



Government
Office for Science



The UK's Skill System: Training, Employability and Gaps in Provision

Future of Skills & Lifelong Learning

Evidence Review

Foresight, Government Office for Science

The UK's Skill System: Training, Employability and Gaps in Provision

Anne Green, Terence Hogarth, Sally-Anne Barnes, Lynn Gambin, David Owen, and Nick Sofroniou

August 2016

This review has been commissioned as part of the UK government's Foresight Future of Skills and Lifelong Learning project. The views expressed do not represent policy of any government or organisation.

Contents

Executive Summary	4
1. The changing demand for skill	5
2. Identifying gaps in provision	7
3. Skill shortages	8
4. The skill equilibrium	10
5. Geographical gaps in provision	12
6. Individual access to skills and training	15
7. Tackling skills shortfalls: the role of migration	17
8. The role of careers information, advice and guidance	21
9. Conclusion	23
10. References	24

Executive Summary

Skills mismatches are inherently difficult to measure. At face value there is relatively little evidence of gaps in the provision of skills. The evidence suggests that skill shortages, as a percentage of employment, are at a relatively low level. In other words, skills supply is keeping pace with skill demand.

Increasing levels of educational attainment amongst the population – which has been complemented by the arrival of highly skilled and educated migrants – has significantly improved the supply of skills over recent years. This is likely to have ensured that skill shortages have not acted as an undue drag on economic performance.

But even within the current system there are groups who do not share in the benefits of economic growth to the same extent as others. People living in rural areas appear to have less access to training and development, as do those in deprived areas elsewhere, and those from lower socio-economic groups.

If demand for skills from employers were to be increased by stimulating them to capture higher value added markets, then the demand for skills would increase and, other things being equal, an increased number of skill shortages would emerge. In a demand led skills system there is every likelihood that the supply side would adjust to the increasing demand for skills. Further and higher education institutions would adapt their provision and migration would, as in the past – subject to the nature and details of migration policy - continue to be an important source of supply of highly skilled and educated people. It is important that the skills system can respond in this way.

At the same time, if skills demand is increased, then there is a need to ensure that the benefits are shared equitably between different areas and population sub-groups. Careers advice and guidance has been restructured significantly in recent years. A well-functioning system can support people in the acquisition of economically valuable skills and in doing so ensure that skills supply is even better matched to skills demand.

One aim of economic policy is to drive up the demand for skills without skill shortages emerging. This requires people entering further and higher education to treat their education as an investment good, such that the output of skills from the education system better meets demand. It is also dependent upon the UK being an attractive destination for highly skilled and educated people. However, driving up skills demand also provides an opportunity to be more inclusive and ensure those at the margins of the labour market – from a geographic or socio-economic perspective – also have their skills developed.

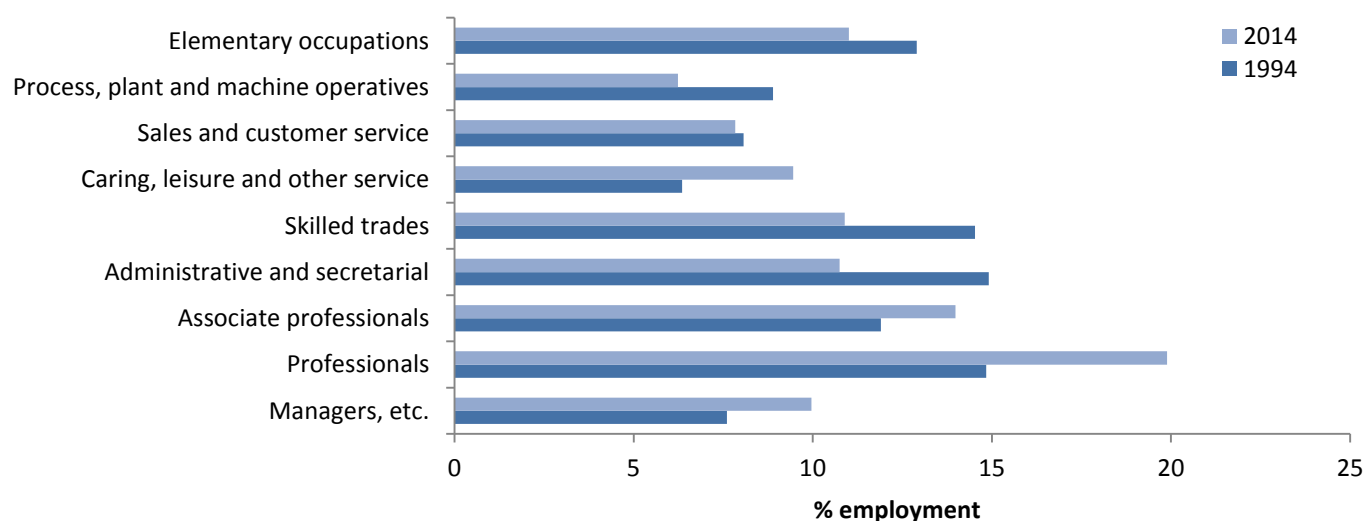
I. The changing demand for skill

In the introduction to his seminal review, 'What is Skill?' Paul Attewell (1990) observes that 'like so many common sense concepts, skill proves on reflection to be a complex and ambiguous idea.' From a labour market perspective, skill tends to refer to the capacity to competently undertake the tasks that comprise a job. If skill is regarded as human capital then this assumes that people and employers will invest in it - just as they invest in other forms of capital – from which they will seek a return. This sees skill as synonymous with a job or qualification with analyses concentrated on estimating the current and future discounted earnings that arise from working in a particular job or acquiring a given qualification (Green, 2013). Other concepts of skill are available, but if one sticks with the human capital formula, then it is possible to succinctly reveal how the demand for skill is changing over time.

If one looks at changing structure of employment between, say, 1994 and 2014, then there is evidence that the demand for skills has increased substantially over twenty years (see Figures 1 and 2). Over time, an increasing share of employment has been accounted for by people working in managerial, professional, and associate professional jobs who are typically qualified to a level higher than their counterparts from the recent past. Whilst individuals do not always regard qualifications as an investment good (Gambin et al., 2014), the evidence unequivocally points to those with relatively high level qualifications experiencing a premium with respect to earnings (see Walker and Zhu, 2013; Green and Henseke, 2014). This suggests, other things being equal, that demand has been increasing especially at the upper end of the skills spectrum, and that individuals are deriving a positive return from their decision to acquire higher level qualifications.

