education graduates at regular intervals after graduation.

Box 3.1. Online data portals providing careers information and guidance

Burning Glass, an online data analytics company, partnered with the Institute for Public Policy Research (IPPR) to develop a new online data tool, called ***Where the work* is**,[1] which allows users to easily compare labour market prospects of entry-level mid-skill jobs in the United Kingdom (i.e. jobs that require less than a bachelor's degree or higher and less than two years of work experience). Currently only showing data for 2014, but with intentions to update, the tool is targeted at employers, training and education providers and local and national policy makers. For each occupation, the tool publishes data about labour demand and supply, captured by online vacancy data and an "employment opportunity" measure which compares number of posted openings with number of job seekers. Users have the option to search by country, region, or the whole of the United Kingdom. According to this tool, personal care, metal work, and health associates were the entry-level occupations with the most advertised vacancies relative to qualified job seekers in 2014. By contrast, occupations in animal care, agriculture and creative occupations had many more qualified job seekers than advertised vacancies. Quality check comparisons with the Labour Force Survey reveal that Burning Glass data slightly overestimate the proportion of professional and associate professions occupations in demand, while slightly underestimating the proportion of elementary occupations.

Skills Route[2] provides a free online tool for parents, teachers and guidance counsellors to help young people at age 14-16 who are making critical decisions about which education route to pursue. *Skills Route* won the Education Open Data Challenge by bringing together education and career-related open data sets to provide students with a unique picture of the career prospects associated with a particular course of study. The tool helps users to explore possible careers based on their abilities and interests, plan education pathways, and locate schools or colleges with the courses they need.

Relying on live labour market information, ***Start*** is a free career guidance software that generates a list of suitable jobs and qualifications for students to explore, based on information they submit in a personalised profile. ***Plotr*** is geared towards young people and offers them to play a career "game" which involves answering questions about their interests, abilities, preferred working conditions, etc. After every response, the programme updates a ranking of occupations most suitable to the user. Both *Start* and *Plotr* are owned by U-Explore,[3] a private careers guidance company.

1. http://wheretheworkis.org/about.html.

2. http://www.skillsroute.com/.

3. http://website.u-explore.com/.

While there is an abundance of online career guidance information available, it apparently fails to make students more knowledgeable about possible career paths. A study based on interviews with young people, teachers and careers guidance professionals uncovered that the information that is available is difficult to navigate and not well-targeted to young people (Behavioural Insights Team, 2016). As a result, youth have limited understanding about which career options are open to them, and are unaware about new jobs in emerging industries. The study recommended better structuring of information provision so that it is more manageable and is provided when most needed.

Workers under notice of redundancy and the unemployed have access to career guidance

Jobcentre Plus (the UK public employment service) makes career guidance referrals to the National Careers Service (NCS) to assist job seekers in cataloguing their current skills, identifying relevant job opportunities and addressing skill gaps. Workers under notice of redundancy are also referred to career guidance services offered by the NCS under the Rapid Response Service.

Free career guidance services will also be made available to low-paid workers under Universal Credit, a new monthly benefit scheme which will replace Jobseeker's Allowance, among other benefits. A key feature of Universal Credit is that the benefit amount reduces only gradually as recipients earn more from paid work – so incentives to work remain high. Under Universal Credit, benefit recipients are assigned to Work Coaches who provide personal support to move into work or to find a better job that makes better use of the recipient's skills. The Universal Credit full service is currently being rolled-out nationally and the effectiveness of Work Coaches is one of the elements being examined in a randomised control trial.

Education and training: Policies targeting employers

Employers generally have a lot to gain from investing in the skills of their employees, as training is shown to generate increased productivity, higher profits and lower labour turnover and recruitment costs. But due to short-sightedness or the concern that training firms will have their workers "poached" by non-training ones, employer investment in education and training may be lower than what is socially optimal, and in particular, may be limited to the provision of firm-specific training which is less transferable. Small and medium-sized firms (SMEs) generally face additional barriers to providing training, including difficulty articulating training needs and lack of economies of scale. To encourage employers to take an active role in investing in the skills they require, government intervention may therefore be needed.

Pilot co-investment funds generated innovative solutions to meet skill needs, but projects were not sustainable

A series of investment fund programmes were piloted by UKCES between 2011 and 2016, with the aim of incentivising employers to invest in the skills of their workers. These pilot funds included the *Employer Ownership of Skills* initiative (run from 2012-14), the *Employer Investment Fund* (launched in 2011, and supported 87 projects), the *Growth and Innovation Fund* (launched in 2011, and supported 37 projects), and most recently, the *UK Futures Programme* (ran from 2014 to 2016). For each of these investment fund programmes, private companies submitted bids to government to propose innovative solutions to tackle a particular skill need, as identified by UKCES. For instance, between 2014 and 2016 the UK Futures Programme held competitions for a number of skill challenges, including skill deficiencies in the off-site construction sector, management and leadership in supply chains and networked organisations, and progression pathways in the hospitality and retail sectors. Successful companies provided co-funding for their proposal: the UKCES invested GBP 111 million in 124 projects under the Employer Investment Fund and Growth and Innovation Fund, and employers matched an additional GBP 103 million of investment. The impact evaluation for the Employer Investment Fund and Growth and Innovation Fund noted that they had been successful in engaging employers, particularly in sectors with strong supply chains and peer networks (like advanced manufacturing and energy and utilities), but that SME engagement was low (UKCES, 2015). Also, only one in five projects was expected to be financially sustainable after the initial public investment was spent.

Reforms were introduced to the apprenticeship system to better align skill supply and skill demand

The UK Government has a history of subsidising the cost of employer training, including the *Individual Learning Accounts* (1999-2001), *Modern Apprenticeships*, *Train to Gain* (2006-10), followed by the existing apprenticeship subsidies. In *English Apprenticeships: Our 2020 Vision* (2015), the government justified continued support of apprentices with research findings that economic returns to apprentices are significant, generating GBP 26-28 of economic benefit for every GBP 1 invested by taxpayers. Reiterating the government's commitment to reach its target of 3 million apprenticeship starts in England by the end of 2020, the *English Apprenticeships* report also announced a number of reforms to the English apprenticeship system which intend to better align training with skills that employers need. These reforms relate primarily to the regulation and funding of apprenticeships.

On the regulation side, the English Government announced its intention to gradually phase out apprenticeship "frameworks" and replace them with apprenticeship "standards" by 2020 in an effort to better match learning content to the skill needs of the economy. Under apprenticeship frameworks, sector skills councils (SSCs) set the requirements for an apprenticeship, which included the requirement of a nationally-recognised qualification (ranging from Level 2 to Level 7, see Table 3.1). However, Ofsted's review of the quality of apprenticeships under frameworks concluded that many did not provide sufficiently high-quality training and were characterised by a lack of collaboration with employers to plan apprenticeships that produced the skills that employers need (Ofsted, 2015). Under the new apprenticeship standards, employer-led panels called "trailblazers" decide the requirements of apprenticeships and set their assessment plans. To be approved by the Institute of Apprentices, new apprenticeship standards must meet certain quality criteria: establish the full set of competences required to perform the occupation; demonstrate employer support of the standard (including small businesses); be sufficiently demanding as to require at least a year of training, with 20% off-the-job training; include minimum English and maths requirements as well as digital skills, if needed; and, only include qualifications if they are a mandatory requirement.

Table 3.1. Apprenticeship levels

Name	Level	Equivalent educational level
Intermediate	2	5 GCSE passes at grades A* to C
Advanced	3	2 A level passes
Higher	4,5,6 and 7	Foundation degree and above
Degree	6 and 7	Bachelor's or master's degree

Source: House of Commons Library (2016), "Apprenticeship Statistics: England", Briefing Paper No. 06113.

Under the former funding system (pre-April 2017), the government subsidised the costs of off-the-job training to apprentices differently for frameworks and standards. For frameworks, employers received subsidies for training costs depending on the age of the apprentice (100% subsidy for training costs of apprentices age 16-18, 50% for those aged 19-23, and 40% for those age 24 or above; Pullen and Clifton, 2016). For standards, funding did not depend on age but on funding bands. Funding bands are set by the Skills Funding Agency and reflect the expected cost of training, with higher limits for higher-

cost training, including apprenticeships in STEM. As of April 2017, both frameworks and standards receive subsidies only up to the relevant funding band, and age-related subsides have been retired.

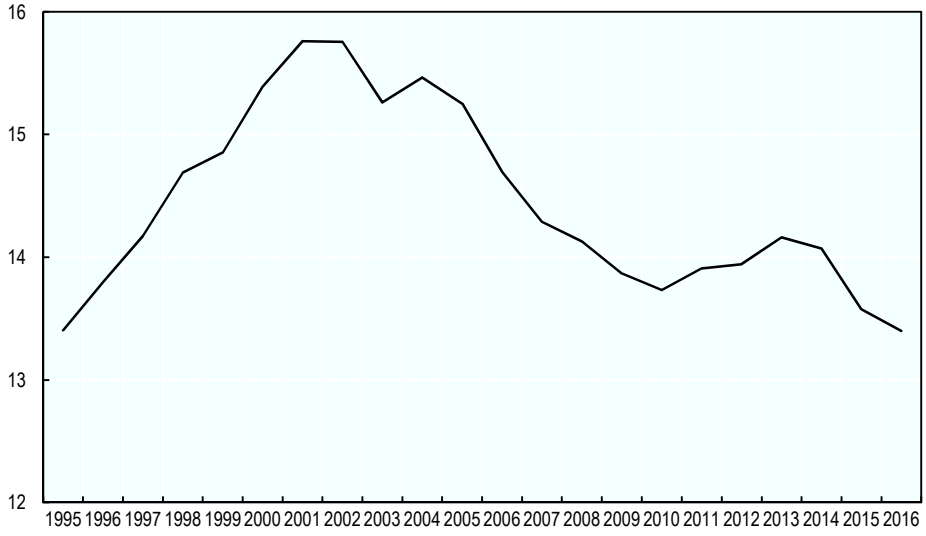
New apprenticeship levy to encourage more employer investment in training

The new apprenticeship levy, introduced in April 2017, requires all large employers in the United Kingdom to contribute to the cost of training their workforce. As apprenticeship funding is a devolved responsibility, it will be up to the devolved administrations to decide how to spend levy revenues. All employers with a pay bill of at least GBP 3 million will be required to pay a levy equal to 0.5% of their annual pay bill in excess of GBP 3 million. HM Treasury estimates that only 2% of UK employers will pay the levy. In England, these funds will go into a digital account that can be spent on apprenticeship training (expiring after 24 months), with government topping up their digital accounts by 10%. For levy-paying firms that exceed the amount in their digital accounts for off-the-job training, the government will subsidise these costs by 90%, up to the limit of the relevant funding band. Non-levy paying firms (i.e. most firms) will receive 90-100% subsidies on the cost of training apprentices, again, up to the limit of the relevant band. The Office of Budgetary Responsibility forecasts that the apprenticeship levy will raise nearly GBP 3 billion by 2019-20 (HM Treasury, 2015).

