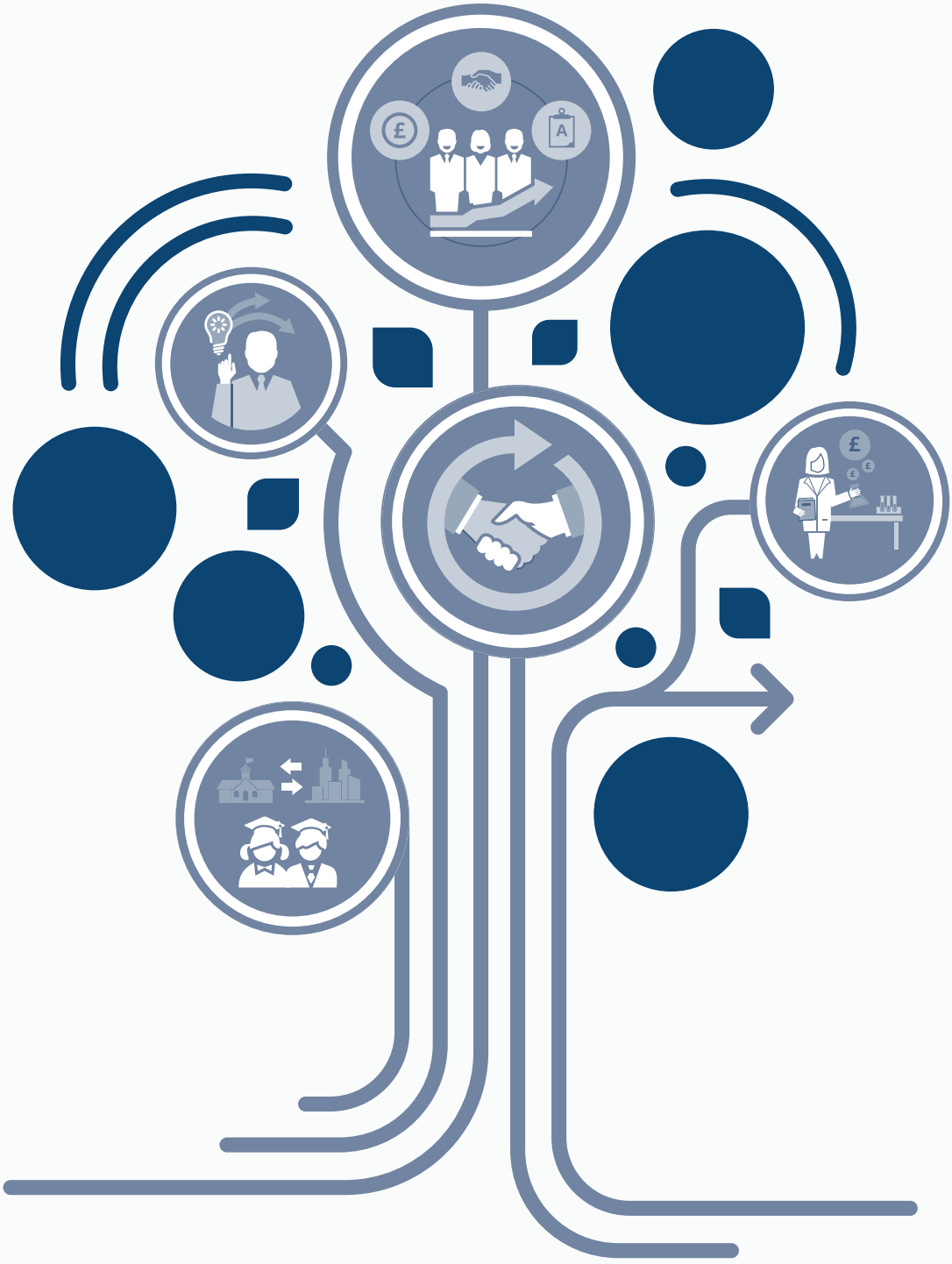
GROWTH THROUGH PEOPLE: Evidence and Analysis



UKCES
UK COMMISSION FOR EMPLOYMENT AND SKILLS

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This publication contains analysis of the Quarterly Labour Force Survey and the Labour Force Survey Five-Quarter Longitudinal Dataset, both produced by the Office for National Statistics (ONS), under Crown Copyright.

Additional analysis has used the Skills and Employment Survey 1986-2012 dataset produced by Felstead, Gallie and Green with funding most recently from the Economic and Social Research Council, the UK Commission for Employment and Skills, and the Wales Institute of Social and Economic Research, Data and Methods.

These data sources were accessed under licence, through the UK Data Archive
http://ukdataservice.ac.uk/

Additional analysis of ONS statistical data, again Crown Copyright, were accessed through the Nomis service at the University of Durham
http://www.nomisweb.co.uk/

Four further datasets have been used for analysis in this report. First, the European Labour Force Survey through the Eurostat bulk download facility
http://ec.europa.eu/eurostat/data/bulkdownload

Second, the World Management Survey 2004-2010 dataset produced by Bloom, Genakos, Sadun and Van Reenen, available from
http://worldmanagementsurvey.org/

Third, the Organisation for Economic Co-operation and Development (OECD) Survey of Adult Skills 2013 public use files, available from
http://www.oecd.org/site/piaac/

Fourth, the UK Commission for Employment and Skills' Employer Skills Survey 2013, dataset available upon application, with detailed analysis accessible at
https://www.gov.uk/government/collections/ukces-employer-skills-survey-2013

Analysis used R 3.1.2 with packages including ggplot2, ggthemes, knitr, memisc, and tidyr.

Summary

In November 2014, the UK Commission for Employment and Skills published *Growth through People: a statement on skills in the UK*. There we set out a comprehensive review of the key issues facing the UK's employment and skills system, and offered concrete proposals for action to tackle those issues. *Growth through People* offers a new consensus, backed by the CBI and the TUC and a range of other employer and education organisations. That consensus is founded on the UK Commission's latest labour market research and intelligence. In this paper, we present the evidence and analysis behind the *Growth through People* proposals.

Economic outlook

The **UK economy has been growing robustly since the start of 2013,** and looks set to continue into the future. But the recession was deeper and longer than we'd experienced, and for a variety of reasons, recovery took longer than usual to gather pace. In contrast to previous recessions, productivity was set back greatly and has yet to recover; it is some 14 percentage points behind where it would've been if it had kept its pre-recession trend.

In aggregate, the labour market has performed well in recession and recovery. Unemployment did not rise to the heights that were feared given the depths of the recession, and since late 2012, **increased job creation has pulled unemployment towards pre-recession levels; it is now 5.7 per cent.**

But while job creation is impressive, real wages fell in the recession and have declined and stagnated until the end of 2014, when we have finally seen some growth. There are **many dimensions to the decline of real wages, but we know that in the long run workers' pay will be likely to grow in line with productivity**. Understanding how improved skills and talents can drive productivity is therefore critical.

High-skilled opportunity

Employment growth after the recession was strongest in temporary and part-time work, leading to concerns about declining job quality. However, **more recently, full-time and permanent employment have led growth**; as the labour market tightens, we are likely to continue to see a recovery in more secure work. Even after the post-recession rise, the UK has below-western European average levels of temporary and involuntary part-time work.

The number of high-skilled jobs – for managers, professionals, associate professionals and technicians – was not hit by the recession and has grown robustly for much of the time since then. From 2006 to 2013, **the UK added 2.2m high-skilled jobs out of 5.1m added across the EU, more than any other member state.**

The **UK now has one of the largest graduate workforces in the EU, and one of the largest shares of high-skilled jobs in employment.** Long term trends look set to continue favouring growth in these sorts of roles, making the sustained supply of new skills into the labour market an ongoing priority.

The hourglass labour market

Alongside high-skilled jobs, service-intensive jobs – especially in the care and leisure sectors – have grown through much of the recession and recovery period. **The recession's job losses were concentrated in middle-skill clerical and skilled trades roles, as well as labour-intensive jobs;** employment in these categories remains below pre-recession levels, despite a slight recovery in the past year.

These changes also reflect long term trends, going back over several decades: **more high-skill and service-intensive roles, fewer middle-skill and labour-intensive roles. These are the consequences of the often-discussed 'hourglass' trend,** driven by trade and technology.

For those with limited skills and qualifications, growth in service-intensive roles represents the fastest growing opportunities. **But service-intensive roles are often less attractive than the middle-skill roles we've been losing.** Middle-skill jobs, including administrative and skilled trades roles, offer pay levels in line with the national average, while service-intensive roles are tend to be less well-paid.

The decline in middle-skill work isn't equally shared among less qualified people. Existing middle-skill workers often move onto other roles, moving up as well as down when displaced. But that means openings into middle-skill roles are difficult to get from the outside, highlighted by a declining share of younger workers relative to the total workforce.

That raises concerns about limits on mobility up the career ladder for the less skilled and less qualified. Yet mobility is all the more critical when **the premium paid for skills is high in the UK, with better-than-OECD average pay for the highly-skilled and lower-than-OECD average pay for those with the lowest skills.**

Skills and workplace performance

Productivity was hit hard in recession, but our workforce has never been more qualified, as demographic change adds in new workers with greater opportunities for higher education, as well as vocational training. How can this happen? **The data suggest that the big hit was on 'Total Factor Productivity' –** all of the different factors which shape our ability to turn inputs into outputs.

One big part of TFP is the 'black box' of the workplace, and how employers turn skilled workers and tools into products and services which customers value. **We may have a more qualified and – if qualifications are of good quality – a more skilled workforce, but are those skills being used effectively?** It seems that as world markets have become more difficult in the past decade, many of our workplaces have struggled to adapt.

The UK has a 'long tail' of poorly managed businesses. When businesses' management practices are assessed, the UK has a healthy proportion in the top quartile internationally, but also many in the bottom quartile. By contrast, the US has many more in the top quartile than the bottom quartile, and Germany and France have many in the top quartile and in the middle of the range. We know too that those employers with ambition and commitment to innovation are far more likely to invest in and adopt high performance working practices.

Research by the OECD highlights that **the UK has difficulty in getting its younger businesses to 'scale up'.** In most advanced economies, total employment declines in businesses over 5 years old, in the UK it increases. But that means our younger businesses make a smaller contribution than in other countries – a pattern which continued through recession.

Opportunity and performance are linked

Many workplaces could be working better if they were managed better. With its large number of micro businesses, the UK has a higher share of managerial employees than many other countries. **Whereas managers in other advanced economies tend to be much better qualified than the rest of the workforce, this is much less true in the UK.** Businesses report that managers are the occupational group least likely to receive training.

The new technology driving the hourglass trends allows businesses to perform many tasks with fewer skilled employees. But many businesses seem to want to diminish their use of skill in the workplace to offset their own management limitations. **The number of UK employees reporting their jobs being able to be performed with only primary-level education is higher than in most other advanced economies**.

This problem of skills underuse is not confined only to those with low skills. 30 per cent of graduates find themselves in jobs which don't require their education. **But it is those with intermediate level qualifications who are most likely to find themselves overskilled** or overqualified for the jobs they do.

Exploring workplace practice, we find again a 'long tail', with **too many establishments limited in training and offering their employees little variety or autonomy in their work.** If the UK is to see lasting gains in productivity, it will need to see some of these workplaces investing in and making use of their employees' skills, pursuing a high performance working culture that nurtures and harnesses talent.

Skills and the wider economy

The poor use of skills would not be as damaging were it not for the persistent presence of skills shortages in the UK. **Evidence demonstrates that skills shortages – where businesses cannot recruit the skilled people they need – hinder productivity performance.** And we know that many times more of the existing workforce have gaps in the skills they need to be proficient in their jobs.

While significant proportions of employers cite a desire to do more, **there is limited movement on measures of training and development activity, and indeed some signs of decline.** Meanwhile, many businesses report a high level of underemployed staff – approximately 4 million workers across the UK, with somebody underemployed in half of all workplaces.

These problems exist in different ways in different parts of the country. The **growing disparity between local economies is seen in growing difference between labour markets**. Between 2004 and 2012, London extended its lead relative to the UK average in productivity, while most of the rest of the UK fell further behind.

Much of London's advantage lies in its deep high-skilled labour market; a majority of London's workforce have high-level qualifications. **As other areas develop their high-skilled labour market, they can soon encounter barriers from skills shortages and skills gaps.**

Future prospects

An oversimplified summary of the story would be: The UK has a fair share of competitive businesses, which are managed well and generate a large quantity of high-skilled jobs which have helped absorb the more qualified workforce. But at the same time, too many employers face limited competitive pressure to improve and have limited incentive to manage effectively and make the best use of talent. Instead, many of these employers seek to de-skill job roles and their employees find little opportunity to apply and develop their skills, and have few prospects for pay and progression.

We can continue to improve the skills of the UK workforce, but unless we can be sure that workplaces are going to use them, the impact on productivity will be muted. We need to ensure the opportunity to develop individuals' skills to provide the means for their career progression, but they will need jobs that can use those skills.

The UK has not been unique in having its productivity set back by the past recession, but it has been one of the harder hit. Some of the progress in catching up with other advanced economies has been reversed, so that labour productivity in the UK is some distance behind that of the US, France or Germany. Tackling these issues of the workplace, and ensuring complementary improvements to ensure that education delivers relevant, work-ready skills, will be critical if we are to make up that lost ground.

Growth through People

Our *Growth through People* proposals set out some of what will be needed, a consensus shaped by, and backed by, employers, employees and the education sector. **Progress will require collaboration and a commitment to long-term changes.** The five recommended areas for action are:

- Employers should lead on skills and government should enable them
- Improving workplace productivity should be recognised as the key route to increasing pay and prosperity
- 'Earning and learning' should be the gold standard in vocational education
- Education and employers should be better connected to prepare people for work
- Success should be measured by a wider set of outcomes not just educational attainment

Growth through People: Evidence and Analysis offers **an overview of some of the key issues in the UK labour market, drawing on UKCES and others' research.** It helps to provide context to those proposals, but also a foundation for further inquiry into the major trends in our labour market, the consequences they have, and the opportunities they present.

Introduction

Headlines

- Economic fortunes have changed for the better, with sustained growth and falling unemployment.
- But there remain long-term concerns about the operation of the employment and skills system.
- Many issues have national implications, but effects are concentrated on certain groups or local areas.
- Many challenges have deep roots and required concerted, lasting changes if they are to be tackled.

In November 2014, we published a statement of the key policy challenges and recommendations on how to tackle them, *Growth through People*.[1] As a platform for action on productivity, wages and social mobility, *Growth through People* represents a consensus, supported not just by the Confederation of British Industry (CBI) and Trades Union Congress (TUC), but by a range of other employer, workforce and educational voices.

Behind the thinking for *Growth through People* was the UK Commission's intelligence on the operation of the labour market. Drawing on a range of local, national and international evidence, in this paper we present an overview on what that intelligence tells us about recent and emerging trends.

While only an overview, we aim to be comprehensive. Too often, discussions about the labour market set workplaces, education and government in separate silos. Here, we try to look past those boundaries, to give an end-to-end view of the labour market as an employment and skills system.

Our concern is with the long term questions. Many of the most critical challenges we face will continue long after recovery from recession; and many date back over a decade and more. Their deep-seated nature is why we need the consensus and lasting commitment proposed in *Growth through People*; and why we also need to look closely at the causes and complications at work, which is our purpose in this paper.

Jobs-rich, but pay-poor?[2]

The good news is that times in the labour market have changed, substantially for the better. Since the start of 2013, the economy has seen a return to sustained growth and falling unemployment.

The prospects are for growth to continue. Although there remain potential international headwinds, recent falls in energy prices will offer a further boost to households and businesses.

The combination of economic growth matched with a rapid fall in unemployment has represented a welcome change from the previous two recoveries. But if recovery so far has been strong in jobs, it has also been weak in terms of wages. Pay has seen a sustained real-terms fall for much of the period during and since recession; the decline only now seems to be coming to an end.

The long decline in pay is also a departure from previous experience. It helps us to see that while we are making progress in tackling the problems of recession and recovery, there remains lots of work to do to improve prospects for lasting gains in living standards. Overall, we can see that the UK employment and skills system has demonstrated some significant strengths, but there are signs of deep-seated weakness: our purpose here is to help locate them and understand their causes.

1 UKCES (2014a).

2 The description is from Haldane (2014).

Success in employment and skills

For the UK Commission, success means greater opportunities for the talents and skills of people to drive competitiveness, enterprise and growth. But what does that mean in more tangible and measurable form?

Most of all, it means a successful economy characterised by high levels of employment and productivity. On the ground, that means more people employed in high-quality jobs, with good pay, prospects, and an outlet for their skills. It's this combination which makes the difference. Greater employment in low-quality jobs will often be at the price of productivity; but raising productivity by keeping less-skilled people out of work helps no one.

GDP, the economy's total output of goods and services, captures much of the total progress here: GDP growth reflects some combination of more employment or higher productivity. In broad terms, where that higher productivity reflects the improved productivity of employees, it should feed through into improved earnings.

But there are reasons why GDP growth doesn't always translate as we might want into rising living standards: demographic change, shifting cost structures and distributional changes can all have an effect.[1]

Such complications in distribution highlight the need to ensure that opportunity is open to all, regardless of social background or identity. The UK saw a large increase in income inequality in the 1980s, which has remained since then.

While the UK's tax and benefits system makes a similar impact in reducing income inequality as those of other European countries, we start from a higher level of inequality in the market distribution of income. Some of this reflects a wider dispersion of wages with a higher skills premium, and some of it reflects the changing structure of the labour market, favouring the growth of high-skilled work.

1 See the discussion in Pessoa and Van Reenen (2013).

Different dimensions

In the following pages, we explore the employment and skills system through different dimensions. We start at the aggregate level: we look at the changing context provided by our **growing economy**. Finally we have growth, we have falling unemployment – but pay remains a problem, and closely linked with it, productivity.

Then we turn to look at the **new jobs** growth is creating. Contrary to speculation, many of these jobs are high-skill. There has been a substantial increase in unwanted part-time and temporary work, but they remain low in comparison with many other advanced economies. But all that said, the stories at the margins suggest there remain acute problems concentrated on particular workers: for example, youth employment is still well below pre-recession levels, and workers in low paid jobs have limited prospects to move upwards.

We then turn to explore the **prospects for lasting growth.** We look at the role increased skills have played in improving the UK's productivity before the recession. But we also also probe more deeply into the sharp productivity slowdown seen since 2008, and the way that international trade and technology trends favour future growth in knowledge-intensive and service-intensive sectors.

An important backdrop to productivity performance is that we have a workforce which has never been so well qualified. If we have a better-educated workforce, then we have to look at how their talents are being applied: **the workplace** must have played a role in that productivity slowdown. The UK has some great businesses, but it also has too many poor performers – and there is evidence to suggest that competition isn't rooting them out. Too few businesses are adopting high performance working approaches which could boost their productivity.