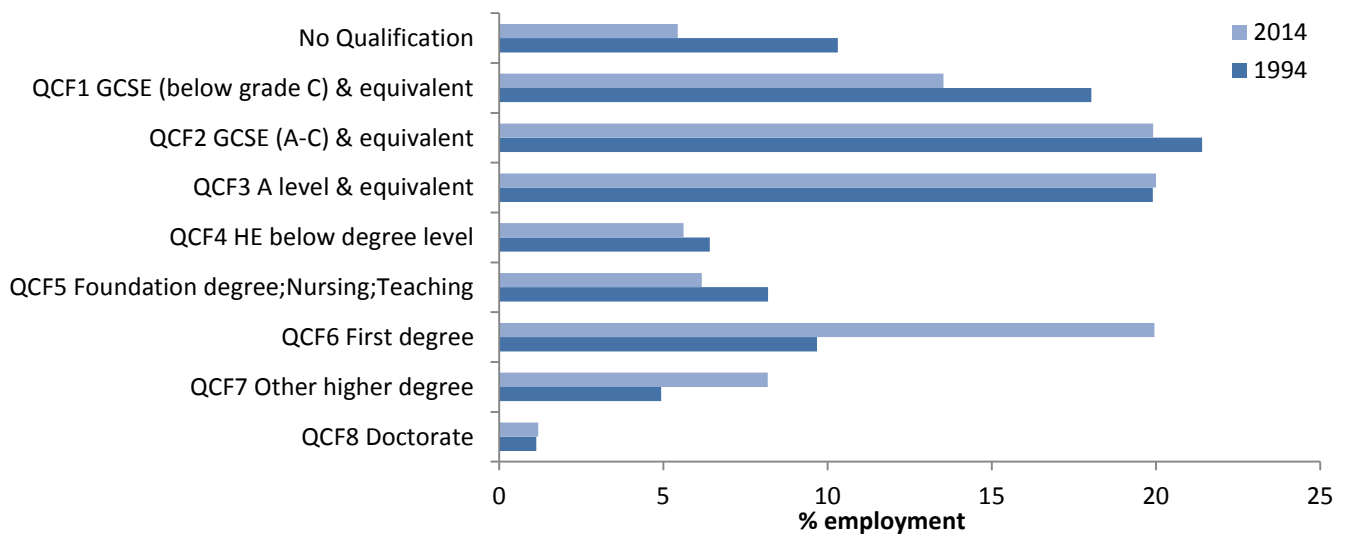
If skill demand has been increasing, then this begs questions relating to whether that demand is being adequately met and the effectiveness of the processes in place to ensure supply meets demand. Important here is the issue of inclusion; the extent to which people are supported to make the transition from education to work (c.f. employability) and then avoid their skills becoming obsolescent (c.f. lifelong learning and access to training).

Figure 1: Occupational structure of employment: 1994 and 2014



Source: Working Futures Database

Figure 2: Qualification (QCF) structure of employment: 1994 and 2014



Source: Working Futures Database.

2. Identifying gaps in provision

In an ideal world, one might want skills to sufficiently drive up economic and productivity growth, and thereby employment, but in a way that ensures a degree of inclusion. In other words, that the fruits of economic growth provide jobs and development opportunities for the many. There is a well-established research literature that demonstrates the association between skills development and productivity growth. Historically, Government has identified five drivers of economic prosperity (HM Treasury, 2001):

1. Skills;
2. Enterprise;
3. Innovation;
4. Competition; and
5. Investment.

There are complementarities and interdependencies that exist between each of the five drivers and no single driver can be considered to have more weight in driving productivity than the other factors. Whilst skills alone will not drive productivity improvements, improvements in skills are crucial when combined with improvements in the four other key drivers. It is perhaps notable that whilst the UK's productivity growth in the post-financial crisis period has been somewhat abject, the evidence suggests it might have been worse had substantial investments in skills not been made in the preceding period (Holland et al., 2013).

It is evident that many countries are placing renewed emphasis on industrial policy that will integrate skills with other drivers of productivity growth it can take time for these policies to take effect. So, in the meantime, are there improvements that could be made in the existing supply of skills whilst not waiting upon changes in the other dimensions that might constitute an integrated industrial policy? In order to answer this question there is a need in the first instance to identify gaps in provision and from there identify how the skills system has responded to them.

There are a number of ways identifying gaps in provision:

1. the extent of skill shortages – this indicates the level at which skills supply is meeting demand;
2. the relative equilibrium at which skills demand has settled – one might compare the average level of skill demand relative to that of better performers (however defined);
3. the extent to which there are local or regional gaps in skills and provision;
4. with respect to groups – either individuals or employers – that are regarded as being under-provided for in the sense that they have skill needs that are not being met for some reason.

By addressing the issue in this way, it is possible to shed some light on whether there are gaps in provision, the reasons they exist (e.g. market failures of one kind or another, rapid structural change, etc.), and how they might be effectively addressed in the future.

3. Skill shortages

Skills mismatches are inherently difficult to measure (OECD, 2016). There are various ways of addressing the issue:

- evaluating employers' reports of skill shortages;
- analysing trends in wage differentiation between jobs;
- assessing trends in wage growth.

The Employer Skills Survey for 2015 (Vivian et al., 2016) shows the percentage of employers reporting skill shortages (difficulties recruiting people from the external labour market) or skill gaps (where existing staff are considered not to be fully proficient) (see Table 1). If skill shortages are looked at as percentage of total employment, then they are less than a half of one per cent. And skill gaps often reflect little more than the fact that employers have been recruiting new staff who are yet to complete their induction training and therefore are not yet fully competent at their jobs.

Table 1: Employer reports of skill shortages and skill gaps

	2011	2013	2015
Skill shortages			
% of establishments with any vacancies	14%	15%	19%
% of establishments with any hard-to-fill vacancies	4%	5%	8%
% of establishments with SSVs	3%	4%	6%
% of all vacancies which are SSVs	16%	22%	23%
Number of vacancies	586500	655000	927200
Number of skill-shortage vacancies	91400	146200	209500
Skills gaps			
% of establishments with any staff not fully proficient	17%	15%	14%
Number of skills gaps 1485500	1485500	1409900	1380200
Number of staff not fully proficient as a % of employment	6%	5%	5%

Source: Working Futures Database.

Employers may well have a vested interest in reporting shortages or gaps where they want government to intervene to improve the supply of skills. Often employers experience shortages because they are not prepared to pay the going rate for the job. Looking at trends in wages – occupational wage growth and occupational wage differentiation – can provide a better view of shortages. Both of these measures assume that wages are responsive to the changing balance of supply of skills demand and supply, which they may be over the long-term, but this is much less likely over the short- to medium-term horizons of policy makers' interests.

None of the measures cited above provide an ideal measure of skill mismatch. Gambin et al. (2016), in their review of skill mismatches, provided an overview of the different ways in which skill mismatches can be defined and the statistical evidence of trends over time. Using a multi-dimensional approach to identifying skill shortages, the study showed that in total 2.6 million people worked in skill shortage occupations (approximately 10 per cent of all employment). At any point in time during 2013, there were estimated to be 47 thousand vacancies in these occupations, 25.6 thousand of which were reported as hard-to-fill by employers, and 23.5 thousand as being hard-to-fill because applicants lacked the skills the employer sought. The total number of vacancies here can be taken as an upper bound on the number of jobs that could potentially be filled if the match between the supply of and demand for skills was improved. The 23.5 thousand skill shortage vacancies would indicate a lower bound on the increase in filled jobs that could arise. Whether, at this scale, skill shortages represent a drag of economic performance is a moot point. Even where shortages could be quantitatively identified, subsequent analysis demonstrated that employers experiencing shortages frequently took little strategic action to offset the impact of shortages (e.g. investing in training, re-organisation of work, etc.). Instead they were content to develop 'work-arounds', which with the passage of time, became the 'new normal'.