The government justifies the new levy primarily on the basis that employer investment in training is too low. Indeed, there have been ongoing concerns that employers do not invest enough in employee training, though the evidence is mixed. ONS data show that the share of UK employees receiving job-related training (both on-the-job or off-the-job) has declined from about 16% in 2001 to 13% in 2016 (see Figure 3.2). Furthermore, incidence of employer-sponsored non-formal training and formal job-related training appears low when compared with other European countries using Eurostat data (see Figures 3.3 and 3.4). On the other hand, the measure of adult training based on the Survey of Adult Skills (2012) includes both work-related and non-work-related training, and shows that more adults (age 25-64) report participating in learning activities in England and Northern Ireland than in other participating countries, suggesting that adults initiate learning activities outside of the office to compensate for low job-related training. In terms of employer investment in training, training episodes have shortened in duration, and there was a 14.5% cut in training investment per worker in real terms between 2005 and 2011 (Government Office for Science, 2016), though investment per employee remained unchanged between 2011 and 2015 (ESS, 2011, 2013, 2015). Green et al. (2013) also find that the duration of training fell sharply between 1997 and 2012, so that average training volume per worker declined by about a half.

Figure 3.2. Job-related training has declined

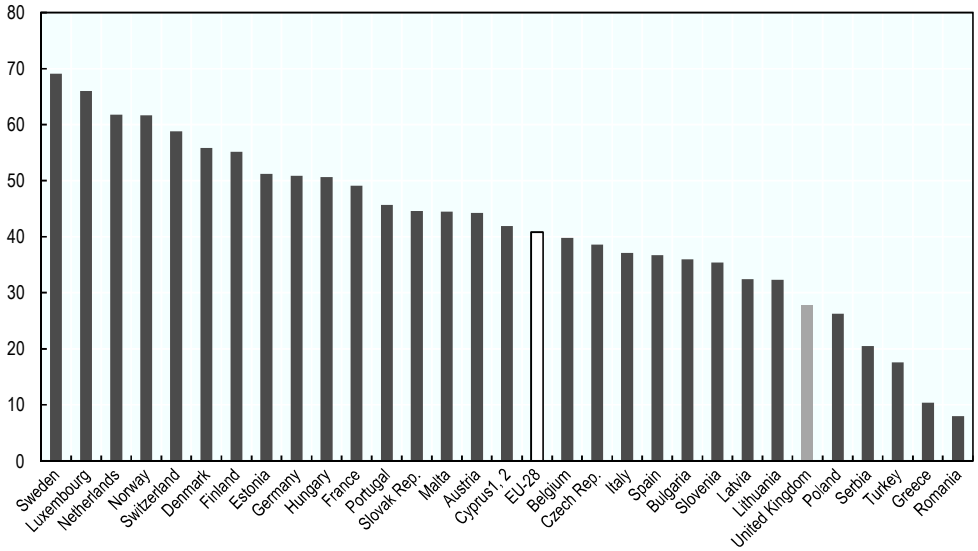
Share of employees receiving job-related training, age 16-64, United Kingdom, 1995-2016



Source: Office for National Statistics.

Figure 3.3. Employer-sponsored non-formal training in the United Kingdom is low and has declined

Participation rate in employer-sponsored non-formal education and training, employed persons, 2011



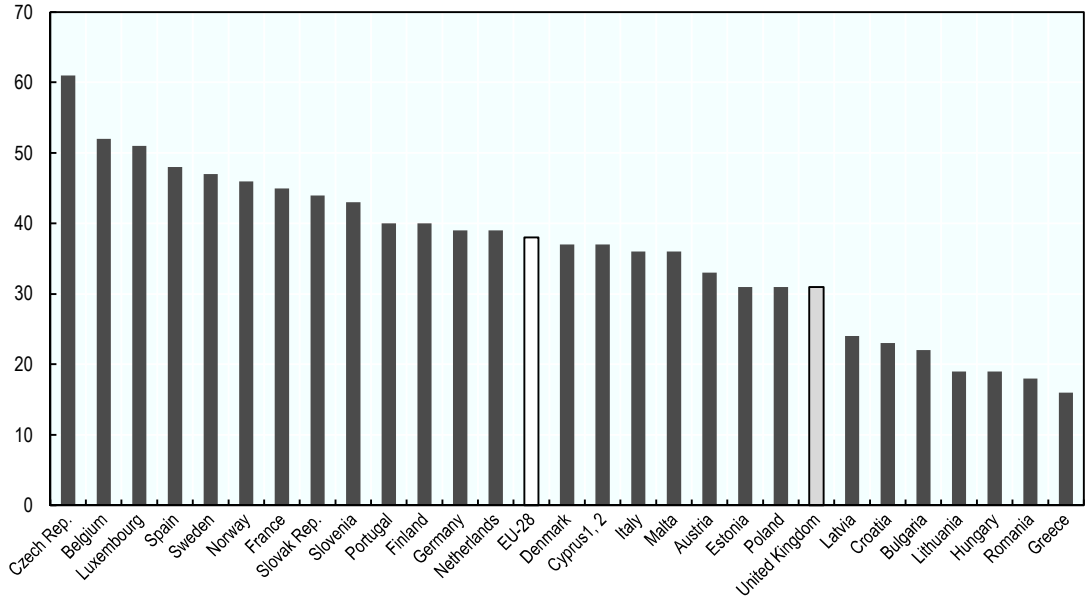
1. Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and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

2. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: Eurostat.

Figure 3.4. Formal job-related training is also low

Percentage of employees participating in continuing vocational training courses, 2010



Note: This chart shows the percentage of employees (across all enterprises) who participate in continuing vocational training courses.

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

2. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: Eurostat.

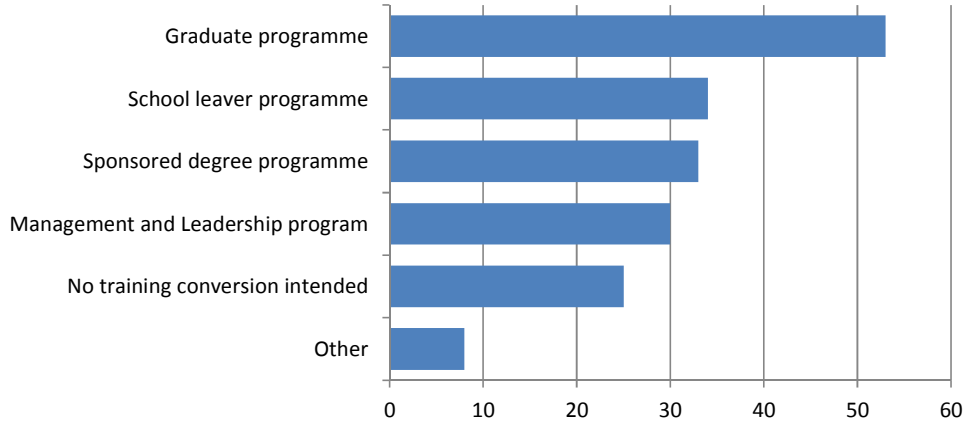
But there are concerns about the quality of training under the new levy

Despite this mixed evidence, there appears to be general approval for encouraging more employer-led training and continuing to allocate public subsidies to apprentices. However, there are also concerns about the details and implementation of the apprenticeship levy and the new regulatory system. The levy could jeopardise the quality of the apprenticeship brand by incentivising employers to reclassify existing training; or by incentivising employers to seek out low cost, low-quality training that meets the minimum requirements to recoup their levy payment (Pullen and Clifton, 2016). Indeed, three-quarters of employers in a recent survey admit that they intend to rebrand existing training as an apprenticeship (see Figure 3.5), though these findings are based on a relatively small sample of 100 employers and so should be regarded as indicative. Some evidence for rebadging behaviour can also be found from international experience. An evaluation of the training levy introduced in Quebec (Canada) in 1995 found that it diverted training to forms that could be more easily documented: from on-the-job training to more formal types of training, including a higher incidence of hiring external trainers (Gagnon and Smith, 2013). Furthermore, international evidence suggests that introducing

a levy will not improve training for disadvantaged groups. A review of Australia's training levy, introduced in 1990 and abolished in 1994, found that the levy had little impact on industries which had trained poorly before its introduction – training volumes remained low and these industries were least likely to make progress towards developing a training culture (Fraser, 1996). Moreover, the levy also did not affect the distribution of training across types of workers, as most training went to higher-educated and higher-skilled workers.