Changes in trade and technology are also reshaping the job roles employers will need to fill if they are to compete successfully. They favour more high-skilled work, and economic growth and demographic change are increasing demand for service roles. At the same time, middle-skill roles are declining in number as their work is most susceptible to offshoring and automation.

These changes have very real consequences for **opportunity**, be it job quality, pay and progression. Despite much talk of 'hollowing out' of the labour market, many of those consequences have been and will continue to be positive. We've seen graduates find more and more graduate work, with all of the benefits that brings.

But there are risks. Alongside the new high-skilled jobs, the UK has a large proportion of jobs requiring only very limited skills. Middle-skill roles have established career pathways and are characterised by decent pay and prospects; many service roles are characterised by low pay and high staff turnover. If middle-skill roles fall in number, who is affected? And what are the effects?

Finally, we turn to look at the direct link between **skills and performance**. The UK labour market has persistent skills shortages and skills gaps, heavily concentrated in those roles critical to future growth opportunities. Shortages and gaps have a measurable impact on business performance, and yet business responses are highly variable: too many businesses train too few of their workers, and too many know that they do. Yet the expansion of highly-skilled work is going to require more from employers, especially if we are to develop the new vocational pathways we look likely to need.

Jobs and terminology

This report draws on a range of existing data, plus some new analysis we've undertaken. Sources range from the UK Commission's own Employer Skills Survey, Employer Perspectives Survey and Working Futures projections, and the UK Skills and Employment Surveys (especially from 1997 to 2012). We also use a range of economic and labour market data provided by the Office of National Statistics (ONS), including especially the Labour Force Survey.

We use sector and size breakdowns to understand businesses, but much of our focus here is on the changing nature of work. For that reason, we use the ONS Standard Occupational Classification (SOC) for consistent analysis of job roles. SOC has changed over time, and so we used a 'crosswalk' procedure to translate past data into the current classification, which is called SOC 2010.

Similar to other analyses, we seek to further simplify the SOC occupational structure by dividing the 9 SOC Major Groups into four broad groups:

- **High-skill:** Managers and senior officials; professionals; associate professionals and technicians. (SOC 1-3)
- **Middle-skill:** Administrative and secretarial; skilled trades. (SOC 4&5)
- **Service-intensive:** Care, leisure and other service; sales and customer service. (SOC 6&7)
- **Labour-intensive:** Process, plant and machine operatives, and elementary occupations. (SOC 8&9)

We also use some international data, from Eurostat (the European Union statistical agency) and the Organisation for Economic Co-operation and Development (OECD). For these, we use the slightly different International Standard Classification of Occupations (ISCO-08). Here, High-skill is ISCO 1-3; Middle-skill is ISCO 4, 6 and 7; Service-intensive is ISCO 5 and Labour-intensive is ISCO 8 and 9.

Macro trends…

The overall story is shaped by lasting changes to the global economic environment. New technology seems to be arriving at an accelerating pace, allowing greater opportunities for automation and breaking down barriers for economic cooperation across borders.

At the same time, the populous emerging economies – especially China and India – are increasingly becoming the motor of global growth. With rapid development and heavy investments in education, these countries are able to play an increasing role in higher value markets which a generation ago would have been considered the exclusive preserve of the advanced economies.

Together, these macro trends are transforming the world of work: a higher premium is attached to skills and knowledge, and a need for innovation and adaptation has become the norm for many businesses in operating in competitive world markets.

The consequences of this shift are apparent across the different aspects of the employment and skills system. If the UK fails to develop the highly-skilled workforce we need, then growth opportunities will be taken elsewhere. If British businesses fail to develop and apply the talents of their workforce, and engage their employees' best efforts, they will lose the edge they need to lead in these newly competitive markets.

It's on this last point that action looks most important. While the UK needs to do much more to improve the prospects of the low-skilled, the growth in the high-skilled workforce represents a great success we must sustain. Yet the decline and stagnation of productivity since 2008 shows that we still have plenty of room to apply those skills much better – which is why in this paper we give so much room to consider the role of the workplace.

… and micro stories

Few of the questions we highlight in these pages lend themselves to straightforward answers. That's because the national picture aggregates up from much more localised and individual stories of success and failure, opportunity and risk. Within local areas and industry sectors there are always pecularities and combinations of problems which make neat, one-size-fits-all solutions only rarely effective.

It's for that reason that in the UK Commission's own *Growth through People* proposals,[3] developed to form a consensus across work and education, we have focused on creating the long-term conditions for improvement. Central government certainly has an important role to play in helping to create these conditions, but business needs to find the ambition to act, the workforce needs to take the opportunities which are created, and the education sector will need to make changes too.

This paper is an overview; it seeks to give a flavour of the challenges and their variation across the UK's industries and local areas. It offers a starting point for further discussions and explorations, which will need to continue if we are to see lasting improvements in our economic prospects through the skills and talents of the UK workforce.

3 UKCES (2014a).

A growing economy

Headlines

- The UK economy has now had eight consecutive quarters of economic growth.
- Unemployment is now approaching pre-recession levels.
- Wages remain flat in real terms, after a long period of gradual decline.
- The fall and stagnation in wages mirrors the pattern of productivity; the two are linked.

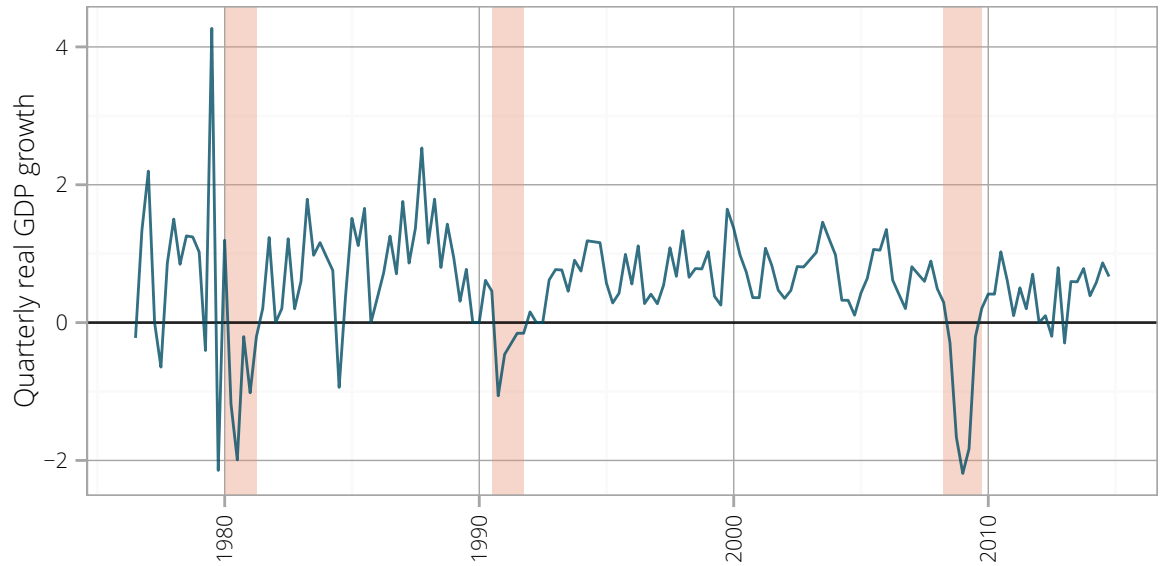
Unemployment is falling fast, nearing pre-recession levels, and the economy has now had eight successive quarters of output growth. The economy is once again producing more goods and services and employing more people this year than it has before.

For a while yet, the recession of 2008-09 will remain the critical context for the UK economy. Its repercussions are still felt in businesses and careers in all parts of the country. After more than 15 years of sustained expansion with stable employment and high employment, we saw our sharpest recorded contraction in output on record (Figure 1).

A collision of banking crises, global recession and a sequence of shocks met with structural weakness. Our close proximity with the Eurozone then contributed to a recovery slower and longer than experience had suggested.

If the toughest times are over, there's plenty of pressure still on in the years ahead. Growth is back, but has been driven by increasing inputs – particularly people at work – rather than improved productivity. Pay is only now beginning to rise after declining for many years, while there remains work to do to put the public finances back on a sustainable footing.

Figure 1 Quarterly real GDP growth since 1976



Source: ONS QNA series YBEZ. Shaded bands indicate periods of recession.

The global economy

In its latest report, the International Monetary Fund (IMF, 2014) finds that "an uneven global recovery continues". After a significant improvement in many advanced economies in 2013, the first half of 2014 saw an unanticipated slowdown in improvement. In the Eurozone especially, growth has slowed, leading to more aggressive monetary policy early in 2015.

Through this period, growth in the UK economy has remained strong, and has begun to see business investment increase alongside household spending. While domestically-driven growth is welcome, continued problems in the global economy could limit the opportunity to expand further through increased trade.

In most advanced economies, recent falls in the oil price will offer a substantial boost to household and business finances through 2015. But there remain downside risks: heightened geopolitical tension, fears of further turbulence in the Eurozone, and worries about growth slowing in the emerging economies. The IMF also raises concerns that financial markets are underpricing risk, with the potential to misguide investment decisions.

The situation in emerging economies is of increased interest for the UK given their now much-larger profile within the global economy. Brazil, Russia, India and China between them account for nearly 30 per cent of the world's economic output. But context is important: they also have more than 40 per cent of the world's population.

Emerging economies provide new sources of competition, but they are some distance away from rivalling the advanced economies. With ground to make up in economic development, they have much lower productivity and are prone to greater volatility. They also, critically, offer greater opportunities for advanced economies: as they continue to grow and develop, they demand more of the advanced, knowledge-intensive products and services which countries like the UK are well-positioned to deliver.

Resurgent employment

The recession saw a severe loss of output, and along with it a sharp fall in employment. But compared to past recessions, the fall in employment was more moderate than we had cause to expect, given the depth of the recession.

Indeed, while output contracted less and bounced back more quickly in the early 1980s and early 1990s, in both cases employment did not recover for some years afterwards. Unemployment in the early 1980s peaked at 12 per cent; in the early 1990s it hit 10.8 per cent; this time around, it reached 8.6 per cent.

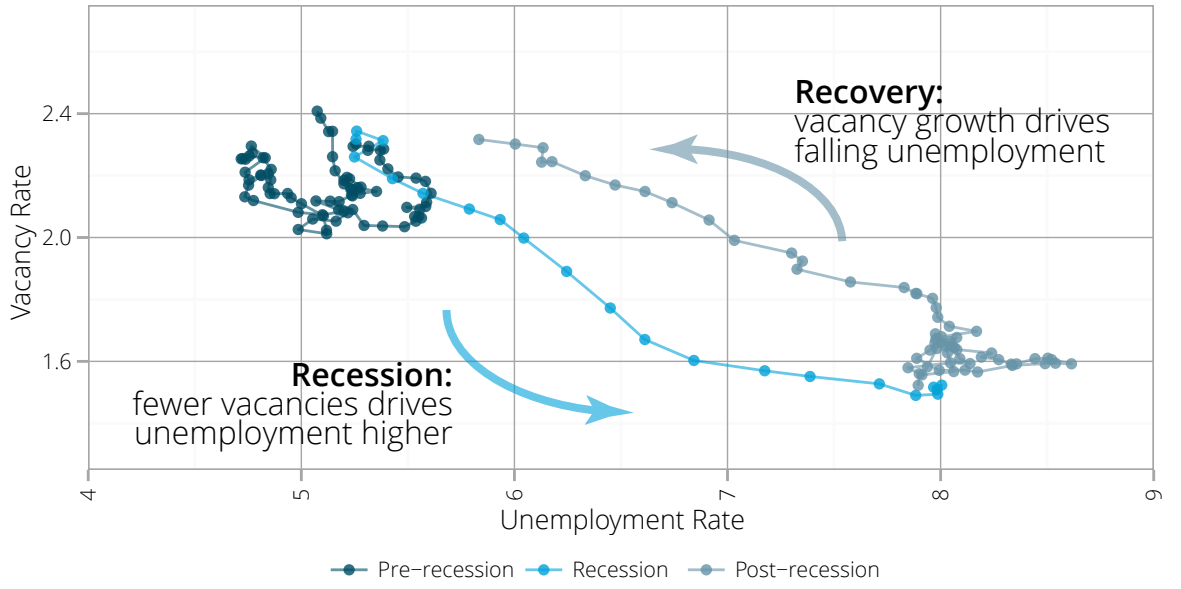
That still meant some 2.5 million people looking for, and failing to find, work. But since growth returned, the fall in unemployment has been impressively rapid. Recently falling to 5.7 per cent, unemployment is beginning to approach levels typical of the pre-recession period.

Indeed, the fall in unemployment has been almost as fast as the rise had been when the recession started. And the improvement is driven by economic growth: in contrast to some other advanced economies, falling unemployment does not reflect a withdrawal from the labour market. In fact, economic inactivity at 22.3 per cent is only 0.6 per cent above the record low level last seen in 1990.

Another way of seeing the effect of growth is through employers' demand for more labour. After many years of languishing at recession levels, vacancies are back to the rates seen before the recession. The labour market is close to returning to its previous efficiency at getting people into work (Figure 2).[4]

4 Figure 2 shows the Beveridge curve, which plots the unemployment rate against the vacancy rate (no. of vacancies as a proportion of employment plus vacancies). The curve indicates the labour market's matching efficiency: movement out from the origin indicates more vacancies are needed to sustain a given level of unemployment.

Figure 2 UK Beveridge curve, 2001-2014



Source: ONS LMS series LF2G, LF2I, AP2Y, May 2001-November 2014. Arrows added for emphasis only.

Local recessions and recoveries

The consequences of recession were felt in all parts of the UK economy. As Figure 3 on page 16 demonstrates, most parts of the country were hit hard with levels of output and employment lower in 2012 than in 2004 – four years after the recession, compared with four years before.

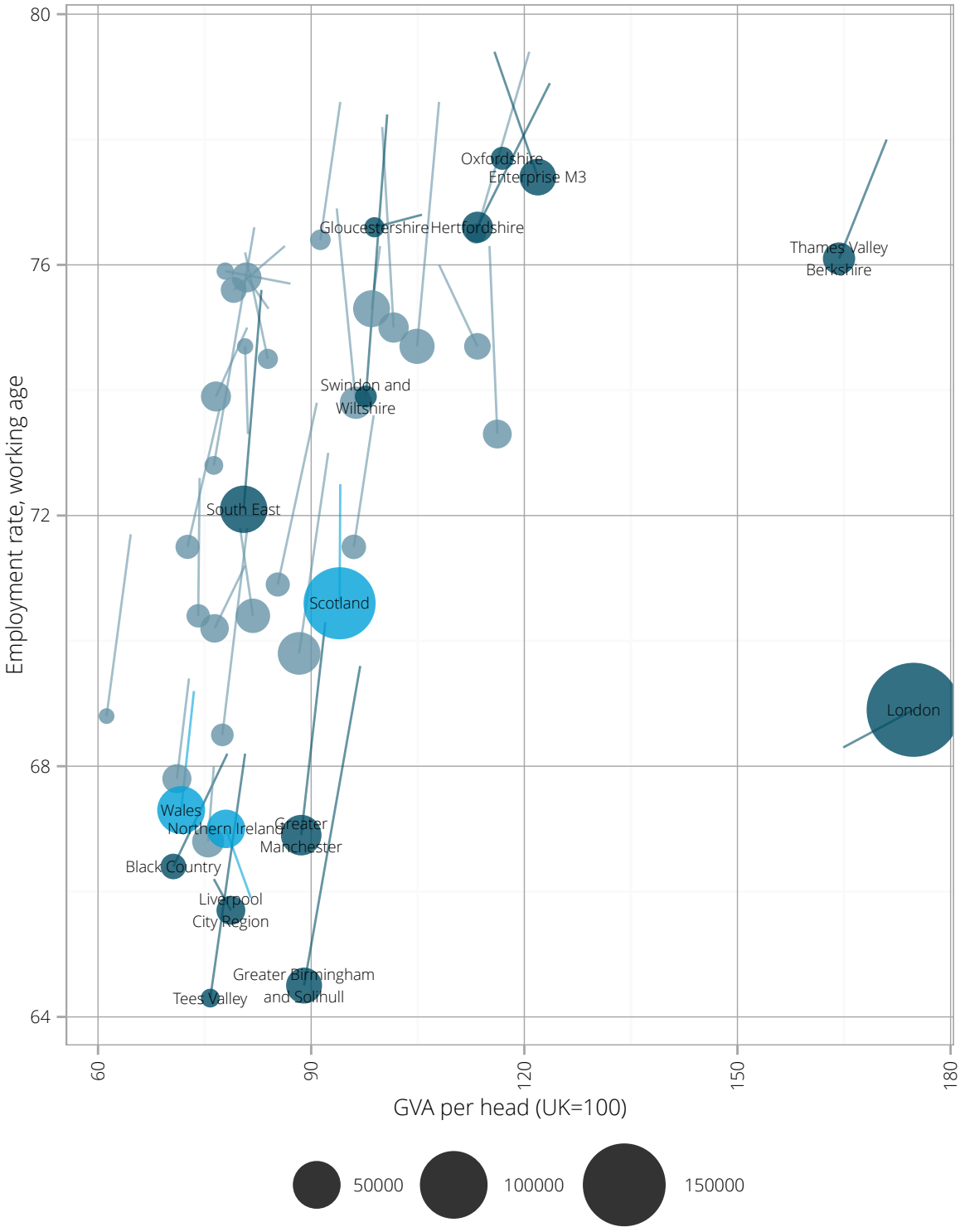
The distribution of these changes is important. Those areas already characterised by lower levels of output and employment were among the hardest hit – with major Midland and northern urban areas hard hit. Some of the largest metropolitan areas especially so: Greater Manchester, Greater Birmingham and Liverpool all saw a sharp fall in output and employment between 2004 and 2012.

Yet among those areas scoring highly in 2004 for output and employment, the effects were more muted. In this way we see that just as growth before the recession was characterised by a significant geographic difference, the recession and initial recovery seem to have reinforced those differences.

The most important contrast is in London – the largest metropolitan area, and yet the one which saw increases in employment and relative output from 2004 to 2012. London was already way out in front of the other areas for output. Recession compounded that difference, with the capital suffering less and recovering more quickly.