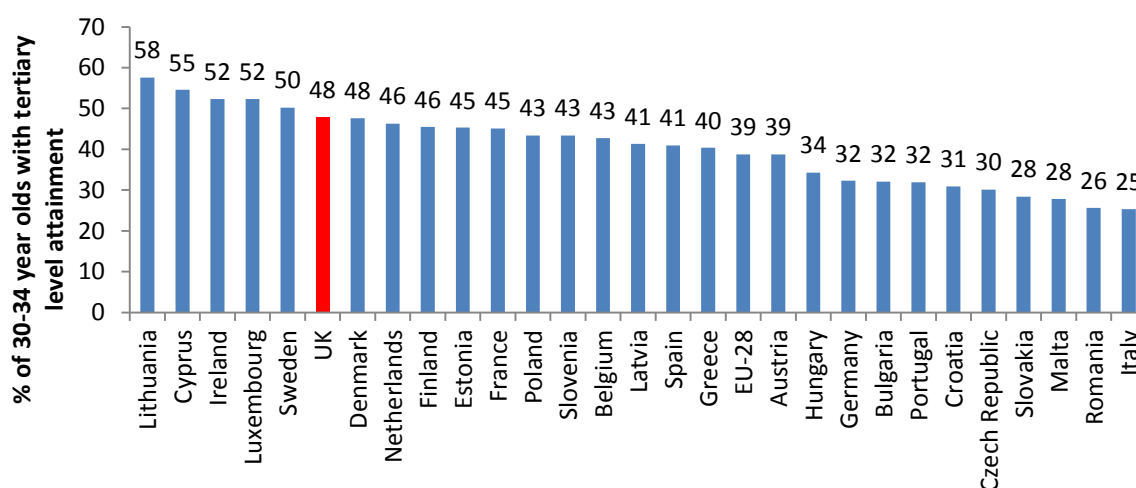
The study also drew attention to the qualitative aspects of skill shortages. It highlighted the way in which employers with vacancies were often looking for an ideal fit between a job and a recruit with a particular emphasis on recruits possessing both the technical and soft / non-cognitive skills. Whilst the former sets of skills were considered essential – without these people would be unable to do the job – it was the latter set of skills that was thought to release would-be recruits' productivity. The issue, to some extent, becomes that of looking at the way the skills system is able to equip people with technical and soft/non-cognitive skills. The OECD has indicated that it is often by work experience / work-based training that people acquire non-cognitive skills (OECD, 2015). In this regard, it is important to examine how the skills system – via the employability agenda – is able to ensure that those being trained possess both sets of skills, especially in the light of a medium-term reduction in the number of young people engaging in learning while in full-time education (Conlon et al., 2015). The compulsory school system, FE and HE sectors have been active in this area with respect to people completing their initial education and training (Gambin and Hogarth, 2015; University of Warwick Institute for Employment Research and IFF Research, 2015).

4. The skill equilibrium

Where might a gap exist in relation to the skills equilibrium? In other words, skills demand and supply are currently in balance but if demand were to be increased in some way then supply might struggle to keep pace. This begs the question whether demand is lower than it should be? There is no easy answer to this question, but there is some evidence that gives an insight.

If one looks at levels of skill development in the UK compared with other countries, then some indication might be provided of the extent of a skills gap. In official statistics, skill is usually measured by reference to educational attainment or occupation. These measures – albeit imperfect ones – reveal that the UK is one of the higher skilled countries in the EU (see Figure 3). But if one were to look at the extent to which those in employment are being trained by their employers, the UK compares less favourably with other EU countries (see Figure 4). This raises a potentially interesting issue. A series of matched plant studies undertaken in the 1980s and 1990s showed how skill structures and performance varied between countries. By looking at mainly manufacturing plants that were similar with respect to their size and products, comparisons were made of skill structures and plant performance between countries with differing approaches to skill development. Generally, the studies showed that the UK compared unfavourably – the workforce in manufacturing plants in Germany, France or the Netherlands were more highly skilled and required to exert more responsibility for the operation of the production line. This was reflected in the relatively higher value of the goods they produced (Mason et al., 1994).

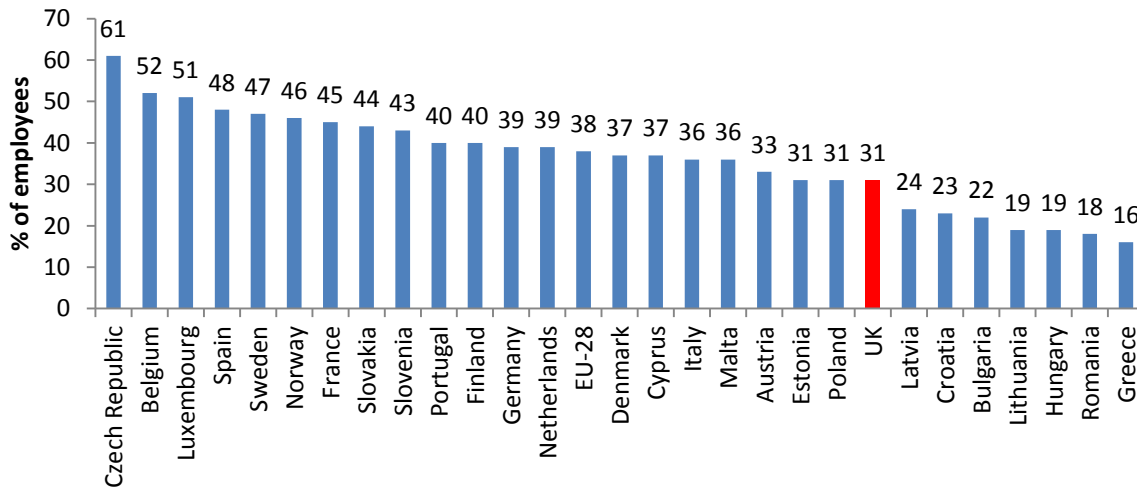
Figure 3: Levels of educational attainment amongst 30 to 34 year olds in the EU (2015)



Source: Eurostat t2020_41

Figure 4: Percentage of employees participating in continuing vocational education and training (2010)

The UK's Skill System: Training, Employability and Gaps in Provision



Source: Eurostat tmg.cvts13

Analysis using the Employment Prospects in the Knowledge Economy and International Sector Productivity surveys found that human capital (as indicated by educational attainment) played an important and significant role in determining the level of productivity: a one per cent increase in human capital in the UK led to an increase of approximately 0.09 per cent in productivity. This was the smallest effect found amongst the five countries examined (US, Germany, Netherlands, France and the UK) (Mason et al., 2007). Similarly, research within the UK suggests that relatively highly performing employers have a more skilled workforce (Haskel et al., 2003). The implication is that if employers in the UK were to bring about changes in their production processes then this would result in skill shortages and gaps that would need to be filled (Mason, 2011).