Figure 3.5. Rebranding of existing training programmes

Share of employers that plan to convert existing training programmes to apprenticeships, by programme type, 2017



Note: The sample is made up of 100 top employers in 12 sectors, and the survey was carried out as an online questionnaire.

Source: BPP University (February 2017). "Employer Guide: Apprenticeship Levy study."

The government has already taken steps to address stated concerns about the apprenticeship system, including that it produces too few technical apprentices (STEM-related, Level 3+) and that it promotes training of existing adult employees, rather than young new apprentices. In recognition of the higher cost needed to train an apprentice in STEM the government is increasing funding bands for STEM frameworks, by 40% at Level 2 and by 80% at Level 3 and above. Also, to encourage recruitment of young people, employers no longer have to pay National Insurance Contributions for apprentices who are 25 or younger and a grant is available to support employers who hire apprentices between the ages of 16 and 24. Furthermore, employers can pay a special minimum wage of GBP 3.40, below the national minimum wage,[4] to apprentices age 16-18 and those aged 19 and over during the first year of their apprenticeship.

New traineeship programme facilitates the transition to work or an apprenticeship

Traineeships were introduced in the United Kingdom in 2013. Designed to prepare young people (aged 16 to 24) for work or an apprenticeship, a traineeship lasts between six weeks and six months and has three components: a work experience placement; work preparation training in skills like CV writing, interview preparation, job search and inter-personal skills; and courses in English and maths if minimum requirements are not yet met. Trainees receive a guaranteed job interview at the end of the work placement. Traineeships are unpaid, but the government encourages employers to assist trainees with work-related expenses. Participation in the traineeship programme is growing: from

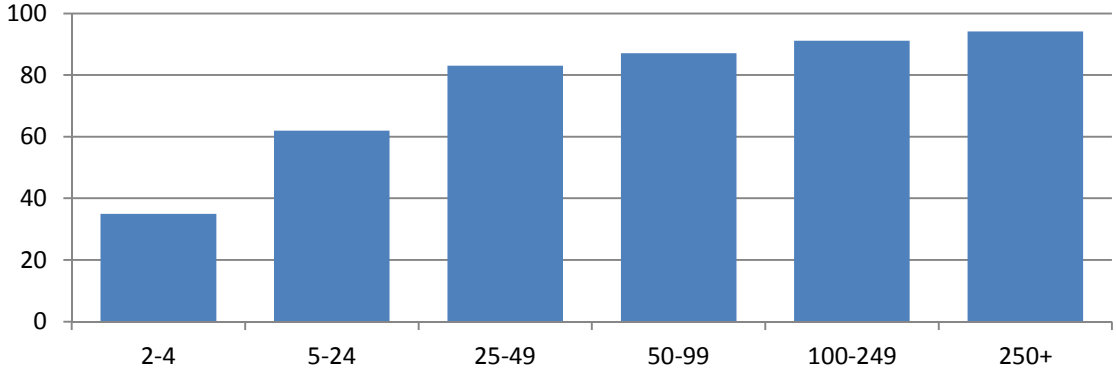
10 000 young people when the programme was first introduced in 2013/14 to 24,100 in 2015/16. An evaluation of the first year of the programme found that 22% of trainees who had left or completed the traineeship had progressed to an apprenticeship, while 28% had found other work (BIS, 2015). A further 17% were in education or training, and the remaining 33% were looking for work or doing something else. In 2014/15, three quarters of 19-24-year-old trainees were on out-of-work benefits at the start of their training, suggesting that traineeships are successfully reaching more disadvantaged young people.

Group training schemes reduce SME barriers to provision of apprenticeship training

While SMEs will not pay the apprenticeship levy, the government will continue to subsidise the cost of apprenticeship training for non-levy-paying firms up to the designated funding band. Yet barriers beyond the financial cost of training may limit SMEs from offering apprenticeships, and contribute to the low incidence of employer-sponsored training among SMEs in the United Kingdom (see Figure 3.6). Such barriers may include having information to support an apprentice through their training or being sure that skills obtained are of benefit to the SME. Several group training association models have emerged in the United Kingdom to reduce these risks. *Group Training Associations* (GTAs) were introduced in the 1960s, and though their numbers have declined, there are still 40 GTAs in key industrial areas in the United Kingdom which act as public-private partnerships in the delivery of apprenticeship training (OECD, 2017). An important part of their funding comes from government subsidies, and GTAs have been found to boost training undertaken as many firms that lack time or money to source and manage the training they need (Burke, 2002). Under the *Apprenticeship Training Agency* (ATA*)* model, training providers recruit apprentices, arrange training for them, and then hire them out to host companies at a fee for the work-based element of their apprenticeship (BIS, 2014). This model works well for employers who either cannot afford to take on an apprentice or who cannot deliver all the on-the-job training required. While ATAs do not receive any financial support from government, they can apply for registered status, which reinforces their credibility among employers.

Figure 3.6. Employer-sponsored or arranged training among SMEs

Percentage of UK employers that have a business plan, training plan, and/or a budget for training expenditure, by number of employees, 2015



Source: UK Employer Skills Survey 2015.

Sector-specific training levies exist in construction, engineering and film

Only construction, engineering and film have sector-specific employer training levies, as most were abolished in the 1980s (Abdel-Wahab et al., 2010). The construction skills levy, managed by the Construction Industry Training Board (CITB), charges employers 0.5% of their pay bill annually[5] and these funds go towards training activities identified as needed by the construction sector, including supporting apprenticeships. In 2015 the CITB collected GBP 182.8 million in construction levy income and about 80% of that was issued to employers in the form of training grants, while the remainder was used to fund other activities, like attracting new entrants to the industry (CITB, 2016). Small firms are exempted from paying the levy but can benefit from claiming training grants. Despite the construction levy, training in construction is low relative to other sectors, possibly due to insufficient recognition of the value of training due to lack of reliable information on the productivity and profitability effects (Abdel-Wahab et al., 2010) or possibly, to a lack of workforce stability in the construction industry which reduces firms' incentives to train and directly employ (Farmer, 2016).

Education and training: Policies targeting institutions

Education institutions in the United Kingdom largely respond to student-led demand in course provision. However, some incentives are provided to institutions to steer education and training towards specific subjects.

Substantial funding to promote STEM training

The Higher Education Funding Council of England (HEFCE) distributes public funds to higher education institutions in a way that promotes government policy objectives. For instance, in 2016-17, the government asked HEFCE to support STEM and other high-cost subjects, as well as access to higher education for people from disadvantaged backgrounds (see Box 3.2 for examples). In 2013-14, about GBP 330 million was allocated to high-cost subjects in laboratory-based science, engineering and technology subjects. Additional funding (about GBP 23 million in 2014-15) is also made available to support very high-cost STEM subjects, including chemistry, physics, chemical engineering, and certain types of engineering. The total HEFCE grant available for the 2016-17 academic year was GBP 3.7 billion, with the bulk of funding going towards research (43%) followed by teaching (37%).

Box 3.2. Higher Education Funding Council of England (HEFCE): Examples of initiatives

STEM Capital Fund

To ensure that higher education responds to the increase in demand in STEM studies, HEFCE allocated GBP 200 million for the 2015-16 academic year to 73 universities and colleges for development of facilities related to STEM training, with a requirement for one-to-one matching by institutions. By requiring evidence of a commitment to equality and diversity, competition for these funds is also intended to support more women taking science and engineering at degree level.

National Collaborative Outreach Programme

The aim of the National Collaborative Outreach Programme (NCOP) is to support access to higher education for disadvantaged young people in England through active outreach in geographical areas where participation is low and lower than expected based on GCSE-level attainment. HEFE will allocate GBP 30 million in 2016-17 to start outreach activity, followed by GBP 60 million per year until 2020 (subject to evidence of impact).

Degree Apprentices Development Fund

A "degree apprenticeship" allows an employee to gain a bachelor's, master's or postgraduate degree during the course of the apprenticeship. HEFCE will provide GBP 8.5 million to support higher education institutions in creating new degree apprenticeships, starting in September 2017. While these new apprenticeships can be in any sector, a large share will be in STEM fields.

Catalyst Fund

In 2016, HEFCE funded a number of projects by universities and colleges which successfully bid for funding to develop innovations in learning and teaching, particularly those which respond to employer demands for advanced skills or knowledge. A total of GBP 2.7 million was awarded to 66 universities and colleges.

Engineering Conversion

To help fill skill needs in engineering, HEFCE has supported higher education institutions to develop courses which facilitate transitions into engineering for graduates from other subjects. Funded courses will enable graduates to develop a career in engineering having achieved a first degree in a non-engineering discipline (typically, students are not eligible for additional student loans when pursuing a degree at the same level as one which they already have). About GBP 1.7 million has been allocated to 28 projects as part of the Engineering Conversion course pilot scheme.

Institute of Coding Fund

In April 2017, HEFCE and the Department for Education launched a GBP 20 million competition to establish an Institute of Coding to serve as a national focus for improving digital skills provision at Levels 6 and 7. The funding will support one collaborative project with higher education and industry that improves graduate employability and addresses identified skill needs. The funding is available to HEFCE-funded higher education institutions with existing course provision in computer science or information technology.