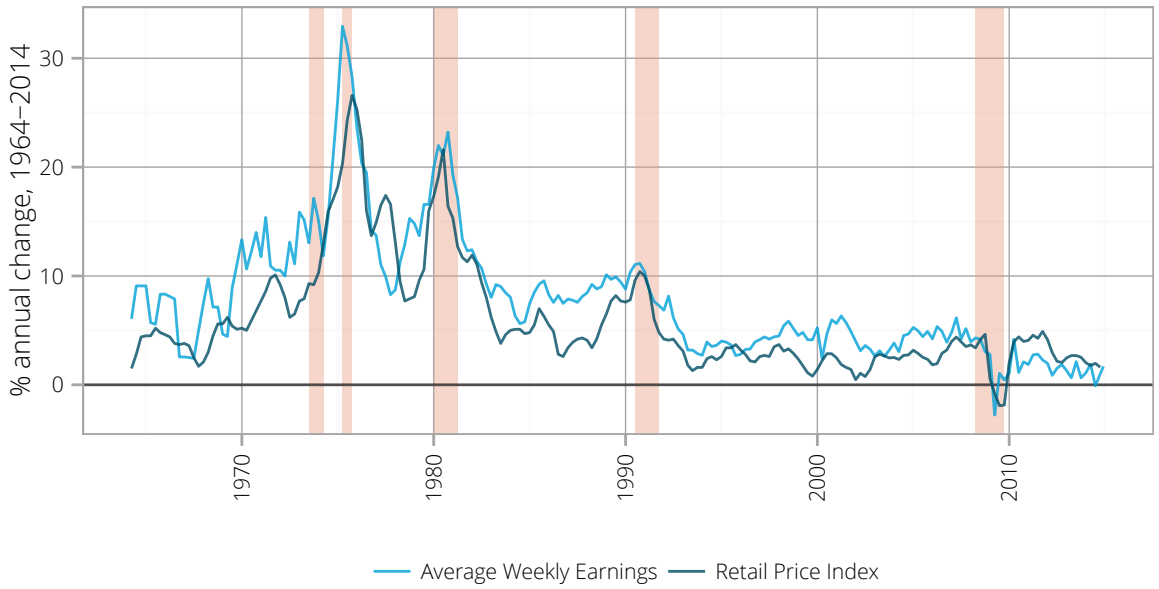
The difference in London's position is stark as well; while similar in employment, it is not just more productive than the other metropolitan areas, but *all* areas. And one factor in this is that London has a much deeper supply of high-skilled workers: 58 per cent of the capital's working age population has an NVQ level 4 qualification or higher, compared to 41 per cent for the whole of the UK.

Figure 3 Employment rates and GVA per head, DAs and English LEPs 2004-2012



Source: ONS GVA for LEPs, 1997-2012, and Nomis APS. ONS Regional GVA. Lines represent employment and GVA per head in 2004 to 2012, where 2012 is the bubble. Bubble size is total area GVA in 2012, £m.

Figure 4 Wage growth and price inflation since 1964



Source: ONS (2014a) for wages and RPI data. AWE KAC9 data added to bring up-to-date; RPI data replaced with RPIJ data where available.

The decline in wages

Growth has returned, and employment is high and rising. Pay is a very different story. Starting in the recession, pay has seen a sustained decline over many years. The latest indications are that real terms pay is now beginning to grow once more, helped in large part by the fall in inflation.

This prolonged decline is a departure from recent historic experience. In the postwar era, real pay has risen in most years, with only occasional, short-lived declines (Figure 4). In the initial recession, one part of the explanation was perhaps simple: the smaller rise in unemployment reflected increased wage flexibility, as people accepted a real fall in pay to maintain their employment. But as unemployment returns towards pre-recession levels, that explanation hardly seems so clear-cut, and other factors must be at work.

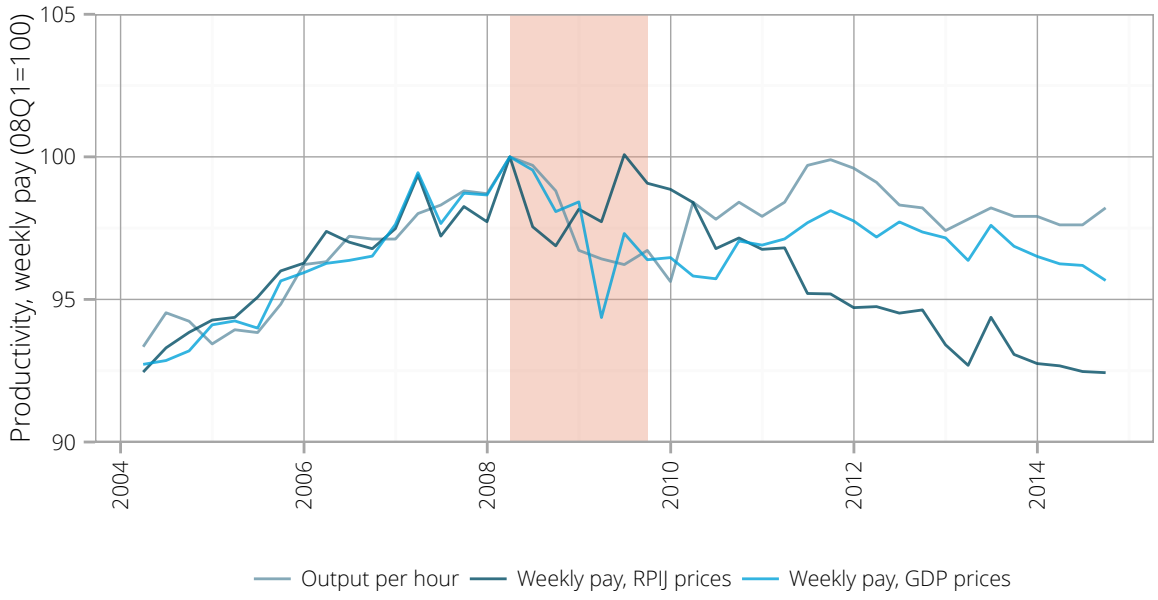
One factor can't be avoided: wages have fallen in large part because productivity has fallen. Figure 5 shows productivity (output per hour worked) against two measures of weekly pay.

The first measure, which falls fastest, far more quickly than productivity, is real weekly pay as we typically understand it: pay in terms of the retail prices and housing costs we have to pay. As we all know, many of those costs increased sharply through some of the years of recession and recovery, eroding the purchasing power of wages back to levels seen in 2004.

The second measure is the 'product wage'. This is pay in terms of the prices UK businesses can sell their goods and services at – to foreign customers as well as domestic consumers. These terms reflect the cost of wages to employers, and it tracks much more closely to stagnant productivity.[5]

5 Broadbent (2014).

Figure 5 Productivity and real weekly pay since 2004



Source: ONS LMS LZVB, AWE KAB9, QNA CGBV, MM23 KVR8. RPIJ prices are consumer prices including housing costs; GDP prices are the paid for goods and services produced in the UK.

In terms of living standards, the result is the same: overall, wages buy little more in the shops than they did in 2004, and a week's pay buys a little less productivity than it did before the recession. Although real pay is now increasing, there is a significant distance to catch up.

Understanding the problem this way is important: it confirms that there remains a clear link between employee earnings and workplace productivity.[6] That being the case, if we want to improve the prospects for pay growth, then we will have to do something about prospects for productivity growth.

6 Median pay stagnated before the recession, in part reflecting distributional changes. Pessoa and Van Reenen (2013). See also the discussion in Cribb and Joyce (2015).

New jobs

Headlines

- Most employment growth since the recession has been in high-skilled roles.
- There is more part-time, temporary and self-employed work, with upsides and downsides.
- Pay growth has been weak overall, but held up in part by the shift toward high-skilled roles.
- Adverse effects are concentrated on those at the margins of the labour market.

As the economy grows and the labour market recovers, there is plenty of discussion of whether the new jobs are of the right quality as well as the right quantity. The worry is that new growth is creating plenty of new jobs, but they're of low quality: making little use of skills, offering few opportunities, and providing limited prospects.

As we shall see, this is not an accurate characterisation. Even through recession, the UK has continued on its path to providing relatively more work in high-skilled jobs. During the last decade, the UK has added more high-skilled jobs than any other EU member state.

That said, there is also growth in low-skilled jobs, especially in service-intensive areas. There are justified concerns that these jobs offer limited prospects for those taking them. But it is also true that these jobs have offered important opportunities to stay connected to the labour market through recession, particularly important given the potential for 'scarring' from unemployment.

As for the form of employment, there are certainly more people in part-time, temporary and self-employment. But these need to be handled carefully: while for many they might well be 'bad jobs', taken for lack of any other options, for others they reflect positive choices that better suit their lifestyles and ambitions.

The most important questions are often less about new jobs than the people who do or do not get them. Young people have seen long term falls in employment levels, and were hit hard by recession. Besides youth, gender, ethnicity and disability all can bring potential disadvantages in the labour market, be it in the experience of unemployment or limited opportunity to progress.

Where are the new jobs coming from?

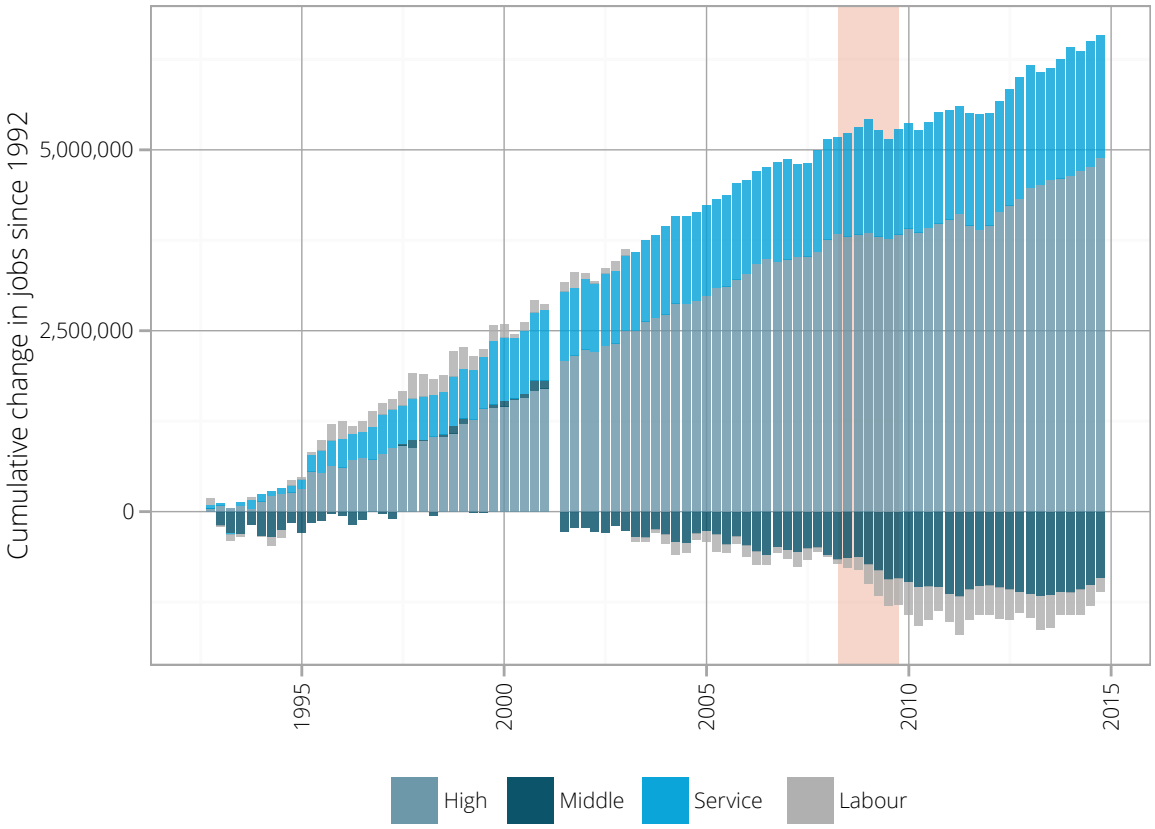
Over the last two decades, the trend in the labour market has been in favour of more high-skilled jobs. As Figure 6 on page 20 shows, the number of high-skilled jobs has seen barely interrupted growth since the early 1990s. Even the depths of the 2008-9 recession did not intrude on that trend.

As a consequence, as new high-skilled jobs were created during recession as well as since in recovery, they have dominated the increase in employment. From the first quarter of 2008 to the third quarter of 2014, we have seen the following net changes in four broad occupational groups:

- 1.3m more high-skilled jobs
- 0.5m fewer middle-skilled jobs
- 0.3m more service-intensive jobs
- 0.2m fewer labour-intensive jobs[7]

7 Nomis, ONS APS, 08Q1 to 14Q3, rounded to nearest 0.1m.

Figure 6 Cumulative change in employment since 1992, by broad occupational group



Source: UKCES analysis of Labour Force Survey. The gap is a break in occupational coding in 2001.

While the growth in high-skilled jobs has been consistent, the return to growth in 2013 has changed the recent picture. A tightening labour market is increasingly finding work for those unable to take high-skilled work, with increases in all broad occupational groups; although the increases remain largest in high-skilled (420,000) roles.[8]

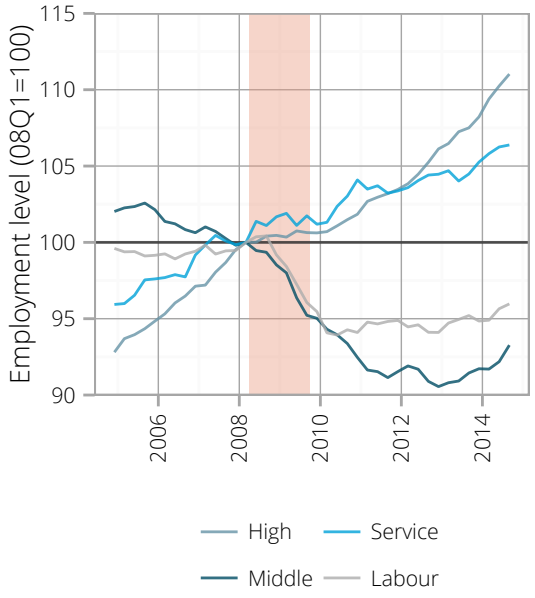
While the current across-the-board growth is welcome, the effects of recession have followed closely the long term trend towards an 'hourglass' labour market. We have seen pronounced high-skill and service-intensive jobs growth and middle-skill decline since the 1980s; the recession magnified its effects.

Figure 7 looks at employment growth by each occupational group up to and through the recession and tells the story clearly: growth in high-skilled jobs was barely dented by recession, and then saw robust growth early in the recovery period.

Service-intensive jobs growth, while more volatile, also returned strongly at the end of recession. But labour-intensive and middle-skill jobs saw very sharp falls – around 5 and 10 per cent respectively – from their pre-recession levels.

8 Nomis, APS, 13Q3 to 14Q3, rounded to nearest 10,000. Middle-skilled roles increased by 130,000.

Figure 7 Employment growth, 2004-2014



Source: Nomis, ONS Annual Population Survey.

Where the work is (and isn't)

The dominance of high-skill and service-intensive jobs growth shows through on closer detail as well. In terms of occupations, caring assistants (144,000), service sector managers (92,000), and associate professionals in business and finance (91,000) have made the largest contributions to expanded employment since 2011.[9]

There are important gender differences here. For men, the largest job creators are IT and telecoms professional roles (72,000) and for women, caring assistants (108,000). The sharpest losses in employment have come in administrative roles, especially within government (61,000) and elementary sales occupations (27,000).

The difference between these last two is instructive: while the recession saw some decline in low-skill roles – even in a service-intensive setting such as sales – it has not been sufficient to offset the 'hourglass' decline in middle-skill administrative work.

At this more detailed level, the recent period's recovery in middle-skill work shows up: food preparation, agricultural and finance administration roles feature in the top 20 job creators from 2011 to 2014 (adding 157,000 jobs together). But overall, of those top 20 job creating occupations, 13 are high-skilled roles which between them have added 723,000 jobs since 2011.

High-skill jobs growth

Past analysis has highlighted the small gap in the UK between the demand for high-skilled workers, and the supply of tertiary-educated workers, especially when compared with other advanced economies.[10] That gap is now smaller (Figure 8).[11]

As the data on high-skill job growth show, the lack of excess demand up to 2006 has not prevented a large growth since then. In fact, the UK has moved to have one of the highest combined levels of high-skilled jobs and tertiary-educated workers.

From 2006 to 2013, the UK added 2.2 million high-skilled jobs out of a total of 5.1 million added across the European Union, more than any other member state. That achievement also aligns with recent evidence, which suggest that the labour market has been able to absorb the large expansion in the graduate workforce.[12]

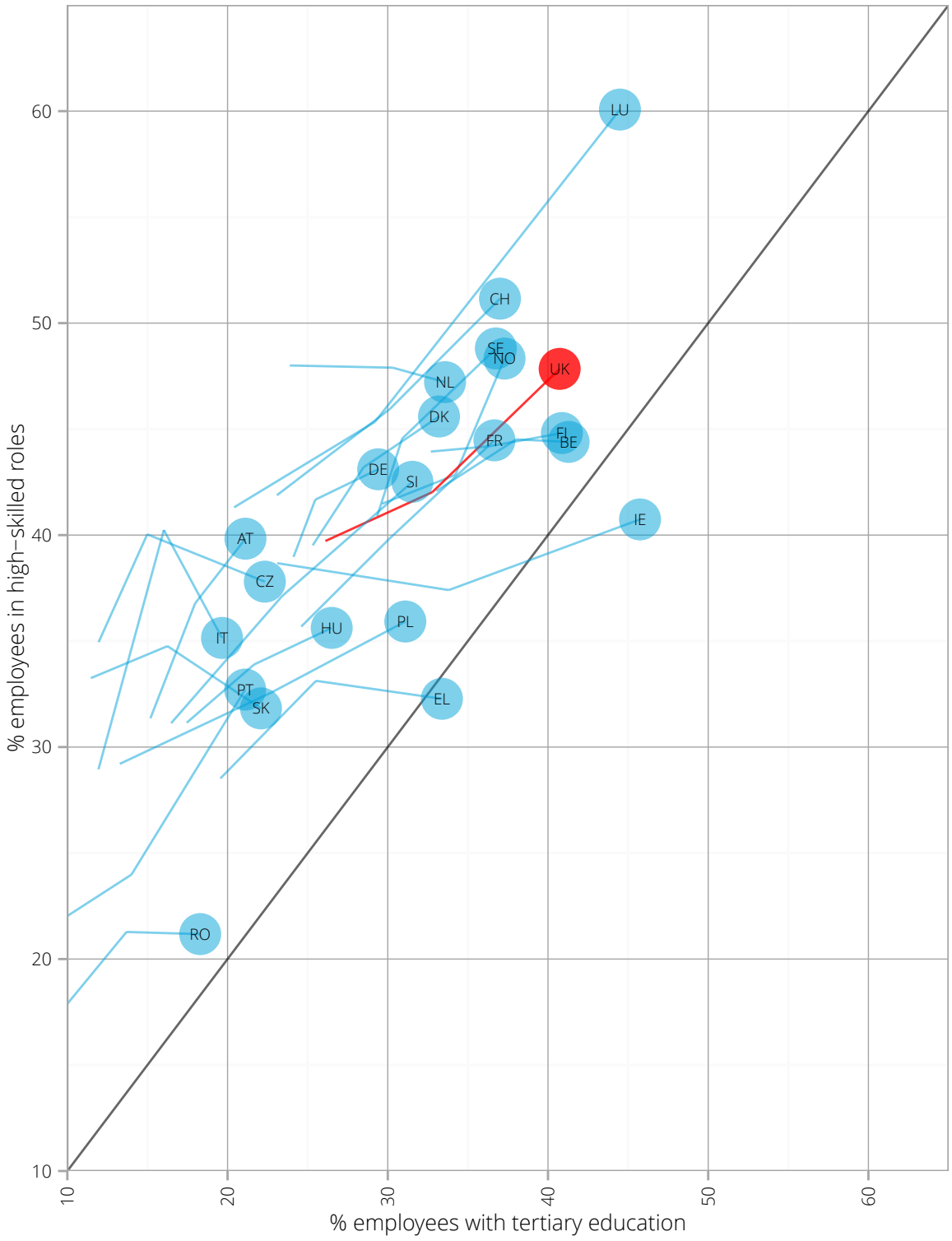
9 All figures are from ONS Labour Market Statistics, EMP16 from August 2011 and EMP04 from August 2014, and relate to the change in total jobs by SOC Minor Group.