But for the time being, the evidence at a national level suggests that at the current level of demand, the skills system is able to satisfy it because the incidence of skill shortage vacancies at less than 1 per cent of total employment is relatively modest.

5. Geographical gaps in provision

In terms of addressing gaps in skills and provision it is likely that in most instances action will need to be taken at the local level. For example, the demand and supply of skills differs across Great Britain, as illustrated in Figure 5, is characterised by a high skills equilibrium concentrated in the south and east of England and those by a low skills equilibrium in parts of the Midlands and northern England.

PHOTO REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



Regional and sub-regional data from previous Employer Skills Surveys and the Employer Perspectives Survey provide some insights into geographical variations in provision. For instance, in 2013, just over two-fifths of employers had a training plan, with those in Scotland and Yorkshire & the Humber most likely to have one and those in Northern Ireland and London least likely to have one (Table 2). Under a third had a budget for training, this percentage being lowest in Northern Ireland and highest in Scotland and London. Just over a third trained both on- and off-the job, with just over an eighth of employers training on-the-job only and a sixth off-the-hob only. Employers in Scotland were most likely to provide both types of training, while those in Northern Ireland and the East of England were most likely to train off-the-job only. On-the-job only training was most common in the South West and Yorkshire and the

Humber. More than a third of employers did not train, this percentage being highest in London and the West Midlands and lowest in Scotland and the South West.

Table 2: Engagement in training by employers, 2013 (percentage of establishments)

	Have a training plan	Have a budget for training expenditure	Train both off and on-the-job	Train off-the-job only	Train on-the-job only	Do not train
East Midlands	41.9	29.0	34.1	12.5	19.0	34.5
East of England	41.4	31.3	34.8	15.4	15.2	34.6
London	38.9	32.5	34.0	12.9	16.8	36.3
North East	43.9	30.1	35.3	13.0	16.8	34.8
North West	43.5	30.4	34.4	14.6	17.4	33.7
South East	39.7	31.1	35.8	15.2	15.6	33.4
South West	40.1	28.9	35.3	13.3	19.8	31.6
West Midlands	42.5	29.5	34.2	12.3	17.7	35.9
Yorkshire and The Humber	43.1	28.9	33.8	13.4	19.1	33.7
Wales	40.7	28.7	33.3	14.0	14.9	37.8
Scotland	46.7	33.0	39.8	12.9	17.0	30.2
N Ireland	37.7	26.3	33.7	15.7	13.5	37.0
<i>UK</i>	<i>41.5</i>	<i>30.4</i>	<i>35.0</i>	<i>13.8</i>	<i>17.0</i>	<i>34.2</i>

Source: Employer Skills Survey 2013

However, at intra-regional level there are differences between urban and rural areas. Multivariate analyses have shown that urban-rural differences in vacancies and skills gaps are a function of differences in the profile of establishments (e.g. by type and size), rather than purely as a result of being urban or rural (Owen et al., 2013). But this does not mean that locational factors are entirely unimportant. Limited labour pools in rural areas (reflecting small and sparsely distributed populations) are exacerbated by remote location and poor public transport - a factor that increases the incidence of hard-to-fill and skill shortage vacancies in rural areas (Green, 2011). In the face of hard-to-fill vacancies, establishments in rural areas are more likely to have to outsource work or withdraw from markets than establishments in urban areas. Furthermore in rural areas establishments are more likely to cite delays in developing new products and services than in urban areas.

Rural establishments were less likely to provide training leading to vocational qualifications and were less convinced of the benefits of doing so, for their staff or for the business. A lack of relevant training courses, and a lack of providers locally, is cited more frequently as a reason for not training in rural areas compared with urban areas. In part this reflects the fact that providers face issues of greater costs of training provision in rural areas than in urban areas (Owen et al., 2012). It is also the case that physical access and transport issues are more likely to act as a barrier to reaching education and training establishments and other venues where training is provided. Together these features suggest that there are likely to be particular challenges in embedding the employer ownership of skills agenda in rural areas (especially peripheral rural areas) (Owen et al., 2013).

6. Individual access to skills and training

Access to skills and training varies by sub-group. Selected key dimensions of variation are highlighted by the NIACE Adult Participation in Learning Survey 2015¹ (Aldridge and Egglestone, 2015):

- **Social class:** over half of those in the highest social classes (54 per cent of ABs; 32 per cent of C1s) having taken part in learning during the previous three years, compared with 35% of skilled manual workers (C2s) and 26 per cent of unskilled workers and people on limited incomes (DEs), compared with 41 per cent of all adults;
- **Age:** there is a clear negative relationship with participation in work-related learning and increasing age, with 28 per cent of 17-24 year olds, 23 per cent of those aged 25-34 years, 20 per cent of those aged 35-44 years, 19 per cent of 45-54 year olds and 9 per cent of those aged 55-64 years having done so. Willingness to pay for learning or take out a loan to do so also declines markedly by age, so further exacerbating participation differences by age.
- **Hours of work:** of those learning for work related reasons who were in work, full-time workers were more likely than part-time workers to receive employer provided support or development opportunities, with 49 per cent of full-time workers having opportunities to perform tasks going beyond their strict job role and getting feedback compared with 34 per cent of part-time workers, and 40 per cent of full-time workers having opportunities to spend time learning by watching others perform their role, compared with 32 per cent of part-time workers. There is an important gender dimension here, given that women are over-represented amongst part-time workers relative to men. Indeed, analysis of the Eurostat Adult Education Survey reveals that in aggregate participation rates in adult learning do not differ strongly between men and women. However, there are differences by gender in the type of learning, with men participating more than women in work-related learning and experiencing more job-related motives to participate (Boeren, 2011).

In terms of standing to benefit from more skills and training, the unemployed, those in low-paid work – and especially those in part-time work and on zero hours contracts might be expected, *ceteris paribus*, to benefit most from more skills and training. But there is an important caveat here that potential benefits might be compromised by lack of opportunity to utilise their skills in their current or future workplace. There are also sub-groups within the population who might benefit from specific types of training (e.g. work-related English language training for new arrivals, etc.) and work experience that might enable them to exercise their existing skills in the UK context.

¹ This is a representative sample 6,217 adults in the UK population aged 17 years and above. The survey adopts a broad definition of learning, including a wide range of formal, non-formal and informal learning.