Devolution of the Adult Education Budget could make adult training more responsive to local skill needs

In 2018-19, the Adult Education Budget (AEB), which is paid to further education (FE) institutions to fund the provision of adult training for those 19 or over, will be devolved to regional responsibility, in order to encourage better alignment between local economic needs and skills supply. Not all regions are affected, only Greater Manchester, West Yorkshire, Sheffield, Cornwall, Tees Valley, the North East Combined

Authority, the West Midlands Combined Authority and Liverpool City Region. The AEB is limited to training at Level 3 or below, including second change learning up to Level 2, foundational skills, English for Speakers of Other Languages (ESOL), and traineeships. Neither apprenticeships nor learners funded through an Advanced Learner Loan can be covered by the AEB. The policy for Recognising and Recording Progress and Achievement (RARPA) has been adapted to include quality assurance of non-regulated education provision, and institutions offering RARPA will be eligible for AEB funding. Combining the former Adult Skills Budget and Community Learning into a single budget, the AEB saw a 35% cut in funding since 2010-11, for a total of GBP 1.9 billion in 2015-16. The fall in the AEB was offset by the launch of the Advanced Learner Loans (GBP 200 million in 2015-16) and a 64% increase in apprenticeship funding (GBP 450 to GBP 740 million) over this period.

Employment policies: Activating the skill supply

The United Kingdom has a number of policies in place to activate the labour supply in order to make use of available skills. These include stills training and counselling for the unemployed, as well as an online tool which facilitates matching of job seekers with vacancies.

Universal Job Match: an online tool to facilitate skill matching

The British public employment service (PES), Jobcentre Plus (JCP), introduced a new online service in 2012 to help improve skills matching. *Universal Jobmatch* uses technology developed by Monster Corporation to enable employers and job seekers to report and search for vacancies, respectively. Since March 2013, job search assistance claimants can be required to register with Universal Jobmatch or risk losing their benefit entitlement. For employers, Universal Jobmatch is the only way to advertise jobs with JCP (OECD, 2014).

Skills Conditionality tries to improve employability of benefit claimants through mandatory skills training

Jobcentre Plus runs training programmes to improve the skills and employability of the unemployed. Under *Skills Conditionality*, which has been operational since 2011, claimants receiving unemployment benefits in England[6] can be required by Jobcentre advisors to undertake mandatory free skills training if their skill needs are assessed to be a barrier to their entry into the labour market. Failing to undertake the mandatory skills training or career guidance services can result in benefit sanctions. As shown in Table 3.2, about 56% of job seekers who are referred to a training programme actually show up. Beyond simply choosing not to attend training, the remaining 44% of job seekers may find employment, start another training course, or cancel their benefit claim. Mandatory assigned training can be targeted at basic skills (numeracy and literacy), basic occupational skills (e.g. certificates in areas like retail, warehousing, security and construction, and IT skills), employability skills or English for non-native speakers, and tends to be of short duration (BIS, 2013). As is evident in the table below, about half of assigned training is aimed at developing basic occupational skills (51%), while basic skills training is the second most common type of training assigned (19%). No evaluation of the impact of Skills Conditionality on employment outcomes has been conducted. An evaluation of an early pilot was unable to provide reliable estimates about impacts on employment, due to problems with the implementation of the pilot which prevented the ability to identify a suitable counterfactual group (Dorsett et al., 2011).

Table 3.2. Skills conditionality training referrals and starts, by training type

Training referrals					
	Occcupational training	Basic skills training	ESOL	Other (includes Skills for Work Wales)	Total
2011 (Aug-Dec)	31,160	7,510	10,080	4,800	53,550
2012	120,950	30,580	30,930	23,820	206,280
2013	207,510	65,260	38,570	61,680	373,020
2014	169,870	66,830	37,310	75,290	349,300
2015	88,340	40,200	26,160	54,560	209,260
2016 (Jan-Nov)	45,680	22,770	15,700	32,200	116,350
Total	663,510	233,150	158,750	252,350	1,307,760
% of Total	50.7%	17.8%	12.1%	19.3%	100.0%
Training starts					
	Occcupational training	Basic skills training	ESOL	Other (includes Skills for Work Wales)	Total
2011 (Aug-Dec)	7,730	2,180	2,990	730	13,630
2012	55,830	14,570	16,580	9,020	96,000
2013	119,130	39,100	25,360	34,280	217,870
2014	106,040	43,470	25,550	42,670	217,730
2015	52,300	24,560	17,910	27,620	122,390
2016 (Jan-Nov)	24,210	12,740	9,670	15,620	62,240
Total	365,240	136,620	98,060	129,940	729,860
% of Total	50.0%	18.7%	13.4%	17.8%	100.0%

Note: Skills conditionality started from August 2011 in England. Data shows training referrals and starts by claimants of Jobseeker's Allowance and Employment and Support Allowance. Universal Credit claimants are not yet captured in Employment Schemes statistics.

Source: DWP Employment Schemes Official Statistics (February 2017).

Sector-based work academy: Successfully training and activating the long-term unemployed

In August 2011,[7] Jobcentre Plus introduced a new type of training programme for the unemployed, called sector-based work academies. Aimed at helping unemployed benefit claimants gain skills and work experience in a specific sector, the programme consists of three components: sector-specific pre-employment training of up to 30 hours per week, a work placement, and a guaranteed interview for a job or apprenticeship. This programme allows employers to fill vacancies with suitable applicants, and to have the training costs paid for by the government. Employers initiate contact with Jobcentre Plus, detailing their hiring needs. A job coach then describes the deal: employers must commit to provide all trained participants with a work placement and a job interview at the end of the programme, but it is up to employers to choose which of the programme graduates they choose to hire in the end. Employers are under no obligation to hire any of the trainees at

the end of the training. Introduced as a pilot initiative during the economic crisis, sector-based work academies were carried over as a longer-term programme following internal evaluations which showed that they reduce the time that young Jobseeker's Allowance (JSA) claimants receive benefits and increase the amount of time they spend in employment (DWP, 2016). In particular, for a cohort of JSA claimants age 19-24, those who completed a sector-based work academy placement spent 50 days more in employment and 29 days less on benefit than non-participants during the 18 months after completing the programme (DWP, 2016). Furthermore, participants who had been on benefit for three months or more prior to the start of the programme experienced the biggest impact, suggesting that this programme is especially effective at activating those at risk of long-term unemployed. The programme is capable of high responsiveness, as it is focused on low-skill needs in a variety of sectors, including retail, logistics and agriculture, and therefore only lasts three or four weeks, from start to finish.

New "Youth Obligation" intended to activate NEET population

To activate the skills of youth not in education, employment or training (NEET), the United Kingdom proposed the Youth Obligation in the Post-16 Skills Plan. Introduced in April 2017, the Youth Obligation requires unemployed Universal Credit (UC) full service claimants aged 18-21 to either take a job, apprenticeship, traineeship or lose their benefits. Young people can consult with Jobcentre Plus career advisors for assistance. There are also several NGO-led initiatives in place to train and activate young people (see Box 3.3).

Box 3.3. Employment Initiatives led by NGOs

Several NGOs offer training or employment opportunities for young unemployed who do not receive benefits. These include:

Movement to Work

A collaboration of 240 employers, Movement to Work provides short-term work placements to young people aged 16-24 who are not in employment, education or training (NEET). Participating employers generally offer 4-6 weeks of work placement and training. About 41 000 students have completed placements through Movement to Work since its inception a few years ago. Just over half of completed placements (54%) turn into jobs (*Movement to Work: 2015/16 Impact Report*, 2016).

Prince's Trust

The Prince's Trust targets young people aged 13-30 and offers them in-school mentoring, training, grants to cover work-related or training-related expenses, and entrepreneurship support. The "Get Into" programme offers employability training and work placements to young NEETs in sectors where demand for workers is known to be high, e.g. retail, hospitality, logistics, construction. The programme is free and covers costs like travel expenses, lunch and child care expenses.

Migration policies: Attracting global talent

Beyond employment and education policies, migration policy can be an additional tool to resolve skill imbalances by regulating the entry of people and skills into a country. Skilled workers with a job offer can come to work in the United Kingdom through the Tier 2 immigration route (see Table 3.3 below). But a new immigration skills charge discourages employers from hiring through Tier 2, with collected funds from the charge intended to address skill shortages internally.

Resident Labour Market Test allows entry of high-skilled immigrants with a job offer

The UK points-based system for immigration outside of the European Economic Area (EEA) consists of five tiers which are set out in the table below. Skilled, employer-sponsored workers (Tier 2) represent the largest category of non-EEA inflows for work (45% of non-EEA work visas in 2015, 54 800 migrants). Tier 2 immigration permits employers to bring skilled workers with a job offer into the United Kingdom from outside of the EEA, provided they meet minimum income thresholds. The minimum skill level of migrants admitted through Tier 2 has been progressively tightened over the years, and now requires a higher education graduate degree (National Qualification Framework Level 6). Within Tier 2, the largest category in 2016 was intra-company transfers (66% of Tier 2), which refer to employees transferring from a non-UK workplace to a UK workplace within the same company. The remaining third of Tier 2 is comprised of the Resident Labour Market Test (RLMT) and the Shortage Occupation List (SOL). Under the RLMT (about 30% of Tier 2 work migrants), employers can bring in immigrant workers to fill a vacancy if they can demonstrate that there is no suitable candidate within the United Kingdom or the EEA to fill the position. Employers must advertise the vacancy on Jobcentre Plus and at least one other job listing for at least 28 days. Employers are not, however, required to demonstrate that no qualified domestic workers were available to fill the position, as is required in other countries (e.g. the United States, Canada (in some cases), and New Zealand (under some visa types) (Migration Advisory Committee, 2015).

Table 3.3. The five tiers of the points-based system which regulates entry of non-EEA migrants

Tier	Immigrant group covered by tier
1	Investors, entrepreneurs, graduate entrepreneurs and exceptionally talented migrants
2	Skilled workers with a job offer in the United Kingdom
3	Low-skilled workers needed to fill certain temporary labour shortages. Tier 3 has never been opened.
4	Students
5	Youth mobility and temporary workers. This route is for those permitted to work in the United Kingdom for a limited period of time to satisfy primarily non-economic objectives.