10 UKCES (2009).

11 The gap is seen by the distance from the diagonal line.

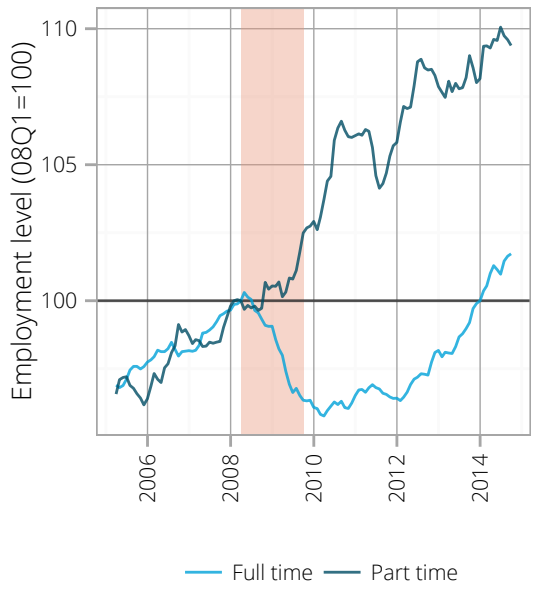
12 Green and Henseke (2014).

Figure 8 High-skilled jobs and tertiary education, EU 1999-2013



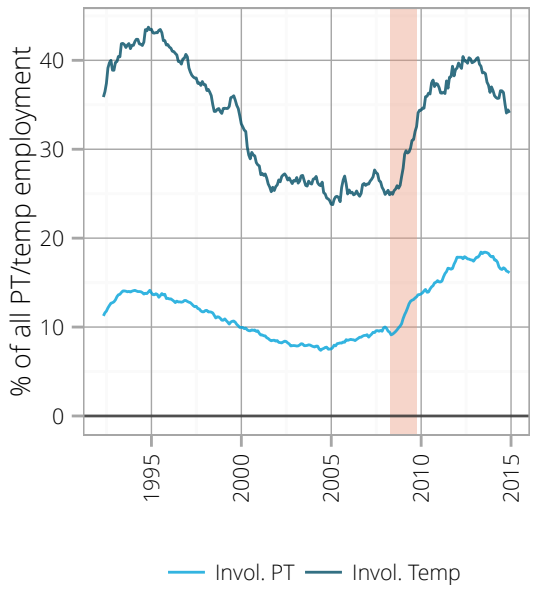
Source: Eurostat, ELFS, 'lfsa_egised'. 'High-skill'=ISCO1-3, 'Tertiary'=ISCED5-8. The trailing lines trace moves from 1999-2007, and then 2007-2013. Bubbles are positions in 2013.

Figure 9 Full-time and part-time work



Source: ONS LMS YCBE and YCBH.

Figure 10 Involuntary part-time/temp jobs



Source: ONS LMS YCCF, YCBZ, YCCU, YCCX.

Flexible employment

While job growth may have concentrated in high-skilled roles, falling real-terms pay and stories about increasingly casual employment mean that worries remain. But here it's important to put such developments in the right context. Increased flexibility is a common feature of recessions and therefore perhaps not unexpected. We also need to recognise with significant developments in the world of work which mean that the growth in such forms of working are not always negative and often reflect positive lifestyle choices.

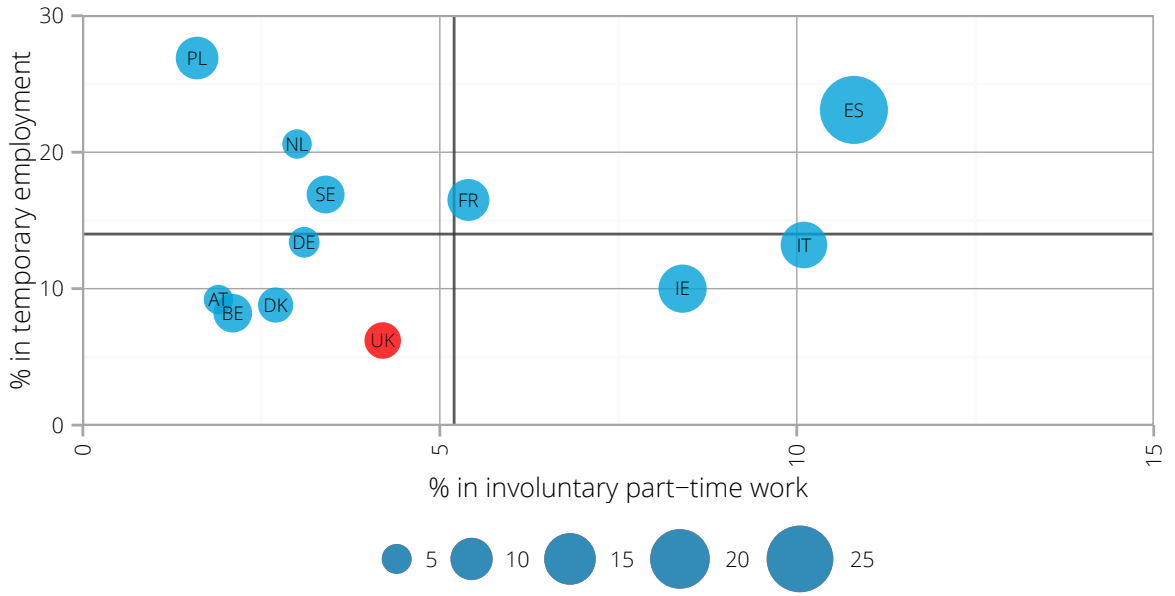
It's certainly true that we've seen a rapid increase in part-time work since the recession. Indeed, part-time employment has grown consistently, while full-time employment has only just recovered the losses of recession (Figure 9). The growth in part-time work has magnified a long-term shift, driven in part by changing lifestyles.

The recession and its aftermath also saw a rapid increase in the share of temporary and part-time work taken for lack of permanent or full-time alternatives. Those increases have tailed off more recently, but both 'involuntary' forms of work remain much more prevalent than they were in 2007 (Figure 10). The longer time series in the chart shows the similar experience after the recession of the early 1990s – which diminished as the labour market tightened.

Even here we should be conscious of the benefits as well as the drawbacks: even unwanted part-time work is better for many people than unemployment.[13] But that said, an effective labour market should match people to the hours they want, and typically most people prefer permanent employment. Increased temporary employment is therefore naturally a cause for concern; all the more so when a large share of it isn't wanted.

13 Bell and Blanchflower (2014) find that hours-constrained part-time work results in a significant loss of

Figure 11 Shares of temporary and involuntary part-time work, by country, 2013

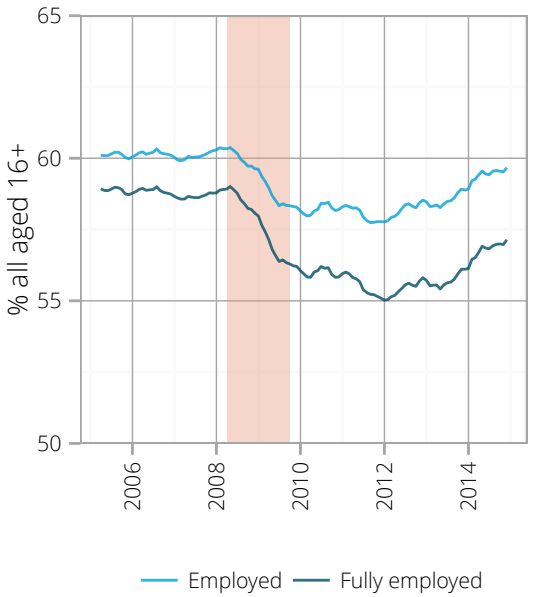


Source: stats.oecd.org, using TEMP_I and INVPT_I, all age, male and female, 2013, shares of employment. Bubble size is unemployment.

It remains the case that the UK labour market is not characterised by particularly high levels of temporary employment or involuntary part-time work when compared with other European economies (Figure 11). At the same time, any increase in the rate of unwanted part-time work means not only lower incomes for those affected, but underutilised labour and skills.

The fact that unwanted part-time work remains elevated means that although the headline employment rate has now returned to pre-recession levels, looking at a 'fully employed' rate – excluding those working below their desired hours – suggests that there is still some distance to travel (Figure 12). It seems likely that as the labour market continues to tighten, such underemployment will return to its previous levels – but it remains worthy of continued attention.

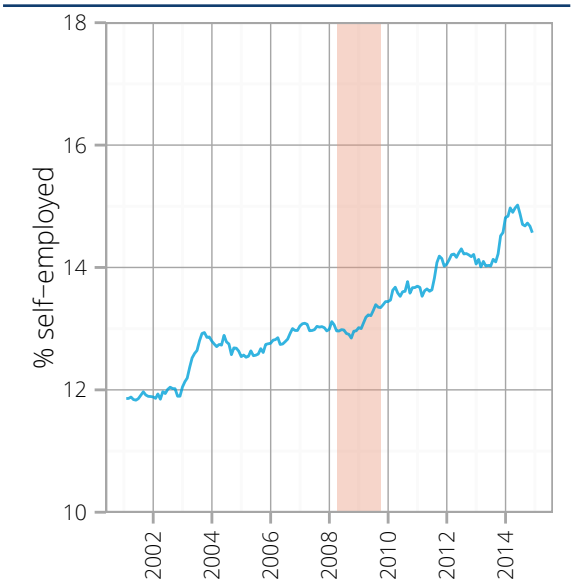
Figure 12 'Fully employed' employment rate



Source: ONS LMS YCCX, MGRZ, MGSF, MGSI.

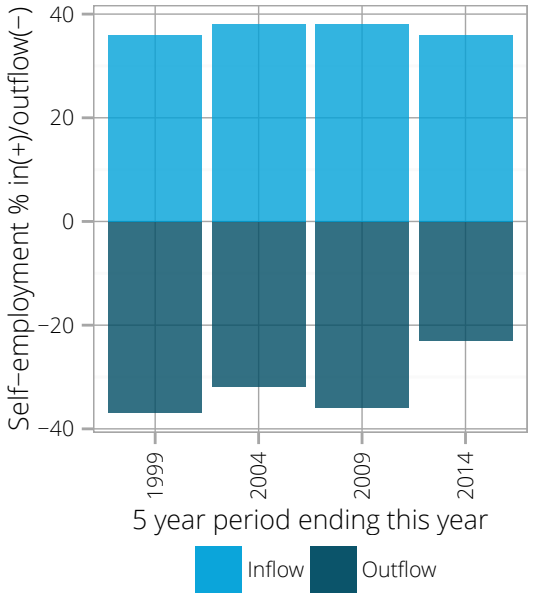
well-being, but less than so than unemployment.

Figure 13 Rate of self-employment



Source: ONS LMS MGRQ, MGRZ.

Figure 14 Flow from/to self-employment



Source: ONS (2014b).

The rise of self-employment

A striking development since recession has been in the growth of self-employment; indeed, nearly 15 per cent of those employed are now working for themselves (Figure 13).

There is a positive interpretation of the change: a larger independent workforce benefiting from the flexibility of being their own boss. But, especially given that the increase has happened alongside the recession, it may be that many are becoming self-employed to avoid unemployment while still lacking meaningful work.

Recent analysis suggests we shouldn't be so quick to see the increase as a form of hidden underemployment.[14] There has been a large increase in self-employment, and sharp falls (22 per cent) in associated incomes. But self-employment has increased because fewer people have flowed out (Figure 14), not because of an influx of otherwise-unemployed people.

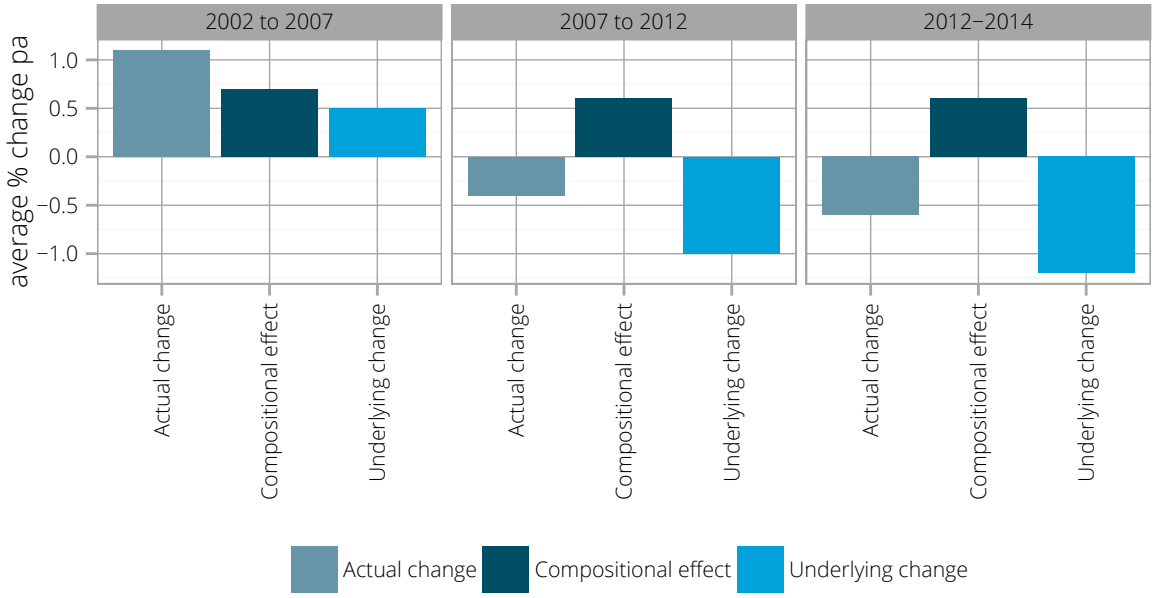
Much of this is down to demographic change, with a doubling of self-employed over-65s in five years. Also, the large majority of self-employed workers still do prefer their status, and this is relatively unchanged through the recession and recovery – perhaps reflecting the fact that more have chosen to stay with self-employment for longer.[15]

Whether the sharp fall in self-employment incomes reflects a lasting change, or the greater volatility in returns from self-employment remains to be seen. Once again, the trend – which goes back many years before the last recession (Figure 13) – remains worthy of continued attention, as does the composition of self-employment.

14 ONS (2014b).

15 ONS (2014a).

Figure 15 Decomposing changes in mean real hourly wages



Source: Figure 2.5(a), Cribb and Joyce (2015).

Pay pressures and inequalities

In aggregate, there is a positive picture of the labour market: over a million more high-skilled jobs, and more recently, growth at all levels. Employment terms may have become less attractive, but while some of it is involuntary, part of it reflects positive choices to work fewer hours or more flexibly.

If we have more high-skilled jobs, surely that should mean on average increased pay? In fact, the addition of more high-skilled employment does seem to have boosted pay growth relative to what it would've been.

Figure 15 shows the results of a decomposition analysis on pay change, and shows that the shift towards higher-skilled work (the 'compositional effect') has continued to push earnings at the same rate as it did before the recession. The difference is in the 'underlying change', which turned negative in recession and has remained so since.[16]

But if the general labour market picture is positive, the specific experience of certain workers is often more troubled. The adverse effects of recession, and the struggles of recovery, have been concentrated on those at the margins of the labour market.

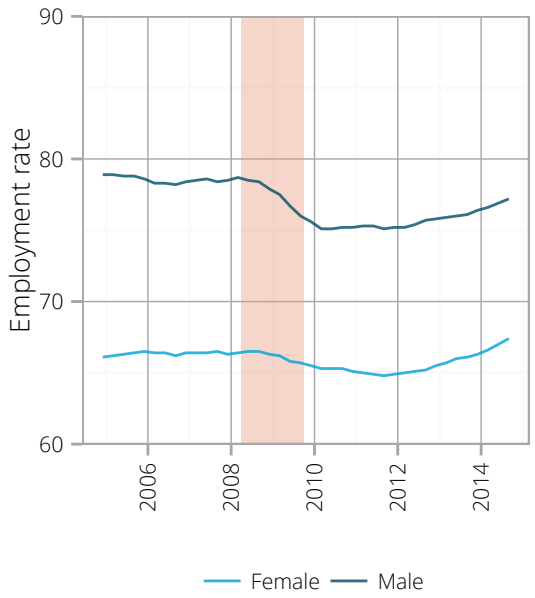
Perhaps the clearest sense of just how many are at the margins come from analysis of the low-paid. Some 22 per cent of employees – 5.2 million in 2013 – earn less than two-thirds of hourly median pay, a level stable since the early 1990s; in 1975 it was 15 per cent.[17] Of those, while the majority (64 per cent) will move out of low pay for a time, just one in four (25 per cent) will find a lasting escape.[18]

16 Cribb and Joyce (2015). See also Gardiner and Whittaker (2014), who highlight the recent resurgence in middle- and lower-skill employment and suggest that the compositional effect may recently have reversed a little.

17 Corlett and Whittaker (2014).

18 D'Arcy and Hurrell (2014).

Figure 16 Employment rates, by gender



Source: Nomis, ONS Annual Population Survey.

These employees are more likely to have no qualifications and limited skills, and more likely to find themselves in a low-end job, with less access to training; their opportunity to progress is limited. Indeed, the clustering of such factors can hit most those at the margins of the labour market and risks inhibiting progression.

Those experiencing unemployment are an obvious case here. And whereas the prospects of returning to work have been far better than in the previous two recessions, the potential for 'scarring' is still high, affecting both their employability and their well-being.[19] Other workers find themselves closer to the margins of the labour market simply by virtue of their gender, ethnicity or disability.

19 Bell and Blanchflower (2010).

Flexible contracts

The recession and prolonged recovery led to an increase in employment on temporary terms, including so-called 'zero hours' contracts. Concerns arise where those in need of regular, secure employment can only find work on temporary or casual terms. There are certainly signs that some have experienced such disadvantage in recent years.