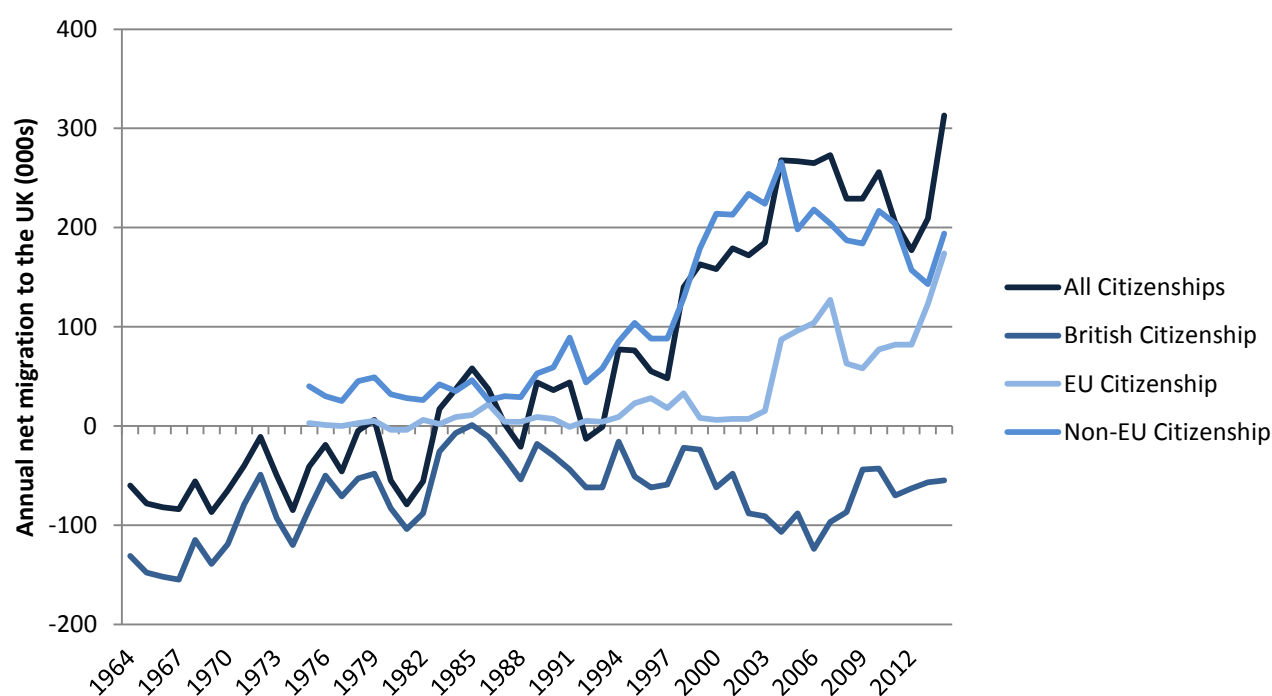
There are lifecycle effects to take into consideration too. As people get older, their engagement in training declines for a number of reasons, including attitudes to training, the employer's propensity to train older people, and unemployment (Hyde and Phillipson, 2014). But it is now widely acknowledged that people will spend longer in the labour market and that the pace of technical change will mean that the content of jobs will change such that people will need to replenish their stocks of skills to avoid skills obsolescence. The access that older people have to training – especially in the post-50 year old group – is a potential skills gap.

The role of the employer is central to understanding access to training as many people will access training via their employer. The evidence points to employer provided training have being in decline, once statutory training has been factored out of the estimates, over recent years (Felstead, et al., 2013). The latest evidence from the Employers Skills Survey 2015 provides tentative evidence that this trend might be in reverse. The number of employees trained increased between 2013 and 2015 with the total employer expenditure on training increasing by six per cent between 2013 and 2015, from £43.0bn to £45.4bn, though, investment per person trained and per employee remained similar in 2015 to 2013 and 2011 (Vivian et al., 2016). The key point here is, perhaps, that employer provided training levels are sensitive to the economic cycle which can potentially act as a drag on growth. If training does not take place during the trough of the cycle, then the skills might not be place when the upturn commences thereby potentially acting a drag on growth.

7. Tackling skills shortfalls: the role of migration

One means of addressing UK skills shortages is through migration from outside the UK. Figure 6 shows long-term international migration to the UK over the last fifty years. Until the early 1990s, the UK lost population through international migration, but then net international migration accelerated from the mid-1990s onwards, mainly of non-EU citizens. The increase in net non-EU immigration was sharpest in the first few years of the 21st century, reaching a level of around 200 thousand per annum, but then declined slowly. Net EU migration was relatively small until EU expansion in 2004, expanding to around 100 thousand per annum. It fell during the 2008/9 recession, but has increased strongly since 2011, nearly matching non-EU net migration by 2014.

Figure 6: ONS estimates of long-term net migration to the UK by citizenship, 1964-2014



Source: ONS estimates of long-term international migration

Long-term international migrants come to the UK for a range of reasons, but the two most are 'work-related' and 'formal study'. Work-related reasons have been most important since late 2012 and in the year ending December 2015, 308 thousand migrants arrived for work reasons, 58 per cent with a definite job to go to while 130 thousands arrived looking for work.

Workers from the EU and the European Economic Area (EEA) enjoy 'free movement of labour' within the EU. It is important to note that volumes and patterns of migration to and from the UK might change following the UK referendum decision on our membership of the European Union, but precisely how is not known at the time of writing. If free movement involving the UK came to an end, the task of designing a new immigration system for the UK would be complex. Key questions facing the UK would include whether and how to satisfy demand for migrant labour in low-and middle-skilled jobs, and how to manage trade-offs between the costs and benefits of different types of migration (The Migration Observatory, 2016).

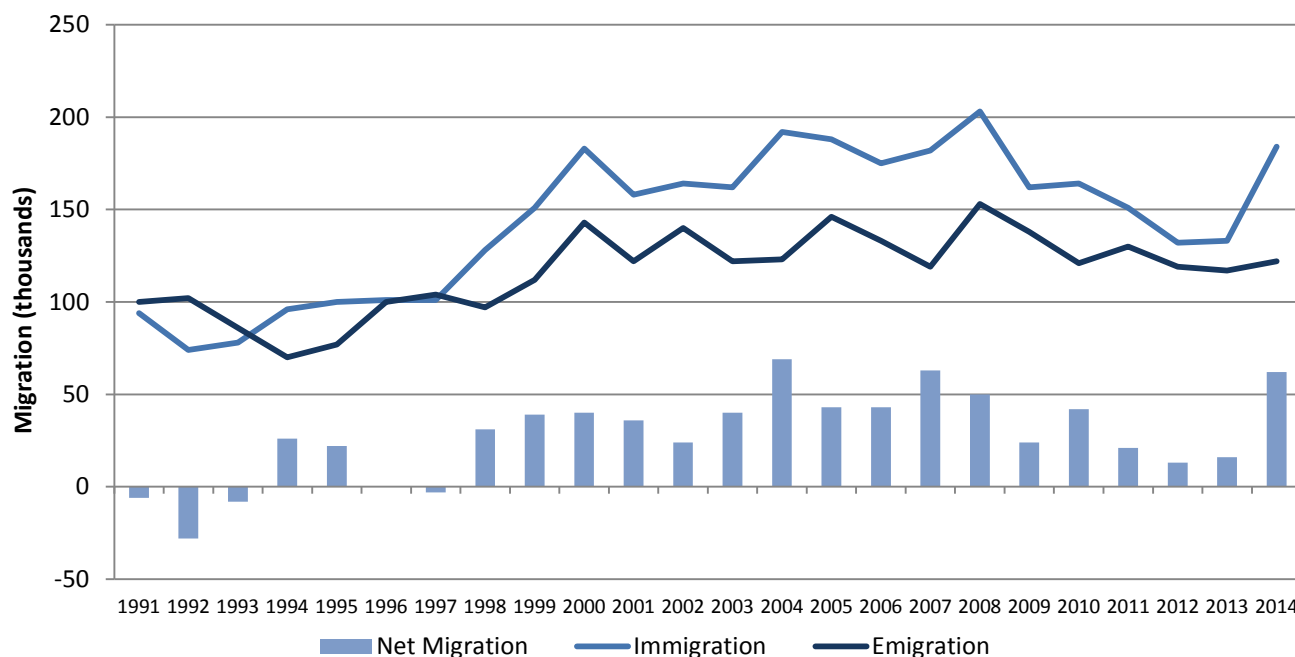
For non-EEA migrants, the UK operates a hybrid immigration system, which combines a tiered visa application process with immigration caps and sponsor-driven demand. The tiers of the 'Points Based System' (PBS) of particular relevance here are:

- Tier 1, investors, entrepreneurs, and exceptionally talented migrants;
- Tier 2, skilled workers with a job offer in the UK;
- Tier 5, youth mobility and temporary workers.

With regard to Tier 2 there is a shortage occupation list (SOL), which is devised and monitored by the Migration Advisory Committee, which is designed to identify 'skilled' and 'shortage' occupations which are 'sensible' to fill through international migration (Migration Advisory Committee, 2015). Third-country nationals applying for an occupation on the SOL have more beneficial conditions for entry; applying for an occupation on the SOL accrues more points in the PBS and has preference over other work routes when available certificates of sponsorship are limited. The rationale of the SOL and the PBS more generally is to use migration from outside the UK to fill current skills needs, while not reducing incentives for employers to invest in training to fill skills shortages.

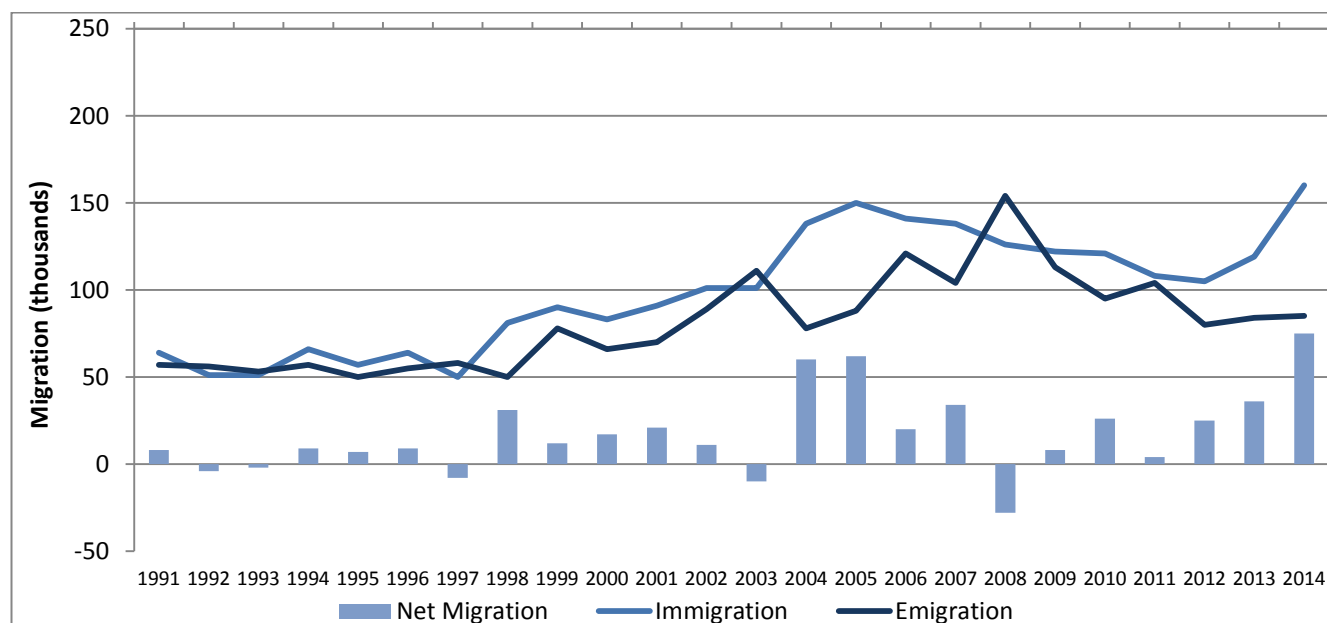
ONS estimates of long-term migration provide a broad breakdown of the skills mix of migrants to the UK since 1991. Immigration of people in professional and managerial occupations accelerated after 1997. There has been net in-migration in each year since 1998, being highest in 2004 and 2007, falling during the recession and increasing strongly in 2010 and 2014 (Figure 7). For manual and clerical occupations levels of net immigration have generally been lower than for professional and managerial occupations, with a peak in 2014 (Figure 8).

Figure 7: Long-term international migration to/from the UK by calendar year, 1991-2014: Professional and managerial occupations



Source: ONS estimates of long-term international migration.

Figure 8: Long-term international migration to/from the UK by calendar year, 1991-2014: Manual and clerical occupations



Source: ONS estimates of long-term international migration

Analyses show little clear evidence of adverse effects of immigration on job prospects for UK-born workers because immigrants and native-born workers are not close substitutes – especially in the case of highly skilled migrants (Wadsworth, 2015). In terms of pay, analyses show that immigrant workers (aged 25-60 years) experienced lower pay relative to UK-born workers at the time of immigration, but

that their pay tended to catch up over time, so demonstrating that “recipient labour markets primarily reward individuals’ characteristics other than, and regardless of, their immigration status” (Gagliardi and Lemos, 2016: 574).² This indicates that immigration has played a role in meeting skills shortfalls in the UK.

² Albeit experience was less positive for immigrants in the lowest-paid jobs.

8. The role of careers information, advice and guidance

Careers information, advice and guidance services can play an important role in supporting the UK skills system and the economy more generally. Such services have three aims (Watts and Sultana, 2004):

- To improve the efficiency of the education and training system within the labour market;
- To improve the match between supply and demand; and
- To support equal opportunities and promote social inclusion.