Source: Migration Advisory Committee (2017), "Partial review of the Shortage Occupation List: Review of teachers", Migration Advisory Committee, London.

The Skilled Shortage Occupation route allow workers to bypass the Resident Labour Market Test

A second type of Tier 2 migration is the Shortage Occupation List (SOL). The skilled shortage occupation route accounts for only about 3% of the total annual inflow of Tier 2 work migrants[8] (Migration Advisory Committee, 2015) and requires applicants to demonstrate that they are skilled workers with a job offer to fill a skill shortage identified by the SOL. The Migration Advisory Committee (MAC), as previously mentioned, develops and periodically reviews the SOL. Occupations or job titles included on the SOL do not need to pass the resident labour market test (RLMT). Furthermore, workers in occupations on the SOL are prioritised for entry when the monthly Tier 2 limits are oversubscribed.[9]To be included on the SOL, the occupation must be high-skilled (i.e. at

National Qualification Framework Level 6) and assessed to be in shortage based on certain qualitative and quantitative indicators (see Table 2.1 above). In addition, the Migration Advisory Committee evaluates whether there may be alternative means for addressing the identified skill shortage, rather than recruiting from outside of the EEA, as well as whether recruiting migrants reduces employers' incentives to invest in training their workers. In a recent review of teacher shortages, for example, MAC concluded that including maths, science and physics teachers (primary and secondary school) on the SOL continues to make sense, as internal supply of teachers in these subjects is limited by the fact that graduates in these subjects can obtain higher salaries outside of teaching. Also, teaching salaries do not vary greatly by subject, while the salaries of graduates from maths, science and physics are much higher than those of other graduates in occupations outside of teaching (Migration Advisory Committee, 2017). On the other hand, MAC determined that teachers of foreign languages other than Mandarin (e.g. Spanish, French and German) need not be included on the SOL, since they could sensibly be recruited from other countries in the EEA.

The SOL has historically focused only on high-skilled occupations, and the UK Government has never opened Tier 3, which would allow entry of low-skilled workers to fill temporary shortages. Tier 3 was never opened because there were always enough low-skilled workers in either the United Kingdom or EEA to fill vacancies in low-skilled occupations. While future rules for freedom of movement of workers in the EEA are still uncertain, there are concerns that low-skilled occupations could face shortage pressure in the coming years if freedom of movement of workers in the EEA is constrained, as EU workers are currently over-represented in low-skilled occupations in the United Kingdom (Sumption, 2017; Vargas-Silva, 2016).

The new Immigration Skills Charge may discourage use of the Tier 2 route

As of April 2017, UK employers will be required to pay an annual charge of GBP 1 000 per skilled worker brought in from non-EEA countries under Tier 2, with a reduced rate for small or charitable organisations (GBP 364 per skilled worker). The charge must be paid for every year of the worker's contract, with exemptions for recruitment into PhD-level jobs and international students switching from student to work visas. The Immigration Skills Charge was recommended by the Migration Advisory Committee in order to incentivise UK companies to recruit and invest in training UK workers. MAC recommended that funds collected from the Immigration Skills Charge be spent to address skill shortages internally. However, it is not yet clear whether the funds will be spent to train UK workers in the skill need the foreign worker was brought in to fill.

Notes

1. This commitment was first announced in the 2015 Conservative Manifesto.
2. Apprentices take "functional skills" courses in maths and English at the same level as GCSEs in order to obtain their apprenticeship qualification.
3. The first year of operation of this duty only applied to year 9-11 pupils.
4. The national minimum wage increases with age: GBP 5.55 an hour for 18-20 year-olds, GBP 6.95 an hour for 21-24 year-olds and GBP 7.20 an hour for people age 25 and over (Gov.uk, National Minimum Wage rates).
5. The levy also charges 1.5% on labour-only sub-contractor payments.
6. Skills conditionality was introduced in Scotland in 2012. Wales undertook a Skills Conditionality Pilot between 2012 and 2015, under a slightly different model than England. In Wales, job seekers could elect to be assessed by a training provider (whereas in England this is mandatory) and the training provider was not expected to inform the public employment service when a claimant failed to attend training (unlike in England).
7. Sector-based work academies were also introduced in Scotland in 2012.
8. Tier 2 migration accounted for 45% of non-EEA work visas in 2016. Of those who entered through Tier 2, two-thirds came through an inter-company transfer with the same employer. The remaining third entered the UK to start working for a new employer, either through the RLMT (90%) or the SOC (10%) (Blinder, 2016; Migration Advisory Committee, 2015).
9. Since 2011, the annual limit for Tier 2 has been set to 20,700 (Migration Advisory Committee, 2017b). An additional benefit of the shortage occupation list is that workers are exempt from the GBP 35 000 minimum salary when they apply for permanent settlement later on.

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Chapter 4

Challenges and recommendations for the United Kingdom

While the United Kingdom has a range of policy initiatives in place to tackle skills imbalances, some challenges remain. This chapter proposes further actions that could be taken by public and private stakeholders to improve skills matching. Best practice examples from other countries are provided to illustrate how policies can effectively address skills imbalances. These recommendations and examples can assist policy makers in designing or tweaking policies to reduce skills shortages, surpluses and mismatch.

Career guidance services

A priority of any new careers strategy should be to equip careers professionals with necessary information so that they better promote apprenticeships and vocational education and training (VET) as respectable options that lead to careers with the possibility of competitive earnings and employment rates. Higher apprenticeships (Levels 4 or 5) result in similar lifetime earnings on average as an undergraduate degree from a UK university (Kirby, 2015). However, the Ofsted review (Ofsted, 2013) found that students did not receive sufficient information about the higher-level training that apprenticeships can lead to. Increasing awareness among career guidance specialists and teachers about VET pathways may therefore contribute to improving promotion of apprenticeships and vocational training among young people.

More generally, to ensure the labour market information they are conveying to students is accurate and up-to-date, career guidance specialists and schools should have regular contact with employers and higher education and vocational institutions. For example, in Sweden, as part of an annual training session for teachers, the public employment service provides an overview of findings from their skill forecasts and assessment of skill needs. These presentations educate teachers about the types of occupations and skills most in demand, and make suggestions for how to diffuse labour market information to students. The Support for Schools initiative introduced by the UK Department for Work and Pensions is similar in nature, and should be monitored to assess whether it succeeds in improving students' knowledge of the full range of available educational pathways and their labour market prospects.

In addition to poor promotion of vocational routes, the Ofsted review also noted that priority was given to students in year 11 (age 16), who were on the brink of deciding which educational route to pursue, rather than to younger students who were years away from this decision. Exposing students to possible career pathways and their education requirements years prior to the critical age of 16 is needed to help them build their professional identities and to make better decisions about which educational route to pursue.

Contact with employers should also be a cornerstone of the English careers strategy. According to a survey of UK students conducted by YouGov, young people who can recall four or more activities involving employers while in school (e.g. career insights, mentoring, work tasters, work experiences, etc.) have a much lower risk of being NEET by age 19-24 (Mann, 2012). Employer contact while in school expands the set of career progressions that students are aware of, and inspires motivation to pursue education. The Careers & Enterprise Company (CEC) was established in 2015 to promote connections between employers and schools through funding and co-ordination of programmes, with focus given to enterprise "cold spots" where employer presence is low (e.g. rural areas). To expand the number of students exposed to employers while in school, schools should be required to make employer engagement a fundamental component of their career programme. Engagement with employers is formalised in the French education system, where under *Parcours Avenir,* students must demonstrate having had the following interactions with employers over their time in secondary education: participated in one organised firm visit; met one professional from the world of work (e.g. attended a presentation given by an employee about his or her job or sector); participated in one supported project (e.g. setting up a student business); and completed a compulsory internship. Students track their employer-based activities in personalised "Folios". See Box 4.1 for examples of employer encounters that can familiarise students with the world of work.

Box 4.1. Windows into the world of work: Examples of employer engagement in schools

STEM Ambassadors

The STEM Ambassadors Programme is a government-funded UK volunteer network established to create linkages between employers and schools in order to raise interest about STEM among young people. STEM Ambassadors are volunteers from STEM-related jobs who visit classrooms to give career talks and support lessons by bringing real-world problems for students to experience and solve. By presenting young girls with female role models in STEM occupations, the People Like Me initiative of the STEM Ambassadors Programme aims to encourage participation of young women in STEM. There are currently over 30 000 STEM Ambassadors in the United Kingdom, from 2 500 different employers.

Junior Achievement Company Program

Junior Achievement (JA) works with the education and business communities as well as governments to provide young people with skills in entrepreneurship, work readiness and financial literacy. JA's Company Program offers students aged 15-19 the opportunity to form their own company and run it for one academic year. With assistance from teachers who are provided with JA learning materials, students learn to raise and manage finances, carry out market research, create a business plan, promote their product or services and take part in trade fairs. They compete with other schools in "company of the year" competitions which are judged by members of the business community. Business volunteers are also invited into the classroom to share their experience and to mentor. During the 2014/15 school year, over 313 000 students enrolled in the JA Company Program across the 39 countries in Europe that offer it.

Source: JA Company Program; STEM Ambassadors Program.

Despite the abundance of online career guidance information available (LMI for all, National Career Services website, Unistats), British students are not becoming more knowledgeable about possible career paths (Behavioural Insights Team, 2016). Incorporating use and analysis of online labour market information into the curriculum can raise awareness about and teach students how to use these resources more effectively. In one successful case study reviewed by the Ofsted report, teachers asked students to consult local labour market information to identify occupations with the highest number of vacancies, to measure the number of vacancies in their most popular occupations, and to prepare "action plans" for fictional students based on skill profiles provided by their teacher. Students reported that these exercises provided them with a better understanding of their local labour market, and made them consider alternative career paths.