There are advantages and disadvantages in flexible contracts. Temporary and casual employment allows flexibility for employers, supporting greater risk-taking, and many employees also benefit from being able to work with limited commitment.

Context is important. While they are often used for service-intensive roles, flexible contracts are also found in middle- and high-skill roles. For 'knowledge workers' they are particularly common, and support their mobility between employers.[1] There remains a lot of uncertainty about the level of usage; it certainly seems to have increased, but unclear definitions have made measurement difficult.[2]

There are issues. People employed on zero hours contracts are disproportionately likely to be women, or young (16 to 24) or older (65 and over) age groups. They are also more likely to be in full-time education; whether that reflects a preference for flexibility is unclear.

Around half of part-time workers on these contracts would work more hours, and similar numbers report finding it difficult to budget month-to-month. Second, flexibility as an imposition is heavily concentrated among young people. Where a third of all workers on temporary or zero hours contracts took them for want of permanent work, around half of 16-24 year olds did so. Third, where three-quarters of permanent employees receiving training had it paid for by their employer, less than 60 per cent of those on temporary or zero hour contracts did so.

1 UKCES (2014c).
2 ONS (2014c).

Inequality of opportunity and the labour market

This high level review risks overlooking the experiences of different groups in society. Inequality is an ill in its own right, and a check on growth as we fail to maximise the talent of all our people.

Whilst inequality is associated with a number of identities like gender, ethnicity and disability,[1] it is a simplification to discuss these as neat standalone categories. The intersectionality of identities, and differences between and within groups, are more complex than this overview can capture. These themes will be explored in a future paper from UKCES.

Gender

Gender inequalities remain within the labour market, with the UK ranked 26th in the world for gender inequality in a recent analysis.[2] Women match or outperform men in educational attainment and this trend will continue with 49 per cent of women predicted to hold a degree-level qualification by 2020 (compared to 44 per cent for men).[3]

But when it comes to employment we do not "reap the returns from this investment".[4] Women's participation rates are lower and they are less likely to be senior officials or managers. The gender pay gap at 9.4 per cent, whilst down from 17.4 per cent in 1997, remains sizeable.[5] This in part relates to greater levels of part time employment (38.4 per cent as against 11.7 per cent) and hours per week spent in unpaid work (258 as against 141).[6] That all said, in recovery from the recent recession, the female employment rate has returned to pre-recession levels, while the male rate has some distance to travel (Figure 16).

Ethnicity

Educational differences on the basis of ethnicity are complex: young people from minority ethnic groups are more likely to go to FE College than sixth form and have lower take-up of apprenticeships and vocational qualifications.[7] They are more likely to participate in HE[8] but obtain lower class degrees. There are concerns about the educational performance of white men from lower socio-economic groups.[9]

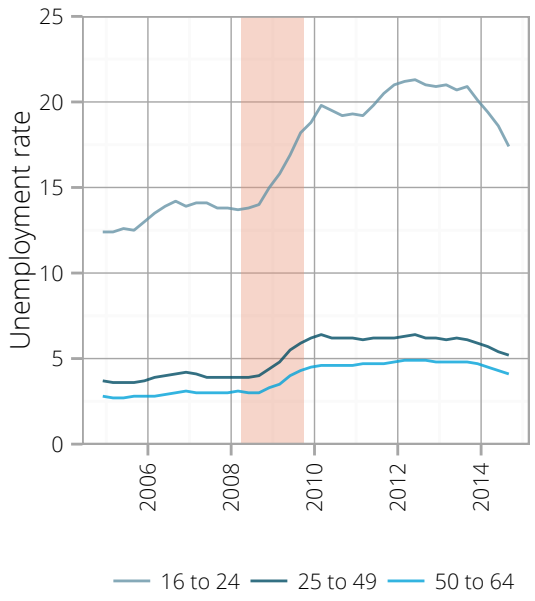
There is an 11.8 per cent rate gap in employment and 5.9 per cent in unemployment between ethnic minority groups and the wider working age population.[10] In work, there are important differences in pay, skills-utilisation, part time work, self-employment, retention and progression. The reasons are complex and go beyond overt discrimination. The informality of many workplaces, for example with word-of-mouth recruitment, disadvantage ethnic minorities, as most people network with those from the same ethnic background.[11]

Disability

Working age people with a disability are more likely than non-disabled people to have no qualifications and half as likely to hold a degree.[12] They are more likely to be unemployed (12 per cent compared with 8 per cent) and to be unemployed for over a year (47 per cent compared with 31 per cent).[13] The employment rate gap has reduced by 10 percentage points in the last 14 years, but remains sizeable at 30.1 percentage points: equivalent to over 2 million people. Disabled people are more likely to be in part-time and low-skilled work and less likely to hold managerial or professional roles: consequently they earn less.[14]

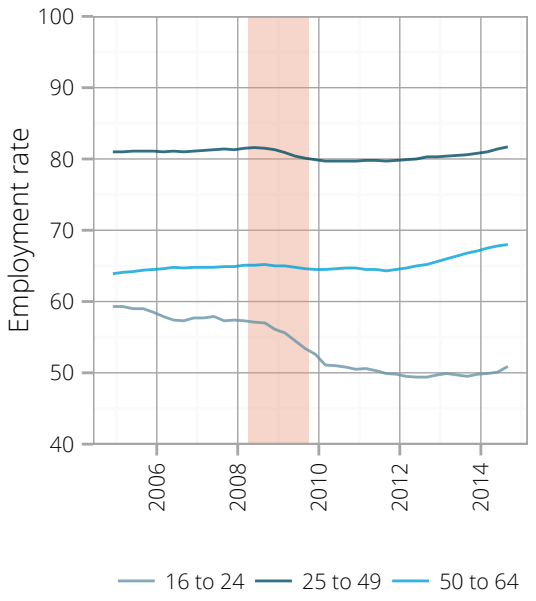
1 Wider inequalities (of for example religion and sexuality) are important but not explored here. Age is a key factor, and challenges facing our young people are explored throughout this report.
2 WEF (2014).
3 UKCES research by Bosworth (2014).
4 WEF (2014).
5 ONS Annual Survey of Hours and Earnings, 2014.
6 WEF (2014)
7 Barnard and Turner (2011).
8 The exception here is among Black Caribbean men.
9 Barnard and Turner (2011).
10 DWP (2014).
11 Barnard and Turner (2011).
12 DWP and Office for Disability Issues (2014).
13 EHRC (2013).
14 DWP and Office for Disability Issues (2014).

Figure 17 Unemployment rates, by age



Source: Nomis, ONS Annual Population Survey.

Figure 18 Employment rates, by age



Source: Nomis, ONS Annual Population Survey.

Young people

Young people, as so often, have faced a particularly tough time in recession. On the latest data, the youth unemployment rate remains at nearly three and a half times times the rate for the 'prime age' workforce.[20]

These figures reflect the benefits of recovery; the unemployment situation is now improving for young people, although it still has some distance to travel (Figure 17). Most recently, we have finally begun to see genuine progress made in reducing the very high number of young people stuck in long-term unemployment (Figure 19 and Figure 20 on page 31).

While the falls in youth unemployment are great news, there are signs of a permanent change in the labour market for young people. The 16-24 employment rate fell more sharply than for other age groups; but it had already been in decline since the early 2000s (Figure 18). Even though there has been some improvement with the overall recovery, employment of young people remains far below its pre-recession level, and even further below the levels of a decade ago.

As the labour market recovers, the trend of fewer employers recruiting young people seems to have clearly reversed,[21] but the gap between pre-recession and current employment levels for young people remains large.

20 ONS Labour Market Statistics, November 2014. Data covers Jul-Sep 2014. 'Youth' is 16-24, 'rest of workforce' is 25-64.

21 UKCES research by Shury et al. (2014).

Work experience: new evidence from the Employer Perspectives Survey 2014

Exposure to the world of work is critical for young people to get a start in their careers. For employers, work experience is a critical factors in recruitment decisions. But is there sufficient opportunity for young people to gain that work experience?

Work experience as a recruitment tool

66 per cent of employers in our recent Employer Perspectives Survey said work experience was the most critical factor they looked for in job candidates.[1] 11 per cent also reported actively having used work experience placements to help with recruitment, whilst almost a third of those who had offered a placement (31 per cent) reported that a work placement had resulted in them offering someone a permanent or long-term role.

Employer views of education leavers

Young people looking for their first job on leaving education are in a particularly tricky situation. There has been a substantial decline in 'earning and learning', so that many are leaving without having had a job.[2]

The picture is not all negative. Of the 31 per cent of employers who had taken on an individual straight from education in the last 2-3 years, the majority found them to be well prepared for work. But the minority that had found them poorly prepared most commonly reported that they lacked experience of the working world.

Employers and their work experience offer

Are employers offering the work placements required to enable individuals to get the experience they need? Our evidence shows that they aren't. Despite two-thirds of employers finding work experience critical or significant, only 38 per cent reported having had individuals on work experience placements in the previous 12 months.

The Construction sector (21 per cent), Manufacturing (26 per cent) and the Primary and Utilities sector (27 per cent) were lowest, with public and voluntary sector institutions more likely to offer work placements than their private sector counterparts . Despite wanting to employ individuals with work experience, a substantial proportion of employers are not providing the tools for individuals to gain this experience.

This catch-22 is explained in part by barriers such as time and resource constraints , and also when looking at the motivations of those that had offered work experience. Seven in ten of the employers who offered work experience reported that they did so for altruistic reasons, rather than for their own corporate benefit, which was only mentioned by 38 per cent. Despite altruistic motivations declining as a reason since 2012, and corporate benefit seeing a small rise, some employers are not yet convinced of the benefit to them of offering work experience .

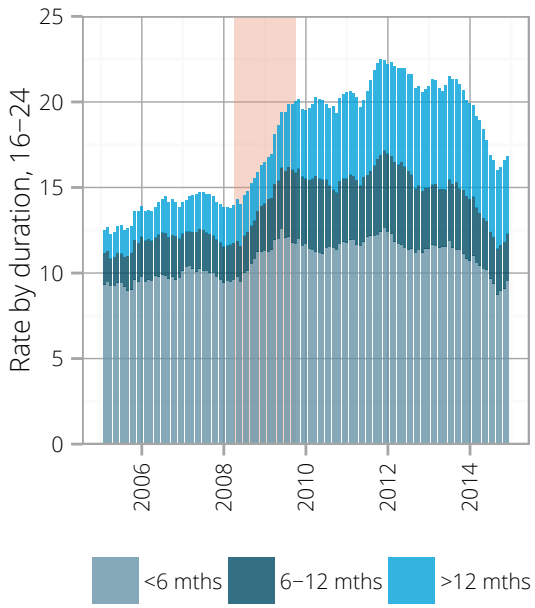
Collaborating to inspire students

As well as work placements, employers are also engaging with students in a variety of other ways: organising site visits; providing mentoring support; conducting mock interviews; helping to design coursework and sponsoring enterprise competitions. Just under one-fifth (18 per cent) had engaged in at least one of these activities over the previous year . Of them, the vast majority reported that they did not experience difficulties and barriers in doing so. Where a small minority did, issues encountered included: education institutions having little interest in engaging them; poor quality of candidates and, more prevalent for universities than schools or colleges, problems identifying the right person to engage with inside the institution. Overall this presents a positive picture: employers who are collaborating with education institutions do not on the whole find it difficult. However, the majority of employers are yet to engage in this way.

1 UKCES research by Shury et al. (2014). All statistics cited here are from this source.

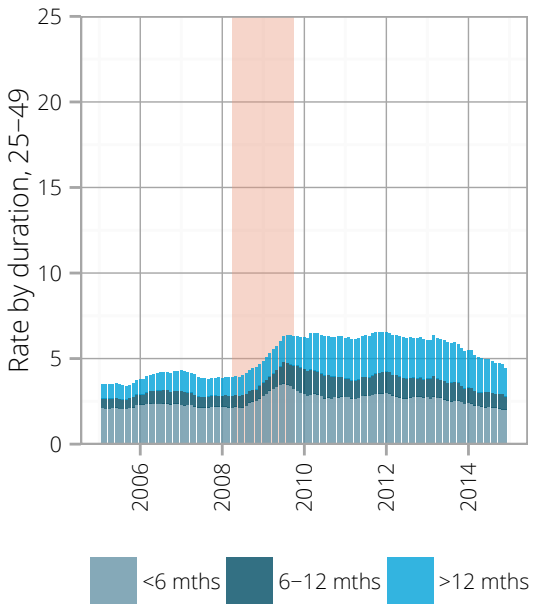
2 UKCES (2014b).

Figure 19 Unemployment duration, 16-24s



Source: ONS Labour Market Statistics.

Figure 20 Unemployment duration, 25-49s



Source: ONS Labour Market Statistics.

We know that the opportunity for work experience has become rarer – the UK has been a marked decline in 'earning while learning', not seen elsewhere in the EU.[22] But given the evidence on falling pay for young people relative to other workers,[23] alongside the fall in their employment, the recession seems to have marked a shift in favour of experience.

Employers are clear that experience matters; but we know that too few opportunities are available to gain meaningful work experience (see box on previous page). The risk is that some young people become caught in a trap, where they can't progress for want of experience; and their lack of progress means they don't gain that experience.

22 UKCES (2014b).

23 Comparing ONS ASHE 2008 and 2014 median hourly gross pay, 22-29 year olds saw a 3.9 per cent increase. All age pay increased by 9.3 per cent. Consumer prices increased by 18 per cent.

Growth prospects

Headlines

- Since the onset of recession, productivity has fallen 14 per cent behind its long term trend.
- The global economy is shifting, making for intense competition but also new opportunities.
- Skills have been critical for productivity gains, but their use seems to be highly variable.
- Future growth sectors are knowledge- or service-intensive, making the workplace critical.

Rapid growth over 2013 and 2014 is welcome, and looks set to continue. But if the 2008-9 recession has a lesson, it's that we can take little for granted about our economic future. For living standards to rise once again on a sustainable basis, we must be able to achieve lasting improvements in our capacity to deliver products and services which customers around the world value.

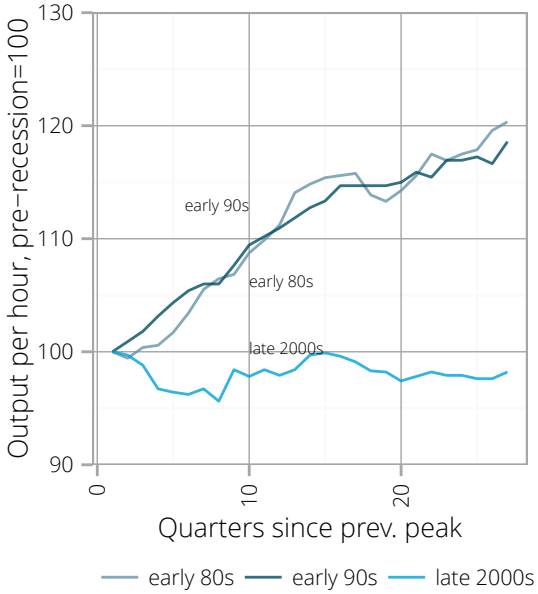
Since the recession, we have suffered a significant setback in productivity growth. That's a new development: in the previous two recessions, productivity continued to grow, despite the tough economic times.

This time, after an initial fall, it has stagnated, leading to a 14 per cent decline relative to the pre-recession trend (Figure 21).[24] Such a decline represents a substantial loss in the potential for improved living standards, as well as having important consequences for the public finances.

Internationally, while some other advanced economies have experienced a productivity slowdown, the depth of the UK's difficulties has eroded much of the progress made in the last few decades in improving our relative productivity (Figure 22).

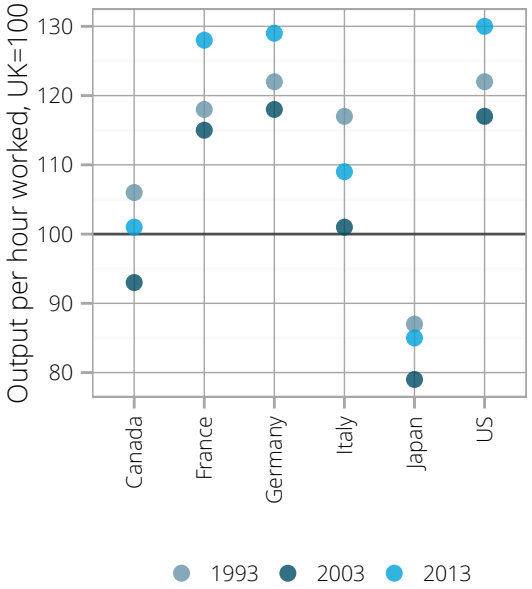
24 Pre-recession trend calculated at 2.1 per cent per annum, from labour productivity 1979-2008, EU-KLEMS.

Figure 21 Productivity in 3 recessions



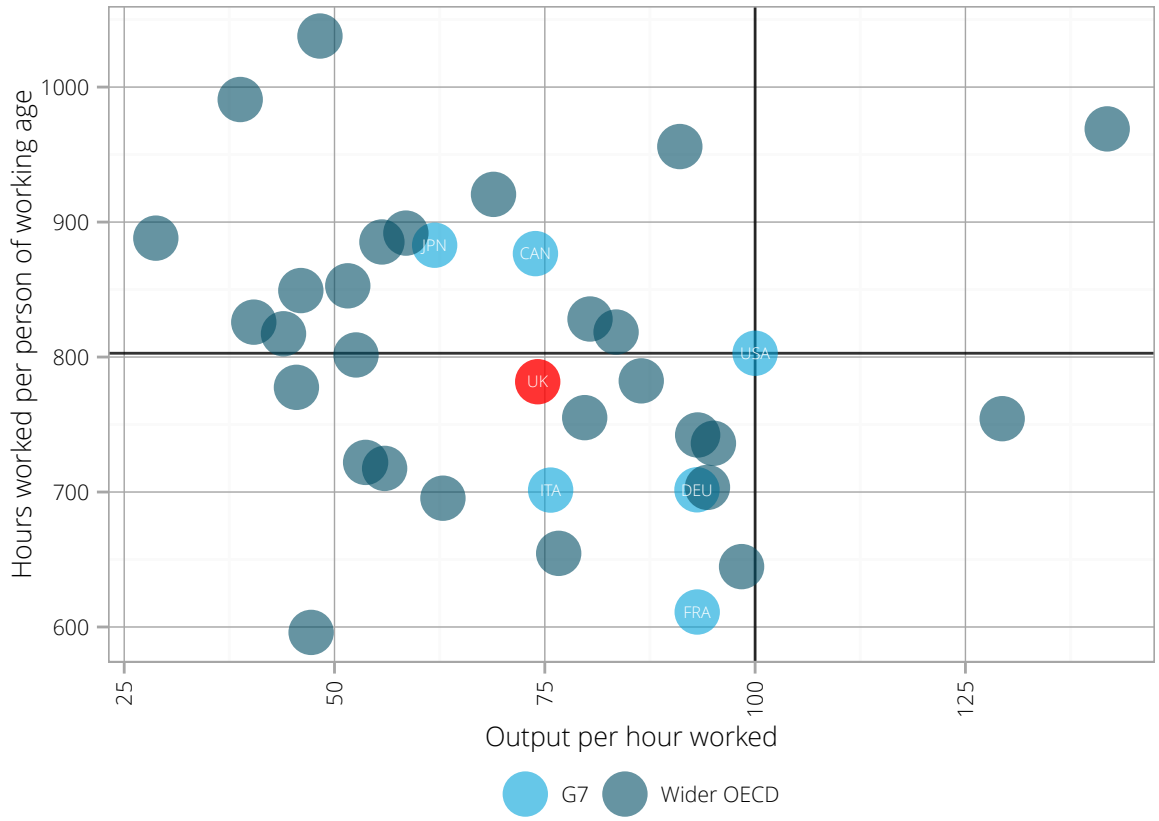
Source: ONS PRDY LZVB.