There is significant evidence that the provision of high quality, impartial careers information, advice and guidance for young people and adults is key to supporting transitions into education, training and employment and supporting employment (e.g. Bimrose et al., 2008; Hooley et al., 2012; Perdrix et al., 2012), especially in a context where Further Education provision is not directly linked to labour market needs and outcomes. It also has a crucial role to play in encouraging and supporting those disengaged from the labour market and those in transition to engage in education and learning activities, and those in work to progress. Whilst some particular benefits of career guidance are immediate and identifiable (e.g. moving into employment or enrolment on a course) (Tyers and Sinclair, 2005), others are likely to accumulate over a longer period of time so are more difficult to measure. Gibbons and Foster (2014) found that the longer-term impact of careers guidance includes not only increased capital, but also social mobility (Gibbons and Foster, 2014). For the economy, long-term outcomes of careers guidance can include productivity gains for those in long-term employment, reductions in skills gaps and shortages, reduced unemployment levels, and enhanced income levels.

Careers information, advice and guidance services in the UK have evolved in response to the changing economic and political contexts, and the implementation of new education and employment policy initiatives across the UK. Provision differs across the devolved nations (as outlined below) and even in England, especially for young people, there are considerable variations (National Careers Council, 2014). This is of particular concern as careers provision is seen as vital to individuals, the economy and local communities (National Careers Council, 2013).

In England, the National Careers Service, launched in April 2012, jointly managed by the Department for Business, Innovation & Skills (now BEIS) and the Department for Education (with additional support from the Department for Work and Pensions and the Ministry of Justice), offers an all-age service. This is designed to meet the needs of adults and young people by delivering online, telephone and face-to-face services. Prime contractors deliver careers support within the community. However, face-to-face services are currently only available to adults and only those within targeted groups (decided at a national and local level by providers in partnership with, for example, employers and Local Enterprise Partnerships) who have been identified as requiring additional support can receive additional face-to-face sessions. The responsibility for young people's face-to-face services primarily resides with schools, colleges and local authorities. The 2011 Education Act created a duty for schools to

provide independent, impartial careers guidance from September 2012 for those up to 16 years of age, with no dedicated government funding to commission such services. The National Careers Council (2013) reported that some schools had implemented careers support and services for their students, whilst many were still not providing these services and Ofsted found that around 75 per cent of the schools were not implementing their duty to provide impartial careers advice effectively. In 2014, the Careers and Enterprise Company was set up to support careers education and advice provision for young people in partnership with employers. Its aim is to support young people in their post learning decisions. Scotland has adopted a Career Management Skills approach in schools, which is aimed at giving young people the skills and information to make informed careers decisions. In Wales initiatives for young people include the Careers and World of Work curriculum in schools, a National Work Experience database and a career coaching service for 16-17 year olds. The Careers Service in Northern Ireland provides careers information, advice and guidance, which is delivered face-to-face, by telephone and online.

There has been increasing emphasis on the need for high quality, robust and reliable labour market information (LMI) to be at the centre of impartial career guidance (Bimrose and Barnes, 2010; UKCES, 2011). There is also greater recognition that understanding the labour market in terms of demands, skill shortages and skill needs is becoming essential for individuals navigating pathways into and through the labour market (Bimrose et al., 2008). LMI has the potential to provide a robust foundation for individuals to make choices and decisions about their learning, work and career pathways. Across the UK, the method in which careers provision is delivered has shifted away from face-to-face services to more being delivered online, such as job information, vacancies and careers tools to help with applications, CVs and interview skills. Online provision is believed to increase and widen access to services, as well as facilitating access to services at a time and place convenient to the user (UKCES, 2011) and there are on-going investments in provision of high quality and robust LMI (e.g. through the LMI for All service (Bimrose et al., 2015)). Yet there is a danger that an increasing emphasis on online services means that those who are unaware, uninterested or unable to access such services will miss out. But is LMI sufficient, especially in relation to the transition to work? The evidence demonstrates that young people need access to careers advice, but often they need to hear it from employers and it is the degree of employer engagement that is often critical in shaping their career options and ensuring that their activities in school are aligned to the post-school aspirations (Gambin and Hogarth, 2015). When this is supported by work experience, it can have a reinforcing effect. The impact of all this can have a significant impact of the eventual employment and earnings of young people. Mann and Percy's (2013) analysis of the relationship between pupils' engagement with employers whilst at school and their subsequent employment revealed that a positive outcome on subsequent earnings. The evidence also demonstrates that this type of support is important in higher education as well and not just in the compulsory school system (Gambin et al., 2016).

9. Conclusion

The evidence points to a range of long-standing weaknesses in the UK economy and skills system:

- Under-investment by employers in skills that would allow them to raise the value-added of their activities;
- Market failures – principally related to information - about the benefits that are likely to arise from increased investments in skills; and
- Groups of individuals who, to a greater or lesser extent, fall outside the reach of the skills system as it is currently configured.

The evidence points to gaps in provision being filled through work-arounds in the workplace – such that they do not emerge in statistics on skills deficiencies, and to some extent, by immigration that has improved the quality of skills supply. At the same time the evidence points to relatively limited gaps in provision. Skills shortages, for instance, are relatively limited. There may be an issue about the extent to which people lack certain non-cognitive skills, so there may be qualitative skill gaps that need to be filled. This is a particular issue for young people (especially those from disadvantaged backgrounds and those who have had limited success in compulsory education. But for the most part, as measured by the imperfect proxy of qualifications (and also graduate under-employment), skills supply appears to be keeping pace with skills demand at the national level. There are, of course, local and regional dimensions where agglomeration and specific sectoral specialisations appears to highlight gaps in provision that result from the skills supply side struggling to keep pace with skills demand that intensifies competition between firms (e.g. in the City of London; Bosworth et al., 2011). Part of the solution to these issues may well rest in more balanced regional development than skills policy per se.

Looking to the future the question arises of whether the traditional pattern of relatively low-skill requirements and training inputs from enterprises will continue, or alternatively whether there will be a shift to an innovation economy, with its corresponding increased skill and training needs, to ensure a competitive and growing UK economy in a global marketplace as set out in the New Skills Agenda for Europe.

10. References

Aldridge, F. and Egglestone, C. (2015) *Learning, skills and progression at work: Analysis from the 2015 Adult Participation in Learning Survey*. Leicester: NIACE.

Attewell, P. (1990) 'What is Skill?' *Work and Occupations*, 17 (14), 422-448.

Bimrose, J. and Barnes, S-A. (2010) *Labour market information (LMI), information communications and technologies (ICT) and information, advice and guidance (IAG): the way forward?*, Wath-upon-Deerne and London: UK Commission for Employment and Skills.

Bimrose, J., Barnes, S-A., and Hughes, D. (2008) *Adult career progression and advancement: a five year study of the effectiveness of guidance*. Coventry and London: DfES and Institute for Employment Research.

Bimrose, J., Wilson, R., Barnes, S-A., Owen, D., Li, Y., Green, A., Bosworth, L., Millar, P., Holden, A., Attwell, G., Rustemeier, P., Elferink, R. and Higginbottom, J. (2015). *LMI for All: Developing a Careers Database (Final report)*. Wath-upon-Deerne and London: UK Commission for Employment and Skills.

Available from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/446332/LMI_for_All_Final_report_v020715_FW.pdf

Boeren, E. (2011) 'Gender differences in formal, non-formal and informal adult learning', *Studies in Continuing Education* 33 (3), 333-346.