Personalised career guidance services can also assist adults who are interested in upskilling or retraining for occupations in higher demand. The new Universal Credit will provide low-paid workers who receive the benefit with access to a Work Coach who will support them in moving into work or finding a job that makes better use of their skills or has better career prospects. But employed individuals not receiving Universal Credit benefits could also benefit from personalised career guidance services in order to facilitate their transition into a second chance occupation with better employment prospects. Higher-skilled workers could be referred to approved recruitment agencies which have expertise in employing higher-skilled people. In Belgium, for instance, the Flemish careers advice vouchers (*loopbaancheques*) entitle all employees and self-employed to eight hours of subsidised careers advice every six years. Vouchers for career guidance services must be purchased online, and 93% of costs are subsidised. Individuals can benefit from a personal meeting with a counsellor which consists first of an assessment during which the individual completes exercises and tasks with the counsellor to discover his strengths, job values, and career goals. Next, the individual and counsellor

together establish a personal development plan, which outlines the steps needed to reach the career goal. Individuals who require additional support after the completion of eight hours of guidance (e.g. about how to implement their personal development plan) have access to one hour of free "post-guidance services." Employees have confidence that their privacy is assured and there will be no exchange between the career guidance centre and their employer.

Box 4.2. Recommendations: Career guidance services

- Continue mandatory career guidance services in secondary schools, but ensure that school careers programmes include a range of activities from age 12 to 16 in order to give students adequate preparation to decide which education route to pursue (academic, apprenticeship or vocational training).
- Repeated employer interactions during secondary school should become a cornerstone of schools' career guidance strategy, in order to familiarise students with possible career pathways and with the skills that employers need.
- Consider expanding Jobcentre Plus' role in sourcing career guidance to include not only the unemployed and Universal Credit recipients, but also employed workers who are not receiving benefits. Providing the employed with access to fee-for-service career guidance counselling from approved recruitment agencies, with waivers of repayment for those facing redundancies, would facilitate career shifts in the face of evolving skills demand.
- Facilitate navigation of the abundance of available career guidance information by incorporating the use and analysis of online data portals (e.g. LMI for All, National Career Service website) into secondary school curriculum.
- Evaluate the pilot to track employment outcomes of graduates (the Longitudinal Educational Outcomes database), taking feedback from a wide range of potential users into account. Outcomes for vocational pathways should be tracked and publicised in addition to outcomes for academic pathways. Tracking field of study would also provide useful information to students making career decisions.

Availability of lifelong learning opportunities

Particularly in light of the high share of adults with low basic skills, it is critical that adults engage in lifelong learning to upskill and retrain in order to remain employable and adaptable as the needs of the economy evolve with technological change and globalisation. Unemployed workers need to have access to training opportunities in order to improve their general employability, but also to retrain in order to meet changing skill needs. Employed workers, too, should have access to incentives to upskill and retrain, both because the high incidence of temporary and low-skilled workers among the employed makes them less likely to benefit from employer-sponsored training, but also to increase their chances of retaining their existing job or moving to a job with stronger labour market prospects.

The United Kingdom already has in place several incentives to encourage adults to partake in training of their own initiative, including free basic skills training (maths and English) which helps to remediate low skills among adults, and Union Learning which successfully targets lower-skilled and older workers who are less likely to participate in training. Advanced Learner Loans were also introduced to facilitate lifelong learning by

reducing the credit constraints associated with taking a course to retrain or upskill. While take-up is still low, the Advanced Learner Loans have high participation in professional qualifications that are popular among career changers. In light of this, education providers are starting to more actively recruit learners to courses that deliver qualifications for which there is local demand. The draw of higher wages and better employment prospects should steer adults to pursue further education in high-demand skills and occupations. Some countries also link remission and/or forgiveness of loans to the labour market situation of the person completing the course. For example, the Government of Canada encourages training in the medical profession, offering student loan forgiveness to eligible family doctors, residents in family medicine, nurse practitioners and nurses who practice in under-served rural or remote communities. To facilitate higher take-up and to improve skills matching, the Advanced Learner Loans could grant forgiveness of loans to graduates who work in selected occupations that are in high demand (could be informed by the MAC skilled shortage occupation list or the UK Employer Skills Survey).

Additional incentives for employed workers to pursue in-demand skills training could also be considered, including training vouchers, training leave or grants (see Box 4.3). England's previous *Individual Learning Accounts* programme, which ran from 1999 to 2001, suffered from a lack of quality checks on the type of training provided, which resulted in several incidents of fraud. However, the Scottish and Welsh experiences suggest that minimising fraudulent use of the learning account is possible with the introduction of quality controls: stringent vetting of learning providers and quality assurance of eligible courses (UKCES, 2010). Some countries, including France with its training leave credits (see Box 4.4), are starting to tie training rights to the individual, rather than to the job, in order to make these rights portable. Rising employment in non-standard forms of work (e.g. part-time work, casual work and temporary contracts) across OECD countries make such portability advantageous, as employees in this type of work generally have shorter tenure and receive less training from employers (OECD, 2015).

Box 4.3. Training the employed in Scotland, France and Canada

In **Scotland**, *Individual Learning Accounts* (ILA) give eligible individuals up to GBP 200 a year to be used towards training. The ILAs target the lower-skilled by restricting eligibility to those with an income of GBP 22 000 or less and those without a postgraduate qualification. Courses available for coverage by ILA are limited, and must be provided by one of the registered training providers. Use of ILAs is accompanied by provision of information and guidance which can be used to steer training acquisition to areas of labour market need.

In **France**, the *Compte personnel de formation* (Individual Training Account – CPF) credits each full-time worker with 24 hours of training leave each year during the first five years of the programme, and with 12 hours per year during the subsequent three years – up to a maximum of 150 training hours in total. These training hours are preserved upon job loss and transferable between employers. Training hours can be used to acquire recognised qualifications or basic skills, or to take courses selected jointly by Regional Councils, the social partners and the professional associations, which often reflect foreseeable economic needs. If the training takes place during working hours, then the employee needs to obtain permission from her employer, and if approved, the employer covers their wages over the training period.

In **Canada** (Ontario), as part of the *Second Career* programme introduced in 2008, unemployed or under-employed individuals can be eligible for up to CAD 28 000 in financial support to retrain in a new career that is on the province's high-demand occupation list. Since 2008, Second Career has assisted 76,000 displaced workers. A government survey conducted in 2010 showed that 93% of Second Chance students had graduated by 2010 and three-quarters had found jobs within one year of graduation, compared with half of displaced workers.

Source: Scotland's ILA; France's CPF; Ontario's Second Chance.

Validating non-formal and informal learning improves skill matching in the labour market by strengthening the signalling power of skills, which makes it easier for employers to identify which skills job seekers already have. Higher currency of their skills in the labour market also increases the incentives for individuals to invest in training by allowing them to capitalise on their investment. This is particularly important in the United Kingdom where 25% of adults are under-qualified for their occupation (see Figure 1.15). Many of these adults may have the skills needed to perform their occupation, but lack formal qualifications. In the United Kingdom, Recognition of Prior Learning (RPL) is a regional strategy, and England has recently revised its Recognising and Recording Progress and Achievement (RARPA) policy to include recognition of non-regulated education provision. Some small-scale initiatives have also emerged, including the "open badge" system developed by Digitalme, an NGO, to recognise skills and achievements across the web. Generally, employers may be reluctant to initiate RPL for their employees since it raises the signalling power of their skills, making them easier to poach. In light of this, some countries introduce incentives to promote the use of RPL among employers. In the Netherlands, employers benefit from a tax reduction (*Wet vermindering Afdracht Loonbelasting*) of EUR 300 per worker per year if they pay for their employee's recognition of prior learning (*Erkenning Verworven Competenties*). In the absence of such incentives for RPL in England, some stakeholders anticipate that rather than generate new training and new skills, the new apprenticeship levy will be used by employers to accredit existing skills.

Training opportunities for those at risk of long-term unemployment could also be expanded and better tied to skill needs. Under skills conditionality, short-term claimants of unemployment benefits (less than three months) must attend short-duration training courses if the National Career Services counsellor identifies skill gaps that are barriers to employability. Job centre coaches have good knowledge of local labour needs, and are able to make sound referrals for short-term training to boost employability. Most of this training falls under the category of "occupational training" (see Table 3.1), which includes health and safety training. For claimants assessed to have work experience in an occupation with low demand, more substantive work-based training may be needed. Given the success of the Sector-Based Work Academy programme, which has demonstrated excellent results in employing low-skilled unemployed after a publicly-funded hands-on training programme within firms, the United Kingdom should consider expanding it, by providing subsidies to employers to hire and train unemployed individuals. Several countries have taken this route. In New Zealand, employers can obtain government support when they hire someone who is on unemployment benefits and needs extra training to do the job. The government will pay the wages and training costs of the new hire for up to one year. To be eligible for this support, employers must hire the unemployed person into a permanent job of at least 30 hours per week, paying market wage. Similarly, in France, to help firms that have difficulty recruiting a suitable candidate, the *Préparation Opérationnelle à l'Emploi* gives firms subsidies for provision of either external or internal training when they hire someone who lacks skills required for the job. The subsidy covers wages and a maximum of 400 hours of training for the new hire. It is limited to permanent contracts and fixed-term contracts of at least 12 months, though a similar subsidy, *Action de Formation Prélable au Recrutement* is in place for shorter-term contracts.