Figure 22 Relative productivity, 1993-2013



Source: ONS Int'l Comp. of Productivity, 2013.

Figure 23 Productivity and employment, OECD advanced economies, 2013



Source: stats.OECD.org, PDB_LV, data for 2013, output in current price USD PPP.

There remain good reasons to believe that productivity will return to growth,[25] but its decline and stagnation remains the most striking feature of the UK economy.

Our concern here is specific: what role do the skills of the workforce have in driving economic growth, and what prospects does this suggest we have? And in turn, how is it that we might improve those prospects?

The shifting global economy

After the consequences of recession, the UK finds itself behind the front rank of advanced economies for productivity and employment. With relatively high employment by the standards of the G7 nations, the UK's productivity falls some way behind the US, Germany and France (Figure 23).

Yet this is hardly the whole story. Outside of the world's most advanced economies, there are large emerging economies improving rapidly and playing an increasingly important role in shaping the global economy. Already some are joining the advanced economies: from 1970 to 2013, Korean labour productivity went from 17 per cent to 61 per cent of the UK's level.

25 Besley and Van Reenen (2013).

The largest difference to the world economy is being made in the most populous emerging economies, especially China and India. Their growth is fuelled in part by domestic institutional reform, but also by the rapidly growing educated workforces in those countries. China, for example, is now estimated as having more university students than the United States, and producing more scientists and engineers.[26]

With falling transport and communication costs, these new high-skilled workers soon add to the competition in high-value markets long seen as the preserve of advanced economies. UK businesses in some of the most knowledge-intensive industries are facing new and sharper competition.

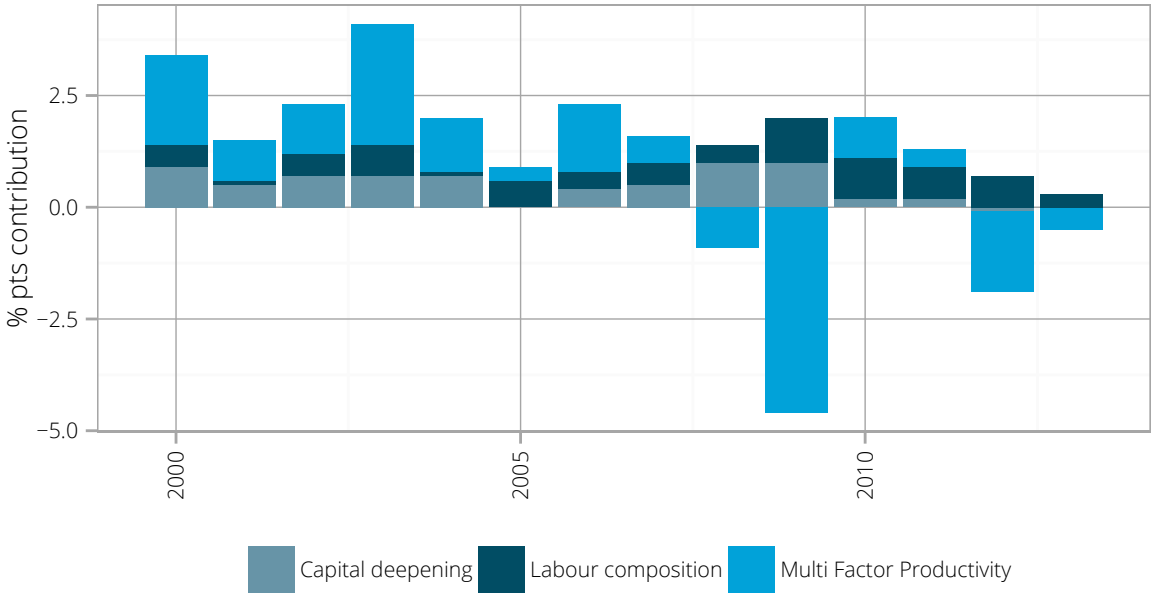
But it's wrong to see this as all risk and no opportunity; as skilled workers in emerging economies prosper, they will create new demands. Projections suggest that if growth continues as anticipated, Asia will account for more than half of the world's middle class by 2020, and account for over 40 per cent of global middle class consumption.[27]

Where the UK can specialise in products and services in which it can uniquely add value, there remains the prospect of large, sustained gains from growth in emerging economies. That may be in serving the expanding global middle class, but it's also true that as emerging economy commerce expands it will create new needs for the sorts of business and professional services in which the UK has a well-known comparative advantage.

26 Brown et al. (2011).

27 Kharas (2010).

Figure 24 Contributions to productivity growth, 2000-2013



Source: ONS Multi-factor Productivity (experimental), Estimates to 2013.

Skills have driven productivity gains

There are many aspects to productivity, ranging from infrastructure to regulation and beyond. Our concern here is with improving productivity at work and that means improving skills and putting them to better use in the workplace.

Skills played an important and sustainable role in productivity growth in the 1990s and 2000s. Increasing opportunity to participate in higher education resulted in a substantial boost to the supply of high-skilled workers. That expansion in the size of the talent pool has not been reversed, making a positive contribution to productivity growth in every year, even through the recession (Figure 24).

And in fact, the expansion still has some way to work through. The UK Commission's projections of qualifications supply in 2020 see an increase in those qualified to level 4 and above (post-secondary, higher education) from 37 to 47 per cent over this period, with the fastest growth in postgraduates (levels 7-8).[28]

There will be further falls in the numbers holding no qualifications (from 9 to 6 per cent). Perhaps most interestingly, while the numbers with advanced qualifications grow fast, the numbers holding intermediate qualifications will fall. By 2020, there are expected to be 1 million fewer people holding level 2 and 3 qualifications.[29]

However, while the UK is making progress in improving qualifications internally, what will matter for our economic prospects is the comparison with other advanced economies. And compared to the 33 other member countries of the Organisation for Economic Co-operation and Development (OECD), the UK's achievements are more mixed.

Skills attainment is classified according to three levels: Low skills (Below Upper Secondary), Intermediate skills (Upper Secondary) and Higher skills (Tertiary). The UK performs relatively poorly on low skills. It is currently ranked 19th (i.e. there are 18 out of the 33 other countries with lower proportions of those with low or no qualifications), and below the EU and OECD averages.

The UK performs poorly too on intermediate skills. While 37 per cent of the adult population hold 'upper secondary' qualifications, we are ranked 24th out of 33 nations. By 2020, with the decline in intermediate skills (to 34 per cent), we look like slipping to 28th.

But in fairness, that absolute decline in the numbers with intermediate skills allows an improvement in our strength: high-level skills. Already 11th out of 33, the increase from 37 to 47 per cent of the workforce with tertiary education will give us the 7th largest share of highly skilled workers (Figure 25).

Workforce skills are polarised

The UK does well in generating highly qualified workers, but is much less successful at developing the skills of the rest of the workforce. This is exemplified by the results of the recent international Survey of Adult Skills, operating across 24 OECD countries.[30]

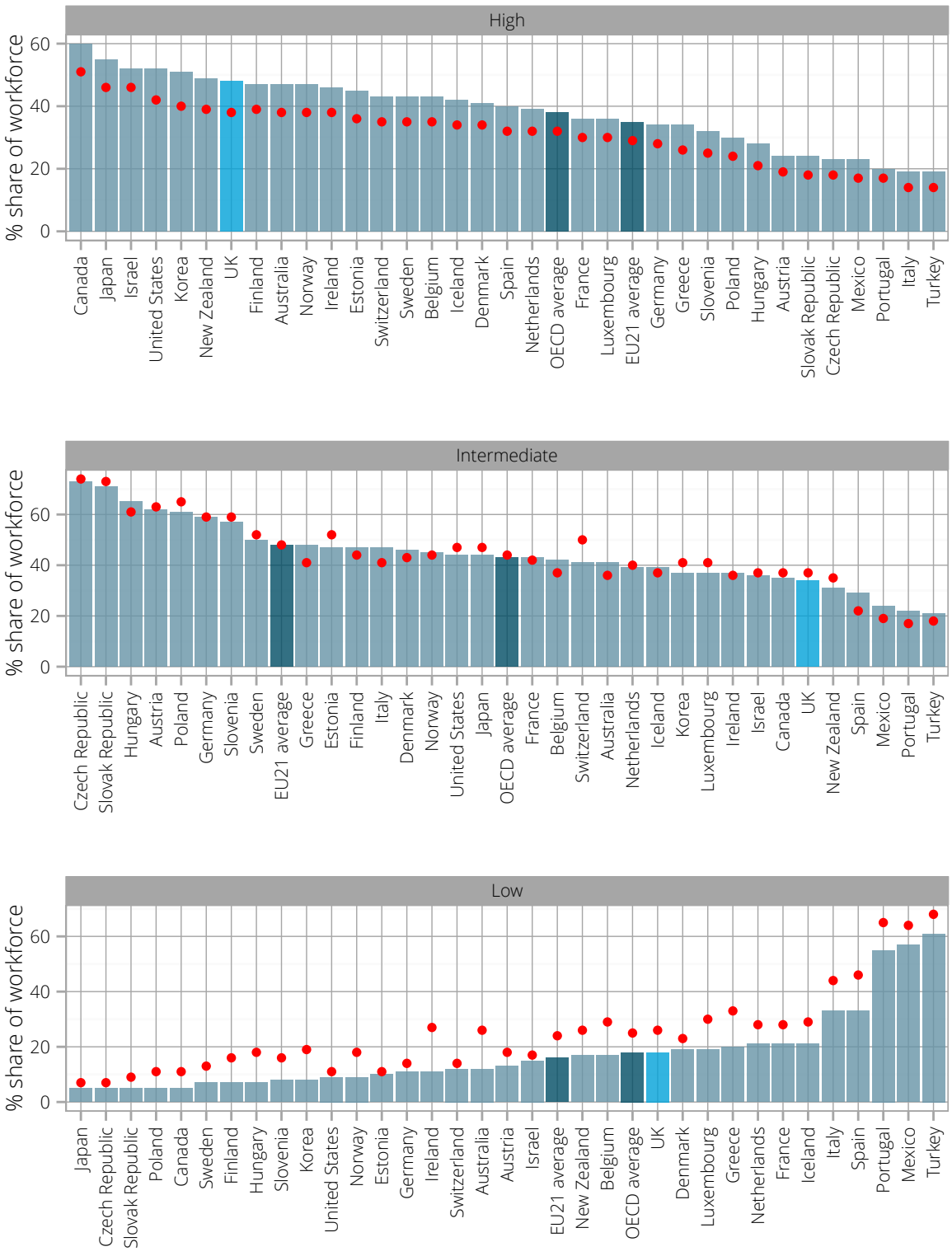
The survey assesses the proficiency of the workforce in three key skills, covering: literacy, numeracy and problem solving in technology rich environments. Crucially, these skills are measured not by qualifications but by direct testing, allowing for a more more robust comparison.

28 UKCES research by Bosworth (2014).

29 UKCES research by Bosworth (2014).

30 OECD (2013).

Figure 25 Qualification shares by international rank, 2020 projections (red dots=current levels)



Source: UKCES research by Bosworth (2014).

Importantly, the survey shows that whilst the UK[31] performs among the best with its highly skilled adults, it has a significant minority of people with a very low level proficiency in literacy and numeracy.

Further, the UK performs around the OECD average in literacy and problem-solving but significantly below the OECD average in numeracy, where we came seventeenth out of 24 participating countries. Behind the aggregate score, around a sixth of British adults score at the lowest levels in literacy, and just under a quarter in numeracy. Around a third of the adult population score at the highest levels in problem solving.

The survey's findings suggest a worrying gap in the workforce, between the skills-rich and the skills-poor. Such a gap exists in most countries, but the survey suggests it is comparatively large in the UK. Furthermore, the degree of such skills polarisation risks intensifying in future if the workplace entrenches them. For example, we know that learning creates the habit of more learning, and that this in turn influences individual career ambitions and the motivation to learn in support of them.

Barriers to further gains on skills

These international comparisons do well to highlight that employees' skills are only as good as the outlet they find in the workplace: the bundle of tasks they perform, the opportunities they have to learn and develop. For while skilled workers are valuable, their contribution to productivity depends on their combination with the right tools and techniques.[32]

While labour quality has consisently added to our productivity this past two decades, it was because it was successfully applied at work. If our productivity is set back, we need to think about how we adapt the application of skills to perform in a changed world economy.

The same pattern is reflected in the strong association between those leaving education with no qualifications, those in low skilled work and those with low levels of skill proficiency. Parental education adds a further influence, which means these habits may be long standing and harder to reform.

In addition, the talent pool of the highly skilled looks set to shrink in the future, as unlike most other countries, the level of skills proficiency is not advancing amongst younger adults entering the labour market compared to older age groups (between 55 and 65).

With such developments it therefore seems, despite the UK's current advantage in high skills, our position risks being diminished by improvements in other countries, and problems of developing and applying the best skills in the labour market in the UK. Solutions to such a complex set of problems will need to cut across many of our more established education and workplace boundaries.

Sectors, skills and productivity

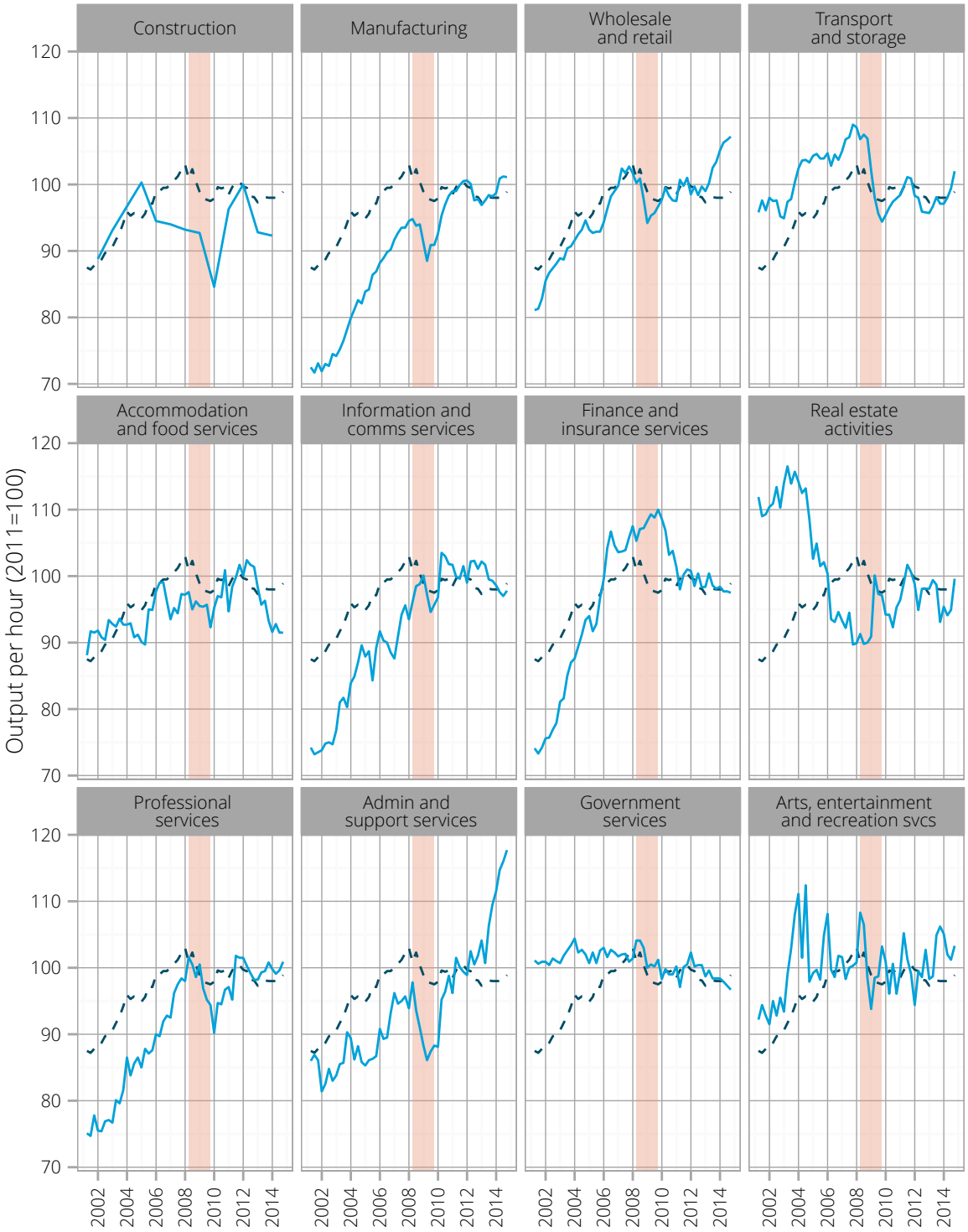
Those caveats aside, why is the increasingly-qualified workforce no longer resulting in improved productivity? The sharp drop in Total Factor Productivity (TFP) tells an important part of the story (Figure 24).[33] TFP is that black box of factors driving performance beyond measurable inputs. Most of all, it gives us a sense of how effective we are at turning those inputs – labour, capital, skills – into output.