Bosworth, D., Gambin, L., Giernalczyk, H., Hogarth, T. and Vogler Ludwig, K. (2011) *Sectoral perspectives on the benefits of vocational education and training*. Cedefop Research Paper No.22. www.cedefop.europa.eu/files/5522_en.pdf

Conlon, G., Patrignani, P. and Mantovani, I. (2015) *The Death of the Saturday Job: The Decline in Earning and Learning Amongst Young People in the UK*, UKCES.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/435285/15.06.15_DOTSJ_Report_design_final_EDIT.pdf

Felstead, A., Green, F., Jewson, N. and Casey, P. (2013) *Training in Recession: The Impact of the 2008–2009 Recession on Training at Work*. Evidence Report 72. UKCES: Wath-upon-Deerne and London.

Gagliardi, L. and Lemos, S. (2016) 'Evidence on immigrants' assimilation into recipient labour markets using UK longitudinal data between 1981 and 2006', *Journal of Economic Geography* 16, 547–583.

Gambin, L., Beaven R., Hogarth T., May-Gillings M. and Long K. (2014) 'Methodological Issues in Estimating the Value Added of Further Education, Higher Education and Skills: A review of relevant literature', *BIS Research Paper 166*.

Gambin, L. and Hogarth, T. (2015) *Evaluation of Business Class*. London: Business in the Community. Available from: http://www.bitc.org.uk/system/files/warwick_bitc_business_class_-_final_report_nov15.pdf

Gambin, L., Hogarth, T., Murphy, L., Spreadbury, K., Warhurst, C. and Winterbotham, M. (2016) *Research to Understand the Extent, Causes and Implications of Skill Mismatches*. BIS Research Report 265.

Green, A.E. (2011) 'Spatial inequality and skills in a changing economy', *UK Commission for Employment and Skills Briefing Paper*. Wath-upon-Deane: UK Commission for Employment and Skills.

Green, F. (2013) *Skills and Skilled Work: An Economic and Social Analysis*. Oxford: Oxford University Press.

Haskel, J., Hawkes, D. and Pereira, S. (2003) Skills and productivity in the UK using matched establishment, worker and workforce data London: CeRiBA Discussion Paper

HM Treasury (2001). *Productivity in the UK*. London: HMSO.

Holland D., Liadze, I., Rienzo, C. and Wilkinson, D. (2013), 'The relationship between graduates and economic growth across countries', *BIS Research Paper No. 110*.

Hooley, T., Devins, D., Watts, A.G., Hutchinson, J., Marriott, J. & Walton, F. (2012). *Tackling unemployment, supporting business and developing careers*. London: UK Commission for Employment and Skills.

Hyde, M. and Phillipson, C. (2014) *How can lifelong learning, including continuous training within the labour market, be enabled and who will pay for this? Looking forward to 2025 and 2040 how might this evolve?*. BIS Skills Foresight. IER and IFF Research (2016) *Evaluating the impact of higher education employability measures*. Gloucester: Quality Assurance Agency for Higher Education.

<http://www.qaa.ac.uk/en/Publications/Documents/Evaluating-the-impact-of-employability-measures.pdf>

Mann, A. and Percy, C. (2013) 'Employer engagement in British secondary education: wage earning outcomes experienced by young adults', *Journal of Education and Work*, DOI:10.1080/13639080.2013.769671

- Mason, G. (2011) *Product strategies, skills shortages and skill updating needs in England: New evidence from the National Employer Skills Survey, 2009*. Evidence Report 30, London: UK Commission for Employment and Skills.
- Mason, G., O'Leary, B., O'Mahony, M. and Robinson, K. (2007) *International Productivity Comparisons at the Sectoral Level*. London: National Institute for Economic and Social Research.
- Mason, G., van Ark, B., and Wagner, K. (1994), "Productivity, Product Quality and Workforce Skills: Food Processing in Four European Countries", *National Institute Economic Review*, January, pp. 62-83.
- Migration Advisory Committee (2015) *Review of Tier 2: Balancing migrant selectivity, investment in skills and impacts on UK productivity and competitiveness*. London: Migration Advisory Committee.
- National Careers Council (2013) *An Aspirational Nation: Creating a culture change in careers provision*. London: National Careers Council.
- National Careers Council (2014) *Taking action: Achieving a culture change in careers provision*. London: National Careers Council. Available from: https://whitehall-admin.production.alpha.gov.co.uk/government/uploads/system/uploads/attachment_data/file/352599/Taking-action-achieving-a-culture-change-in-careers-provision.pdf
- OECD (2015) *Skills for Social Progress: The Power of Social and Emotional Skills*. Paris: OECD.
- OECD (2016) *Getting Skills Right: Assessing and Anticipating Changing Skill Needs*. Paris: OECD.
- Owen, D.W., Hogarth, T. and Green, A.E. (2012) 'Skills, transport and regional development: evidence from a rural area in England', *Journal of Transport Geography* 21, 80-92.
- Owen, D., Li, Y. and Green, A. (2013) 'Secondary analysis of employer surveys: urban and rural differences in jobs, training and skills', *Evidence Report 75*. Wath-upon-Deane and London: UKCES.
- Perdrix, S., Stauffer, S., Masdonati, J., Massoudi, K. and Rossier, J. (2012) Effectiveness of career counseling: A one-year follow-up. *Journal of Vocational Behavior* 80 (2), 565-578.
- The Migration Observatory (2016) *Commentary: What would UK immigration policy look like after Brexit?*. Oxford: The Migration Observatory, University of Oxford.
- Tyers, C. and Sinclair, A. (2005) *Intermediate Impacts of Advice and Guidance*. Nottingham, Department for Education and Skills.
- UKCES (2011) *Helping individuals succeed: Transforming career guidance*. London: UK Commission for Employment and Skills.

Vivian, D., Winterbotham, M., Shury, J., Skone James, A., Huntley Hewitt, J., Tweddle, M. and Downing, C. (2016) 'Employer Skills Survey 2015: UK Results', *Evidence Report 97*. Wath-upon-Deerne and London: UKCES.

Wadsworth, J. (2015) Immigration and the UK Labour Market, Centre for Economic Performance Paper FA019, London: LSE.

Walker, I. and Zhu, Y. 'The Impact of University Degrees on the Lifecycle of Earnings: some further analysis', *BIS Research Paper No.112*.

University of Warwick Institute for Employment Research and IFF Research (2015) *Evaluating the Impact of Higher Education Providers' Employability Measures*. Gloucester: QAA.

Watts, A.G. and Sultana, R.G. (2004) Career Guidance Policies in 37 Countries: Contrasts and Common Themes. *International Journal for Educational and Vocational Guidance*, 4(2/3), 105-122.



© Crown copyright 2016

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication available from www.gov.uk/go-science

Contacts us if you have any enquiries about this publication, including requests for alternative formats, at:

Government Office for Science
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5000
Email: contact@go-science.gsi.gov.uk

GS/15/XXX