Box 4.4. Recommendations: Availability of lifelong learning opportunities

- To encourage workers to upskill to meet the changing needs of the economy, make the Advanced Learner Loans more attractive for low-skilled workers by tying waivers of repayment to employment in certain shortage occupations. Consider also introducing other training incentives which are tied to individuals rather than jobs, e.g. personal learning accounts or paid training leave, with use limited to development of in-demand skills.
- Consider expanding the Sector-Based Work Academy programme by providing subsidies to employers to hire and train unemployed individuals. These subsidies should be made conditional on long-term and quality jobs.

Access to quality schooling

Low basic skills among adults remains an acute challenge facing the English education system. One third of the potential entrant pool to university (age 16-19) has low basic skills, higher than almost all other countries surveyed by PIAAC. Early intervention is needed to improve basic skills during compulsory education, since later remediation is more challenging (OECD, 2016). Preliminary evidence suggests that recent reforms to extend compulsory schooling to age 18, and to make math and English mandatory up to age 18 (or until minimum standards are met) are proving successful in improving the basic skills of young people. Setting more demanding basic skills standards linked to upper secondary completion would build on these reforms, by making the need to go beyond Level 2 explicit and universal, as recommended in OECD (2016). Diverting low-skilled potential university entrants to more suitable postsecondary alternatives, like short professional programmes, should also be explored (OECD, 2016).

Effort is also needed to improve working conditions for teachers in compulsory education to boost the quality of teachers who are attracted to the profession, as teacher quality is considered to have the greatest effect on student learning among measureable influences (Hattie, 2009). The government's initiative to offer bursaries for student teachers in STEM fields is a commendable step forward in attracting quality teachers. Also, the announcement to invest GBP 15 million in grants through the Education and Training Foundation in 2016-17 in order to upgrade teachers' ability to teach maths and English is welcome. However, these measures do not go far enough to address the key challenge in attracting and retaining highly-skilled teachers, which is that graduates from some subjects, particularly maths and sciences, can earn higher and more differentiated pay in occupations other than teaching (Migration Advisory Committee, 2017). Schools cite public sector pay restraint and budgetary pressures as limiting scope for teacher pay raises or a performance-related pay strategy (Migration Advisory Committee, 2017b). As a result of this wage restraint, teachers in maths and physics have been included on the MAC's skilled shortage occupation list for many years. Raising teachers' pay works to attract more highly-skilled teachers both by the incentive to earn more, and by raising the status of teaching as a profession. Evidence linking teacher wages to student outcomes suggests that raising teacher's pay by 10% could improve student performance by 5-10% (Dolton and Marcenaro Gutierrez, 2011; Loeb and Page, 2000).

In addition to relatively low pay, teachers cite an increasing workload and a punitive accountability system as contributing to poor working conditions (Migration Advisory Committee, 2017). Improving other aspects of working conditions, like work-life balance,

involvement in institutional decision making, and investment in professional development could help to attract highly-skilled graduates to the teaching profession.

Access to quality education could also be improved, as young people born into households where neither parent attained at least upper secondary education face inherent disadvantages in accessing quality education. The National Teaching Service pilot, introduced in 2016, aims to level the playing field by incentivising high quality teachers to relocate to disadvantaged primary and secondary schools in England. This is a promising initiative and should be expanded if the pilot demonstrates successful outcomes in student performance. High quality careers guidance, discussed earlier, is also critical to facilitate equal access to higher education and to improve social mobility, by enlarging the set of education and career aspirations that young people consider open to them.

Box 4.5. Recommendations: Access to quality schooling

Compulsory schooling

- Improve teacher supply and quality by making the profession more attractive by improving wages and work-life balance. Develop adequate financial and career incentives to attract and retain higher quality teachers to schools in lower socio-economic areas.

Apprenticeship system

The new apprenticeship levy holds a lot of promise to increase employer investment in training and to make employers responsible for setting the standards for the skills they require. To ensure that the levy succeeds in generating investment in skills which are in demand in the labour market, a number of implementation challenges need to be sorted first.

A central threat to the success of the apprenticeship levy is that it could incentivise employers to rebadge existing training or to seek out low-quality training that meets the minimum requirements to recoup the levy payment. Survey evidence suggests that many employers plan to rebrand existing training as an apprenticeship (Figure 3.5), and as such, the levy risks raising administrative costs for employers and reducing the quality of the apprenticeship brand, rather than inciting new training in high-demand skills. Fundamentally, employers need to be convinced that there is value in raising investment in employee training. A study by Dawe and Nguyen (2007) which reviews the literature on small enterprises' training concludes that "financial incentives alone are not sufficient to meet small business needs," because they "see evidence that small business managers are willing to pay for education and training for themselves and their employees, if they see the value in it". One of the recommendations the study makes is to clearly link training to business performance depending on specific stages in the business cycle (start-up, crisis, expansion or export). Launching an awareness campaign to share and advertise best practices of specific training interventions at various stages of the business cycle which lead to high return on investment, could help to transform the perceived value of training in employers' minds. To avoid diluting the quality of the apprenticeship brand, the use of the levy could be expanded to include non-apprenticeship training, as recommended in IPPR (2017). At least a portion of training covered by the levy should be limited to skills identified to be in demand (for instance, informed by the MAC shortage

list or the UK Employer Skills Survey). In addition to preserving the quality of the apprenticeship brand, rebranding the levy as a broader training levy would also make it more inclusive to workers in non-standard working arrangements (e.g. part-time, temporary, casual) whose contracts may not be long enough to take part in an apprenticeship. A detailed discussion about prioritising the quality of apprenticeship training under the new levy is carried out in a recent OECD report (OECD, 2017, forthcoming).

With subsidies available only for the off-the-job training component of apprenticeships, risks are high that employers will shift focus and resources from on-the-job training to off-the-job training. By contrast, the strongest apprenticeship systems, for example in Switzerland, entail a solid grounding in quality on-the-job training, with minimum standards set for quality and content of training (see Box 4.6). Introducing minimum standards for the on-the-job training component that are tied to subsidies would help to fortify the quality of the apprenticeship brand by strengthening their skills-signalling power in the labour market.

One of the most appealing features of the new regulation model is that employers take the lead in setting apprenticeship standards, as part of "trailblazer" employer-led panels. Giving employers the responsibility to map out their specific skill needs for apprenticeships could facilitate smoother transitions from apprenticeships to work by ensuring that graduates have the skills to be employable. However, there is also the risk that firm-led standard setting might result in too narrow a focus, giving too little attention to transversal skills. Sector skill councils, which previously were mandated to conduct skill assessments by UKCES (see Box 2.1), have a wealth of sectoral and occupational knowledge and experience working with awarding institutions to develop standards, and could be consulted in the establishment of apprenticeship standards. In some sectors, this is already being done: the employer trailblazer group for the adult social care sector, for instance, was supported in its setting of apprenticeship standards and sector consultation by Skills for Care, thanks to funding made available through the Department for Health. Furthermore, consulting with trade unions in the design of apprenticeship standards could improve their quality by, for example, ensuring that standards do not become too job-specific and provide apprentices with sufficient transversal skills. Trade unions have strong influence on VET qualifications in countries such as Germany and Austria, and to a more limited extent, in Switzerland (Graf, 2014). England could consider, for example, including representatives from trade unions in the governance of the Institute for Apprenticeships.

The government currently provides several incentives to employers to encourage them to take on young apprenticeships, including freedom from paying National Insurance Contributions, grants for apprentices aged 16-24, and a lower minimum wage. However, many young people lack the necessary skills to enter an apprenticeship at the required level. The new traineeship programme is helping to create a pathway for low-skilled young people who may have dropped out of the schooling system to enter apprenticeships and improve their labour market prospects, thus mobilising an unused pocket of skills. Offering wages to trainees, as is done in Germany (see Box 4.6), might encourage higher participation. Employers could be offered the same incentives to participate in traineeships as they are with young apprentices (i.e. not having to pay National Insurance contributions, grants, and a lower minimum wage).

Targeting of the levy to large firms (those with a wage bill over GBP 3 million), means that small and medium-sized (SME) firms, which make up the majority of firms in

England, are not mandated to invest more in training, though they will continue to benefit from training subsidies in the delivery of apprenticeships. Additional effort may be needed to reduce the particular barriers that SMEs face in providing training, including difficulty articulating training needs and low economies of scale. Unused levy funds could be directed at group training schemes to co-ordinate provision of group training in high-demand skills for employees working in SMEs in the same industry or sector.

Box 4.6. Quality Apprenticeships in Switzerland and Germany

Setting standards for apprenticeships

In **Switzerland**, the State Secretariat for Education, Research and Innovation (SERI), and the Swiss Federal Institute for Vocational Education and Training (SFIVET) work closely with industry associations to develop "ordinances" that define the curriculum framework or "training plan" for entry into each of the 240 occupations in which there are apprenticeships. Students can obtain an occupation-specific qualification certificate through a final assessment which is standardised across the country. Training plans outline required skills in the following three domains:

- Technical or professional skills defined as the content of the work and its application.
- Methodological skills defined as the ability to organise work efficiently, solve problems systematically, and improve how work is carried out.
- Social skills defined as team work and conflict management, ability to acquire new knowledge independently, and to interact professionally.

For each specific skill, the training plan outlines where it is learned (workplace, interfirm training center, or VET school), and how the learning is to be integrated and sequenced. In this way, the Swiss apprenticeship system sets minimum standards for the on-the-job training component by clearly outlining which skills are to be learned on the job and how this learning integrates with classroom learning.

Creating transitions to apprenticeships

Young people in **Switzerland** who are unable to secure an apprenticeship contract because of weak academic preparation (especially language skills) can enter a "10th year programme," which is a transitional year that provides additional training and support in securing an apprenticeship. Most of these students succeed in starting a two-year apprenticeship before the year is up.