31 Note that only England and Northern Ireland participated in the survey.

32 Brynjolfsson and McAfee (2014), Bresnahan et al. (2002).

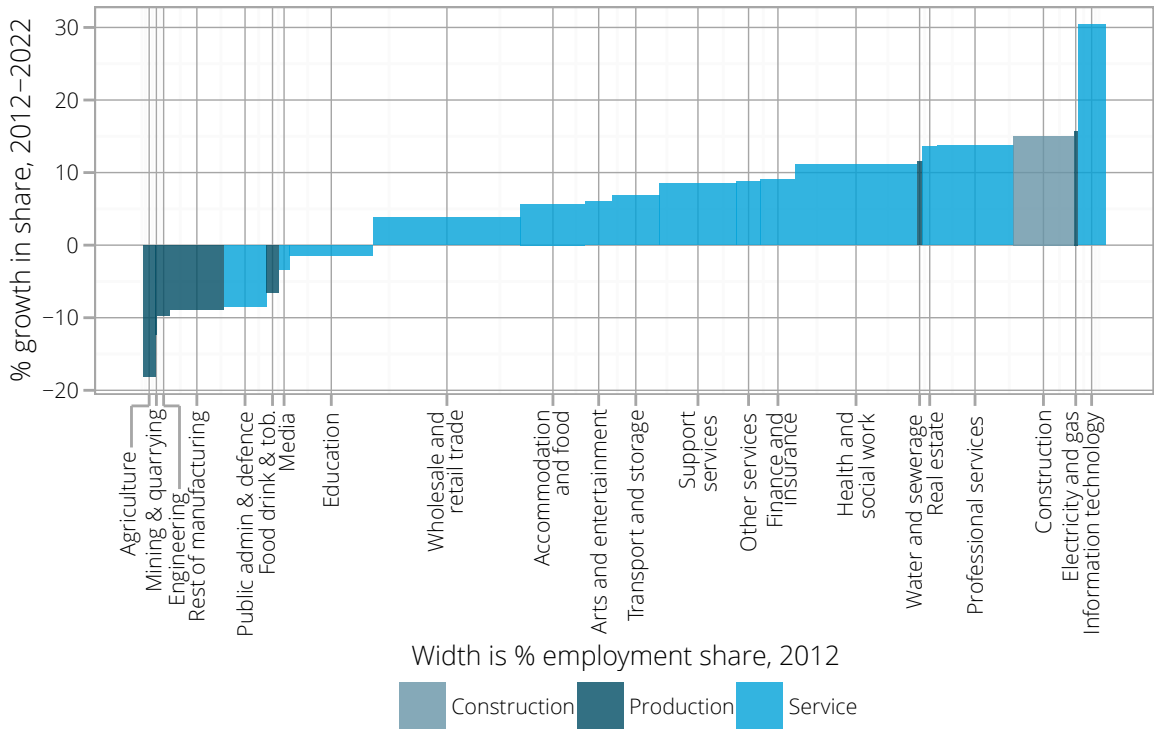
33 The ONS data in Figure 24 are designated 'Multi Factor Productivity', but the meaning is the same. See ONS (2015).

Figure 26 Output per hour, by sector, since 2001



Source: ONS PRDY labour productivity data. Dotted line is market sector output per hour.

Figure 27 Projected employment change, by sector, 2012-2022



Source: UKCES Working Futures 2012-2022.

Its sharp decline as recession hit tells us that our immediate problems are less the quantity of skills available than their application. Some of that will be across the labour market, but much of it will be in the workplace – how well people are matched to jobs, how well they are managed in those jobs, how well they are complemented by tools and technologies.

Looking at productivity at the sector level (Figure 26), what's striking is the way that the slowdown has hit in almost every sector. Yet the widespread pattern of poor performance defies a simple explanation. A recent analysis attributes the net loss in individual sector productivity to a varying set of factors including changing regulation; changing business models, and labour retention to maintain operating scale amidst falling demand.[34]

34 McCafferty (2013).

Innovation and investment

The shared factor across sectors is the response of the workplace to economic shocks. It's at the workplace level that decisions are made about investing in and making use of skills, and how to match them with complementary investments in new capital and improved business process. It's these combinations of investment and innovation which drive knowledge-intensive businesses, especially in service sectors. And looking ahead, it's these sorts of businesses which will make up an increasing share of employment (Figure 27).

Still other service sectors are responding both to overall growth and to changes within the UK. Health and social work is projected to be one of the largest sector job creators for this new decade, its expansion driven by demands rising because of new possibilities and shifting demographics. It's in these sectors where we need most of all to see improved productivity – and again it will depend on innovation matched with investments in skills and new technology.

Innovation in these sectors is often much less visible than the great technological breakthroughs we associate with manufacturing. But in many ways, it is more pervasive: constant reworking of business processes, refinement of skills, and evolving job designs all come into play.

Although businesses generally did not cut back on training investment as much as feared, the higher 'floor' seems to have been a response to regulation rather than reflecting strong commitment. In fact, many workplaces sought to cut training costs in other ways – providing training in-house and continuing a long-term decline in training time.[35]

In recession, many businesses sought to protect their workplace by hoarding skilled labour, contributing to declining productivity.[36] Those that did so were less likely to train their workforce.[37] Although business investment in physical capital has recently begun to recover, there are few signs yet of a similar growth in investment in skills and human capital, which has been in long-term decline.

35 UKCES research by Felstead et al. (2013).

36 Barnett et al. (2014a, 2014b).

37 Crawford et al. (2013).

The workplace

Headlines

- Some UK businesses are world-class, but too many are weakly managed.
- The business population has seen a fall in dynamism, impeding productivity growth.
- High Performance Working (HPW) can help make better use of skills, but is adopted by few.
- Long-term trends in work and technology will make improved workplace management critical.

While we need action to improve skills at the low and middle end of the workforce, the UK has a large highly-skilled workforce. Yet these skills are only valuable to the extent that they can be put to use in the workplace. Even when matched with the very best of technology, if skilled workers aren't managed and organised effectively, then their contribution to economic growth will be limited.

The evidence is that the UK has a variable business population, with a fair share of workplaces managed at world-class levels, but also a long tail of businesses with weak management. Unfortunately, there are signs that in the past decade, expansion hasn't always been led by our best businesses.

As our economy becomes more knowledge- and service-intensive, managing and getting the most out of employees and their skills becomes ever more important. Yet again, there are few signs to suggest more than a minority of businesses are adopting 'high performance working' to develop a workplace culture which nurtures and harnesses talent.

Instead, too many businesses seem in a 'low skill equilibrium', limiting their ambitions by organising work around a low level of skill. These businesses use the minimum necessary skill from their employees, rather than seeking to fully utilise their talents, or develop them further, to drive the business forward.

World class and a long tail

If growth depends on the combination of skills with organisation and technology, then the way that the workplace is managed becomes a critical factor in our long-term economic prospects.

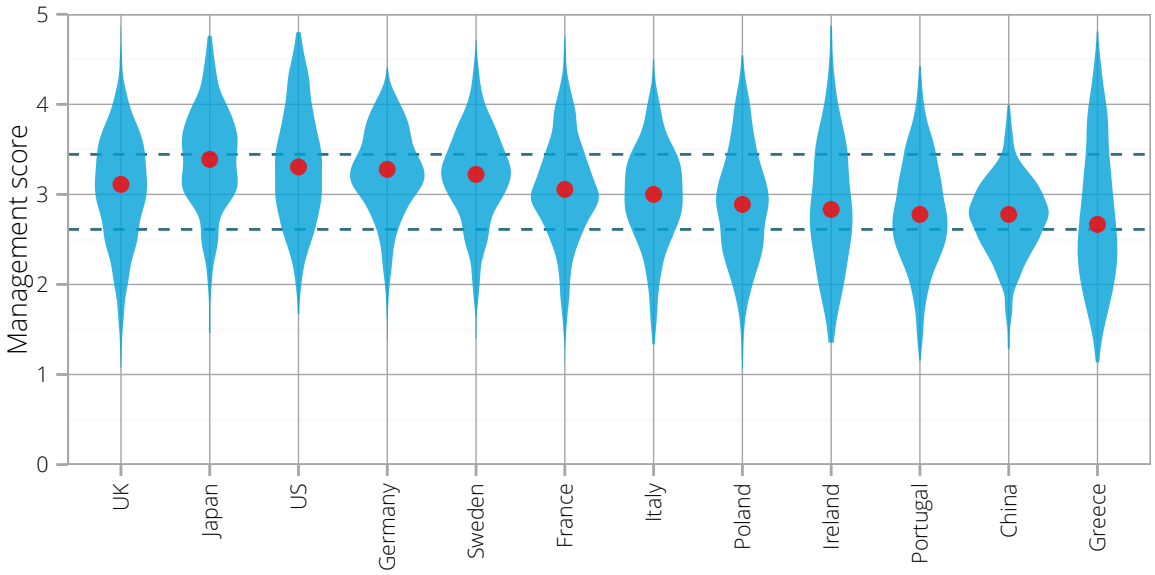
Some workplaces contribute much more to growth than others. Large and persistent productivity differences exist, even within narrowly defined industry sectors. Evidence in the US suggests that a manufacturing plant in the 90th percentile of the productivity distribution produces almost twice as much with the same inputs as the 10th percentile plant. These differences stem from variation in internal practices as well as the influence of external conditions.[38]

The latest data suggest about a quarter of performance gaps between businesses can be attributed to differences in managers' practices in monitoring, use of targets and people management.[39] There are significant differences in management performance between countries, but the story is also one of variation (Figure 28). The US and Japan have high levels of management practice across the board, while the UK is more middling. While the UK has a good share of businesses scoring in the cross-country top quartile for management practice, we also have a long tail of poorly managed firms, scoring in the bottom quartile.

38 Syverson (2011).

39 Bloom et al. (2012).

Figure 28 Small and medium-sized enterprise management practices, distributions by country



Source: World Management Survey, 2004-2010 set. Shapes are distributions of across a range of scores up to 5 points; red dots are median scores. Dotted lines are upper and lower quartiles across countries.

Declining business dynamism

Differences in the way workplaces are managed result in differences in performance, which aggregate to make a substantial impact on prospects for economic growth. As we mentioned at the end of the last section, one of the major contributors to slowing productivity has been the way some businesses seem to have have hoarded skilled labour even as output declined.

Before 2008, hiring was concentrated among firms whose output was growing. During and after recession, an increased proportion of firms (rising from 11 per cent to 20 per cent) saw shrinking output while keeping employment stable.[40] While some hoarding may have been employers seeking to retain skilled employees as prized assets, there are signs that this was part of a pattern of increasingly poor resource allocation across businesses.

In common with other advanced economies, it is the UK's newer businesses which lead net employment growth. But the UK's surviving established businesses still make a significant contribution to net job creation – whereas in most advanced economies, their contribution is negative (Figure 29).[41]

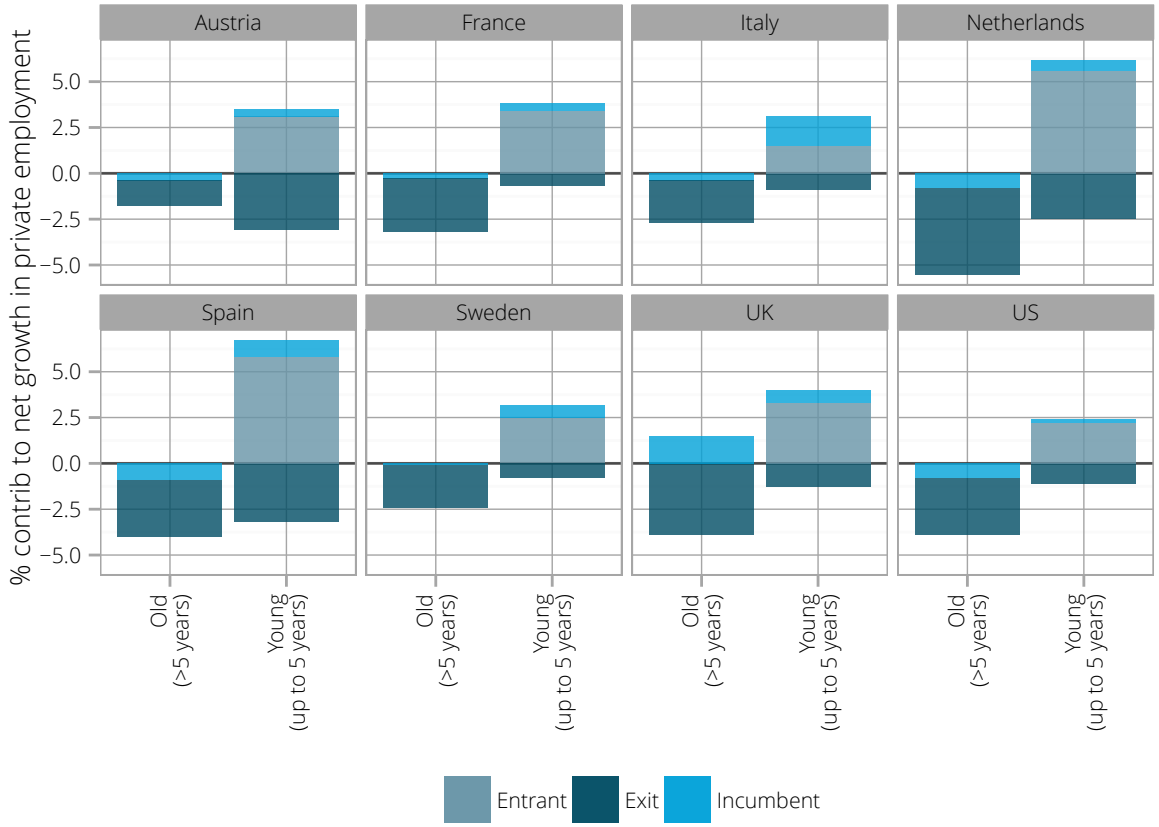
That picture of established business having an important role fits with some of the recent evidence on differences in business productivity. In the run-up to the recession, new businesses were on average no more productive than established businesses. Instead, established businesses were by far the main contributors to productivity growth.

In itself, this may just mean that our established businesses perform well, and their leading role reflects that. But productivity growth does not always direct resources to the best-performing businesses.

40 Barnett et al. (2014a, 2014b).

41 Criscuolo et al. (2014).

Figure 29 Contributions to net employment growth by business age, 2001-2011



Source: Criscuolo et al. (2014).

Before the recession, for every ten low-productivity businesses leaving the market, six high-productivity businesses followed.[42] If resources had been allocated to the best-performing business as well in 2007 as in 1998, productivity would have been 7.4 percentage points higher.[43]

Altogether, we get a picture of a decreasingly dynamic business population, where aggregate performance is determined too much by survival and 'getting by' rather than growth and innovation, and where new businesses are of only limited competitive impact.

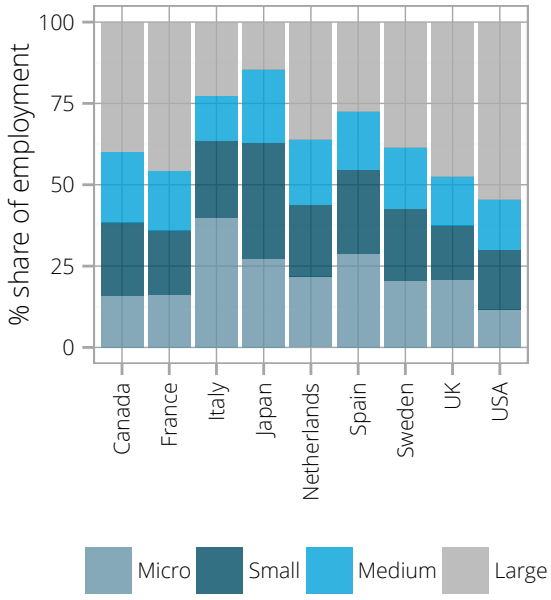
Perhaps reflecting this climate, where the most productive businesses find it difficult to grow, the UK combines a relatively large share of employment in large businesses and in micro businesses, leaving the small- and medium-sized share smaller than in some other leading economies (Figure 30).

The upshot is that better productivity prospects will come from increasing the number of rapidly expanding 'scale-up' companies. This seems to be where the UK lags behind leading advanced economies: too few of our businesses find the strategy and capability to break out from their initial small scale.

42 Bravo-Biosca and Westlake (2014).

43 Bravo-Biosca and Westlake (2014).

Figure 30 Employment by business size



Source: Cricuolo et al. (2014).

The potential benefits to economic growth of removing this constraint, and achieving a more dynamic business population, are substantial.[44]

Management talent

If we have a long tail or poorly-managed businesses, what about those managing and leading in our workplaces? Here again, we know there are issues. 3 per cent of managers are perceived as lacking full proficiency, and one in five manager vacancies are hard-to-fill because of skills shortages.[45]

Typically these skills can be technical or practical (cited by 58 per cent of employers) but they also involve planning and organisation (51 per cent) and strategic management (47 per cent). Worryingly, significant numbers report problems finding managerial candidates with sufficient literacy (20 per cent) or numeracy (23 per cent).

Internationally, there are causes for concern. In the OECD Survey of Adult Skills we find that while the UK[46] has a high proportion of managerial employees in the workforce – reflecting a large number of micro enterprises, but also sector differences favouring a large management workforce (Figure 31).

But interestingly, while in most advanced economies there is a large qualification gap between managers and employees, it is much smaller in the UK. Figure 32 shows that while the UK has an average number of graduate non-managerial employees (24 per cent), the proportion of graduate managerial employees is somewhat below average (39 per cent vs. 56 per cent across participating countries).

Given their importance in British workplaces, the difficulties recruiting, and the lower qualification profile of British managers, it's surprising that they are less likely to be trained than most employees. 50 per cent of managers were trained in 2013, compared to 70 per cent of professionals, and fewer than any other major occupational group.

Not making full use of our skills

Let's turn now to the wider workforce. Existing businesses employ by far the largest share of the workforce. 90 per cent of today's workforce will still be employed 10 years from now. Any improvements in productivity will depend on the performance of existing employees in existing businesses.

Therefore, it isn't just employee skill levels that will matter for long-term growth prospects; it also depends on workplaces making the best use of the skills they have available. That applies to businesses large or small, growing, declining, or stable.

44 Coutu (2014).

45 UKCES research by Winterbotham et al. (2014).

46 Note only England and Northern Ireland participated in the survey.

Figure 31 Managers as a share of employees, by country

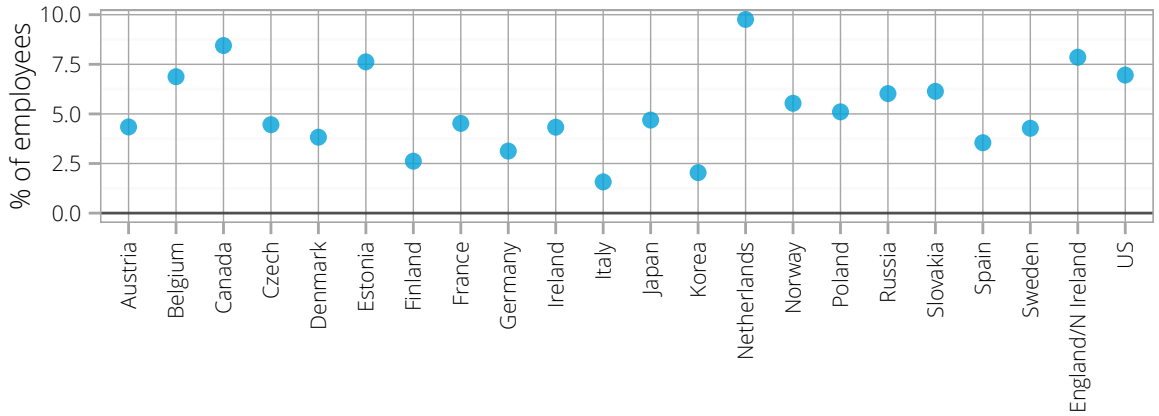


Figure 32 Managerial and non-managerial graduate employment, by country

Source: Figure 31 and Figure 32 are from UKCES analysis of OECD PIAAC. Dotted lines on Figure 32 are average levels across countries. Note England/N Ireland only because of survey participation.