In **Germany,** pre-apprenticeship training (*Einstiegsqualifizierung)* aims at improving the transition from education to work for young people (age 25 or less) who have difficulties securing an apprenticeship. The programme lasts from 6 to 12 months, and consists of subsidised job placements complemented by vocational training. Upon completion, participants can apply for a "certificate of completion". Later, their pre-apprenticeship training can be discounted from the total duration of an apprenticeship with this certificate. Participating employers, matched with participants through the public employment service, receive a wage subsidy and a lump sum contribution to cover social security contributions. An evaluation showed that three years after the start of the programme, 65.5% of participants progressed to an apprenticeship, while 74.7% transitioned into any type of vocational training.

Source: Hoffmand, N. and R. Schwartz (2015), "Gold Standard: The Swiss Vocational Education and Training System", National Center on Education and the Economy, Washington, DC; European Commission (October 2015), "Pre-apprenticeship Training (also known as first integration qualification for young people: Germany", Information review.

Box 4.7. Recommendations: Apprenticeship system

- Improve the business case for training among employers. Until employers are convinced that low levels of training are a problem, incentives to encourage more training are unlikely to lead to new training activities. Building an evidence base of successful employee training examples that have led to high return on investment for employers could help to raise awareness among employers about the potential value of training.
- Allow more flexibility in the type of training that the levy can cover, as restricting to spending on apprenticeship training could reduce the quality of the apprenticeship brand. Reframe the apprenticeship levy as a broader "training levy," with the requirement that levy funds be spent on developing in-demand skills.
- To ensure adequate emphasis on transversal skills in apprenticeship standard setting, consider involving the sector skills councils (SSCs), if appropriate, as they have a wealth of experience and knowledge about sectoral and occupational skill needs. Trade unions should also be involved in the process of apprenticeship standard setting, perhaps with representation on the Institute for Apprenticeships.
- Consider implementing more rigorous minimum standards for the type and quality of content covered in on-the-job training.

Promoting policy stability

Brexit introduces considerable uncertainty for the future supply of skills in the United Kingdom. There has also been considerable flux in skills policy in recent years, with new skills policies and agencies introduced with new political administrations. Consider that the Learning and Skills Council, formerly responsible for planning and sponsoring post-16 further education, was dismantled in 2010 and replaced by the Skills Funding Agency and the Young People's Learning Agency, which was dismantled in 2012. Similarly, the Sector Skills Development Agency, which used to be responsible for funding sector skill councils, was replaced in 2008 by the UKCES, which was itself recently dismantled. Such policy flux adds to uncertainty about skills policies, and could dampen incentives to invest in training on the part of employers and individuals.

Before "starting fresh" with a new skill policy or skill agency, policy makers should first evaluate or audit existing policies or agencies and assess whether it is possible to make quality improvements rather than abandon them. Also, introducing and evaluating pilot initiatives prior to rolling out a large-scale initiative can improve policy design and reduce costs in the long run. There are many examples of skill policies that began as pilot initiatives in the United Kingdom, like the Sector-Based Work Academy programme, the Longitudinal Employment Outcomes database, Jobseeker's Allowance Skills Conditionality, and the employment investment funds. But the lack of an evaluation or an in-depth analysis of policy implications for a large-scale initiative like the apprenticeship levy seems short-sighted and could add to policy flux if the levy proves unsuccessful. Committing to an evaluation culture can help to promote stability in skill policies over time, and strengthen incentives to invest in skills training.

Box 4.8. Recommendation: Promoting policy stability

- Improve evaluation of policies and ensure that large-scale policy initiatives are preceded by a pilot, to the extent possible.

Weak demand for higher-level skills

The bulk of measures discussed in this report relate to how policy can shape the supply of skills to better meet demand, through tweaks to education, employment and migration policies. But the other side of the equation is equally important: how can the United Kingdom create adequate demand for its rising supply of highly-educated graduates, and make the most use of the skills it already has? With about 15% of Britons being over-qualified for their occupation (Figure 1.15), there is a need to pair supply-side policies with measures to spur demand for higher-level skills and qualifications.

While the average education level of the working-age population has increased in England, productivity has remained flat, and has lagged behind higher-performing countries like Germany and the United States. With the goal of improving productivity, the recent Green Paper proposal, "Building our Industrial Strategy," signalled the government's intention to invest GBP 4.7 billion of additional funding in R&D by 2020-21. England could consider following in the footsteps of a number of developed countries which have invested heavily in R&D and skills under the umbrella of Industry 4.0, which has the aim of harnessing the productivity benefits of new digital technologies, like big data, the increase in computational power and connectivity, business analytics, new forms of human-machine interaction, and improvements in transferring digital instructions to the physical world, such as advanced robotics and 3-D printing (McKinsey & Company, June 2015). The recent UK green paper sets out an industrial strategy that has a strong skills focus, and proposes investing more in science, research and innovation which could promote stronger demand for higher-level skills.

In addition to raising investment in technology infrastructure, better skill utilisation should be prioritised to raise demand for higher-level skills and qualifications and reduce over-skilling and over-qualification. The Workplace Innovation Programmes implemented in Scandinavian countries (like the Finnish Workplace Development Programme, see Box 4.9) involve providing organisations with expert help to reconfigure work organisation, job design and production processes and technologies to enhance their capacity to engage in workplace innovation. These programmes begin from the understanding that workplaces where more learning and innovation takes place are the ones that make best use of employees' skills. Scotland has also taken steps to develop its skills utilisation policy by funding a series of pilot projects around skill utilisation, which were evaluated and considered for larger-scale implementation (see Box 4.9). England stands to gain from investing in its own pilot projects around skills utilisation, drawing lessons from other countries' successful experiences.

Box 4.9. Policies to encourage skills utilisation: Examples of good practice

Scottish Funding Council Skills Utilisation Projects

Starting in 2009, Scotland funded 12 projects around skill utilisation, whereby colleges and universities could collaborate with employers to facilitate better usage of skill. Projects were selected by the Scottish Funding Council through a competitive tendering process and included the following:

- The Glasgow School of Art ran a "Creating Cultures of Innovation through Creativity and Design" project that aimed to help business leaders use the skills of their entire workforce to solve business problems by working with a vertical slice of the organisation to help develop a creative thinking process. The method involved holding workshops to brainstorm solutions to a problem facing the firm, with workshop members selected to be broadly representative in terms of their position within the firm, gender, function, age and length of service.

- The Open University in Scotland worked with organisations in the social care sector to make better use of newly-acquired skills of students who had just completed a management level qualification for supervisory staff. Previously, students had complained that when they returned to work after completing this course, their responsibilities did not change, despite their new skills. The Open University helped social care organisations to re-think and broaden the role of students' jobs to more fully use their new skills.

The qualitative evaluation found evidence that universities and colleges can make a positive contribution to skills utilisation, but flagged several issues, including the need, if the approaches were to be scaled up, of developing expertise in helping organisations to re-think work organisation, job design and their approaches to innovation.

Finnish Workplace Development Programme

A national government programme that ran from 1996 to 2003 (TYKE programme) and continued from 2004 until 2010 with expanded resources (TYKES programme), the Finnish Workplace Development programme aimed to disseminate good practice and mutual learning around organisational and management practices, models and tools. More than 1 800 development projects were supported in Finnish workplaces between 1996 and 2010, with a focus on innovative solutions to work-related and organisational issues. Qualitative evaluations suggest that the TYKE and TYKES programmes were effective in promoting workplace innovation and productivity.

Source: Keep, E. (2016), "Keep Improving Skills Utilization in the UK: Some reflections on what, who and how"; Oosi, O. et al. (2010), "Ärjen muutoksista työelämän innovaatiotoiminnaksi – Työelämän kehittämisohjelma 2004-10 Arviointiraportti", *Tekes Programme Report*, No. 5/2010, Helsinki; Arnkil, R. (2003), "The Finnish Workplace Development Programme: A Small Giant?", *Concepts and Transformation*, Vol. 9, No. 3, pp. 249-278.

Box 4.10. Recommendations: Weak demand for higher-level skills

- Stimulate higher-level skill demand through investment in R&D in order to harness productivity benefits of the digital revolution and reduce over-skilling and over-qualification.

- Develop a skills utilisation policy by funding a set of pilot initiatives to test "what works" in terms of adapting work organisation and management practices to make better use of employees' skills.

Use of skill needs data in policy making

The ability of policy intervention to reduce skill mismatch and skill shortages depends critically on having quality information about current and future skill needs. The ESS, MAC's skilled shortage list and the Working Futures model provide policy makers with valuable data for informing skills policy. Indeed, there are several examples of how this information is being used actively and successfully. For instance, the MAC shortage list is used to facilitate entry of foreign workers in shortage occupations. In education policy, too, evidence from the ESS of shortages in STEM-related occupations led to several policies to stimulate development of STEM skills (e.g. Engineer conversion, STEM capital fund, grants for teachers in STEM). The design of the new apprenticeship levy has also been shaped by insights from skill needs data.

More use could be made, however, of skill needs data in policy making. One example is with bursaries in higher education. The National Health Service distributes funding to institutions to assist students in paying costs associated with dentistry, medicine and health care programmes. Students in nursing were recently made ineligible for these bursaries – a puzzling policy reform given that nursing has been on MAC's skilled shortage occupation list for several years. As mentioned earlier in this report, skill needs data could also be used more to inform other areas of policy making, including forgiveness of Advanced Learner Loans and use of employer levy funds. The now-closed UKCES played an essential role in co-ordinating with social partners and other relevant stakeholders in the collection of skill needs data and its use in policy making. Care should be taken to ensure that these responsibilities are picked up by another organisation.

Box 4.11. Recommendations: Use of skill needs data in policy making

- Ensure that the critical role performed by the former UK Commission of Employment and Skills to co-ordinate skills needs data and its use in policy making is handed over to another body.

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United Kingdom

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

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