Certainly, there is evidence before and since the recession that we're not always effective at using employees' skills effectively. Figure 33 sets out the levels of overskilling and over-qualification. Overall, more than a third of employees had qualifications beyond those necessary to be hired for their current job. That's equivalent to around 11 million workers.

Those most likely to be overqualified are concentrated in sales and customer service roles and elementary roles, both with overqualification rates of more than 60 per cent. Young people (aged 20-24) are much more likely than average to be overqualified (more than 50 per cent), although some of this reflects the early stage of their career.

Figure 33 Qualification and skill mismatch, 2006 and 2012

Status	2006	2012
Overqualified, *comprising*	39.1	36.8
Real over-qualification	*17.0*	*15.2*
Formal over-qualification	*22.2*	*21.7*
Over-skilled	32.5	30.1
Under-qualified	13.4	10.7
Qualification-matched, *including*	47.5	52.5
matched but over-skilled	*11.9*	*11.9*

Source: Skills and Employment Surveys, 2006 and 2012.

Contrary to speculation, overqualification is much more a problem among those with intermediate qualifications than it is for graduates. Paradoxically, given the UK's relatively low share of workers with intermediate skills, those workers often find themselves doing work which is below the level they are qualified for.

Formal qualifications only serve as an imperfect proxy for skills. Many of the most pressing workplace skill shortages relate to practical skills, and so it's possible to be formally overqualified while still not being fully competent for a role.

Fewer than half of those who are formally overqualified are also overskilled in this wider sense. But that still means that 15 per cent – or nearly one worker in six – are estimated to be 'real overqualified' in this way i.e. in possession of both formal qualifications and skills in excess of those required for the job. And alongside these were a larger number of workers who perceive their skills not to be fully used even if their qualifications are matched to their job requirements.

Overskilling declined a little from 2006 to 2012, but again much of this change was among graduates. A large number of workers remain overskilled or overqualified. In both cases, underutilisation represents a waste of talent and has significant consequences. Employees unable to use the skills that they have invested in are less likely to feel motivated, and as a result are less likely to make the discretionary commitment to make further efforts in the workplace.

But the concentration of overskilling and overqualification seems to be among those with intermediate skills. Recent analysis confirms this: the rising share of graduates (from 31 to 42 per cent of the workforce) has found a similarly rising share of jobs making use of graduate-level skills (from 32 to 40 per cent of jobs).[47] This trend raises an important question: if we are to raise the prospects of those with low skills, will our workplaces generate the job opportunities to make use of their improved skills?

47 Green and Henseke (2014).

Too few high performance workplaces

The evidence on overskilling and overqualification suggests that too many workplaces are leaving skills underused. Just as we saw in discussing the long tail of weakly managed firms and the growing low productivity businesses, there seem to be too many workplaces which use only the skills they need to fulfil their immediate requirements, and give no thought to what they could do with the full range of employees' skills.

Such an approach hints at the lack of ambition which characterises too many British workplaces – those we've seen which have weak management, and survive through markets which aren't as effective at weeding out poor performers as they used to be. By contrast, those businesses operating in intensely competitive markets for high-value products and services go out of their way to recruit highly-skilled workforces and to invest in the skills of their workforce, just as they are more likely to adopt best practice management techniques.[48]

Much like the presence of weak management practices, businesses operating without competitive pressures and strong leadership ambition are much less likely to develop a workplace culture which nurtures and leverages talent – so called high performance working (HPW). Certainly, over many years the UK Commission's research has demonstrated that the adoption of such an approach has been confined to a relatively small number of workplaces. Case studies have shown the complexity of securing success not only in the UK but internationally too.[49]

HPW is difficult to measure because there is no one silver bullet; it cannot be reduced to a recipe of universally applicable practices. Instead, it seeks to create a culture or ethos characterised by a commitment to identify, develop and fully use the talents of the workforce. Its benefits come through better job design, not only matching skills to work, but also giving employees autonomy to engage them in improving their own performance. It's through such synergistic effects, unlocking the potential of talent across the whole business, that more significant sum gains are achieved.[50]

The UK Commission's Employer Skills Survey attempts to capture variations in adoption of the approach across the UK through a series of questions relating to recognised HPW practices. These range from improved planning through task discretion and measures to enhance participation in decision-making. Whilst inevitably an imperfect measure, unable to capture fully the "softer" cultural side of the approach it is nevertheless a useful guide.

The survey found that only 12 per cent of employers can be classified as fully embracing HPW, in the sense that they have adopted 14 out of 21 HPW practices. Moreover, HPW employers are concentrated in particular sectors of the economy. For example 36 per cent of employers in public administration, education and financial services are HPW employers, whilst in contrast, only one in 25 per cent of construction firms are.

HPW employers are driven to adopt the approach by pressure to improve performance, either from competition or the need to manage the consequences of rapid growth.[51] Understanding the links between the circumstances of a workplace and its engagement with HPW has motivated some new analysis (see box, next page).

48 UKCES research by Mason and Constable (2011).

49 UKCES research by Stone (2011).

50 UKCES research by Belt and Giles (2009).

51 Cox et al. (2012).

High Performance Working Practices: which businesses, and how?

While there's a lot to be done to ensure that workers have the right qualifications and skills, much more of performance lies in employers deploying skills effectively, and employees being motivated to apply discretionary effort where it will make for significant gains.

High Performance Working (HPW) is a holistic approach which aim to do just this, creating a workplace culture valuing talent across the four domains of:

- access (recruitment and resourcing)
- ability (workforce skills and training)
- attitude (engagement and motivation)
- application (deploying skills)

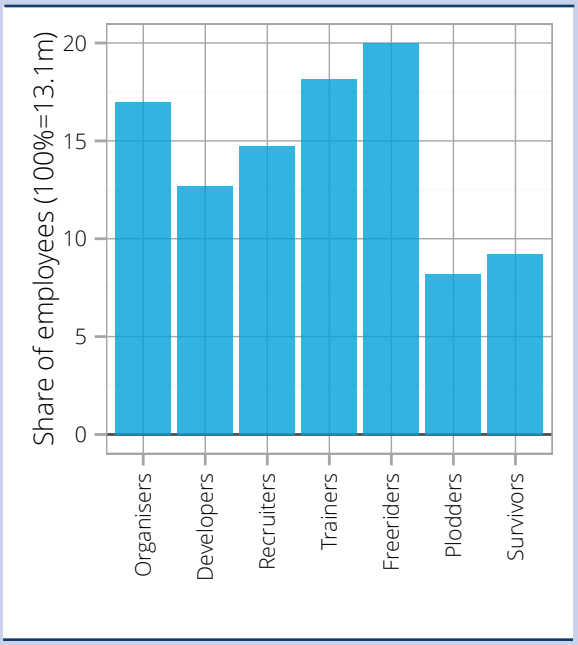
HPW works on the basis that the skills of the existing workforce and new recruits are not sufficient to ensure high performance. Instead, individual workers must have the motivation and opportunity to apply their skills and contribute discretionary effort in the workplace, to innovate and be productive. This in turn creates a culture for continuous improvement.

HPW adoption is highly variable, and looking at the formal adoption of this or that practice can mislead: larger workplaces are likely to adopt, but often have significant implementation gaps; smaller workplaces may have informal solutions to the same problems. Genuine assessments need to overcome these potential pitfalls.

At the same time, understanding the different approaches to HPW can help us to shed light on the potential paths to adoption. For that reason, we have used the data from the UK Commission's Employer Skills Survey, combined with insights from our broader work with employers, to segment small-to-medium-sized establishments (5 to 99 employees, including many of those critical to improving growth prospects) according to their choices on HPW adoption.

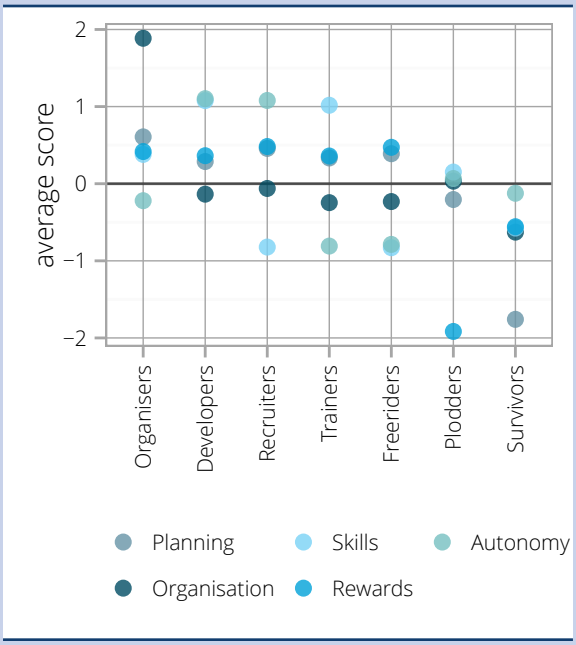
We collected the 21 practices into five different, indices of HPW adoption, and used these to develop segments of establishments according to their HPW approach. At the top, we found **Organisers**, who are typically large organisations, strong on most measures – but especially in organisational investment.

Figure 34 HPW segments, employee shares



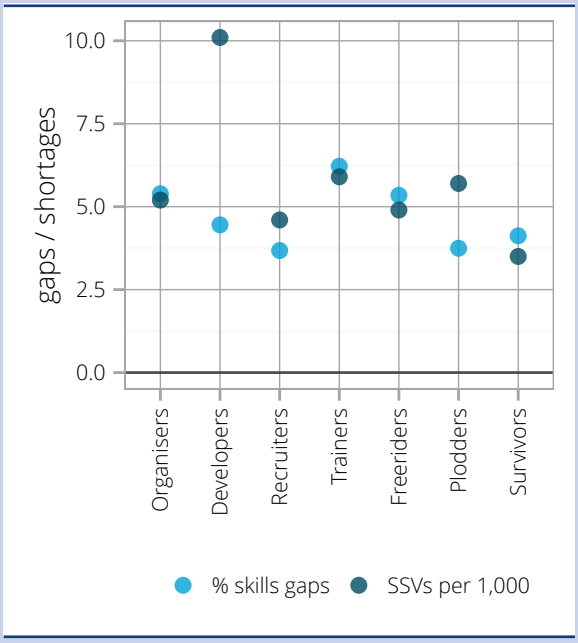
Source: further analysis of UKCES Employer Skills Survey 2013, 5-99 employee establishments.

Figure 35 HPW factor scores, by segment



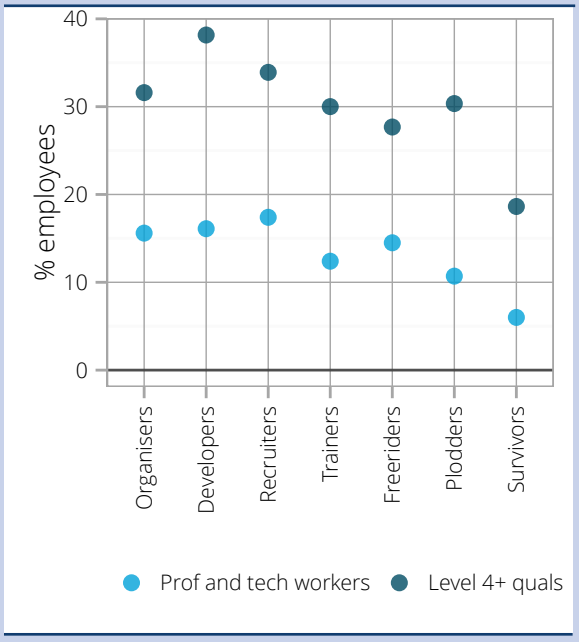
Source: further analysis of UKCES Employer Skills Survey 2013, 5-99 employee establishments.

Figure 36 Skills gaps and shortages



Source: further analysis of UKCES Employer Skills Survey 2013, 5-99 employee establishments.

Figure 37 High-skill workforce



Source: further analysis of UKCES Employer Skills Survey 2013, 5-99 employee establishments.

Then we found **Developers** – similarly strong on all counts, but with a real emphasis on training and giving their employees autonomy. Developers exist across the full size range, and are concentrated in financial services, real estate, and transport and communications. They're characterised by particularly acute skills shortages, and a high proportion of highly skilled staff.

Recruiters are not far off joining the ranks of Developers except for their lack of training and devleopment. They clearly hire well and give their workers autonomy, but they don't perceive skills gaps or skills shortages greater than the average.

Trainers represent perhaps the greatest potential for improvement: cutting across size and sectors, they perceive high levels of skills gaps and skills shortage, and they are committed to training. But on the other indicators, they're middling at best; and they don't offer their workers much autonomy.

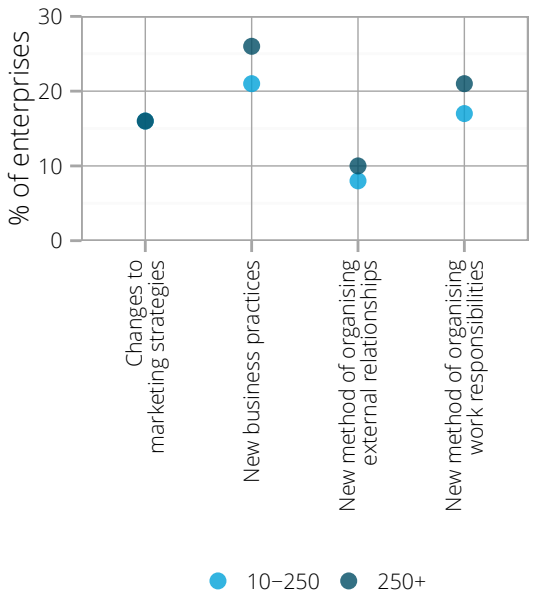
Freeriders are to Trainers as Recruiters are to Developers: their difference is that they're less likely to train. But in contrast to Recruiters, they perceive above-average levels of skills gaps and skills shortage – but that doesn't seem to move them to act.

At the bottom of the scale are the **Plodders** and the **Survivors**. Survivors are dominated by very small establishments (5 to 9 employees), in non-tradable service sectors, and employ a lot of middle-skill and labour-intensive workers. They seem likely to be part of that large number of incumbent, mature micro businesses with few prospects; they employ few highly-qualified workers, and have a distinct lack of professional and technical workers.

Plodders meanwhile do suffer from skills shortages, but are average in every way except one: they are highly unwilling to offer bonus or performance rewards, or flexible benefits, to motivate their employees. They are concentrated heavily in the wholesale and retail sector.

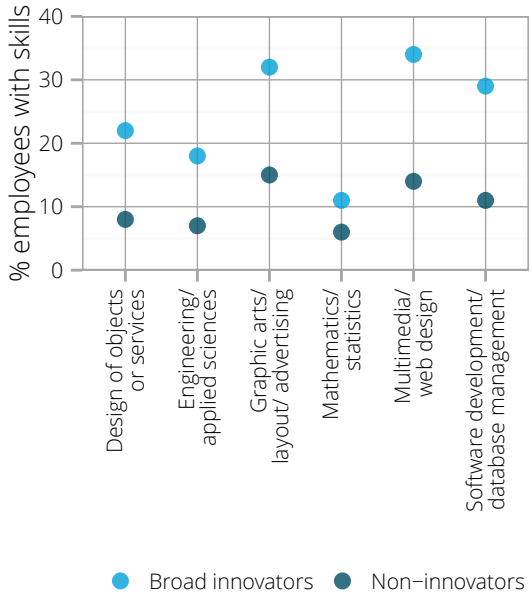
These segments help us to understand just how much choice there is in the selection of workplace strategy; and just how much difference it can make for opportunity and performance. Furthermore, by understanding how HPW practices tend to complement one another, we can understand which establishments may, at the margin, be prepared to deepen their investment in workplace innovation and improvement. This presents a valuable focus for our future research in this area.

Figure 38 Enterprises innovating, 2013



Source: BIS UK Innovation Survey 2013.

Figure 39 Employees with innovative skills



Source: BIS UK Innovation Survey 2013.

Skills and innovation at work

Economic and technological trends will make these questions of skills use and workplace practice ever more important (see box, page 49).

Using a broad definition, covering those engaged in introducing new and improved products and services, changing organisations and practices, and engaging in training, research and development, fewer than half of businesses innovate.[52]

Larger enterprises are a little more likely to innovate, and that includes the wider, non-technological forms of innovation of which HPW forms a part. Changes to work organisation have been introduced by just 18 per cent of all enterprises, only half the number to have engaged in any innovation (Figure 38).[53]

Given the evidence on business dynamism set out earlier in this section, it's instructive to see that certain skills concentrate in innovative businesses.

Figure 39 shows the shares of employees in 'broad innovator' and 'non-innovator' businesses with a range of particular skills. While innovative businesses may demonstrate a broader creativity, they also have a much greater share of the skills needed to solve complex problems and make use of new technology.

52 Hooker and Achur (2013).

53 Hooker and Achur (2013).

The Future of Work

The last 20 years have seen huge changes in the labour market driven by a range of factors, including the inter-linked forces of globalisation and technology. On the current pace of change, we can expect even greater transformation in the years to come; the typical workplace of 2030 willl look very different to what we see today.

We cannot predict what will happen in the future but we can explore the possibilities. We can systematically make sense of the potential directions of travel and assess the key uncertainties that we know exist. From this we can start to position ourselves to anticipate future opportunities rather than waiting to react.

Our *Future of Work* study seeks to trigger debate about how we can do just that.[1] The study uses foresight techniques to explore the labour market of 2030 and is based on a robust, evidence based approach, including a comprehensive literature review, expert interviews and high-level workshops.

Mapping existing trends

A key part of making sense of the future is to explore the trajectory of the trends which already have a significant impact. Some of these trends have the potential to reshape the workplace in radical ways:

- **Convergence of innovation:** more and more innovations take place at the borders of disciplines and sectors. This stimulates a hybridization of skills as well as collaborations with customers and suppliers.
- **Interconnectivity and collaboration:** jobs will become increasingly virtual and remote, modes of production will extend across greater distance as falling costs allow for 24-hour production.
- **The development of ICT** will continue to offer increasing performance. The amount of data generated by the digital economy is growing rapidly; it offers massive potential for efficiency gains and new business models, changing the way we work.
- **Demographic change:** the labour force aging as the 'baby boom' generation reaches retirement. Older people are participating in work longer and workplaces are likely to become more multi-generational, with four generations working together.

Disruptions

Extrapolation of existing, established, trends can only tell us so much. The study identifies potential disruptions from current trends that have radical implications for jobs and skills. Some of the key examples include:

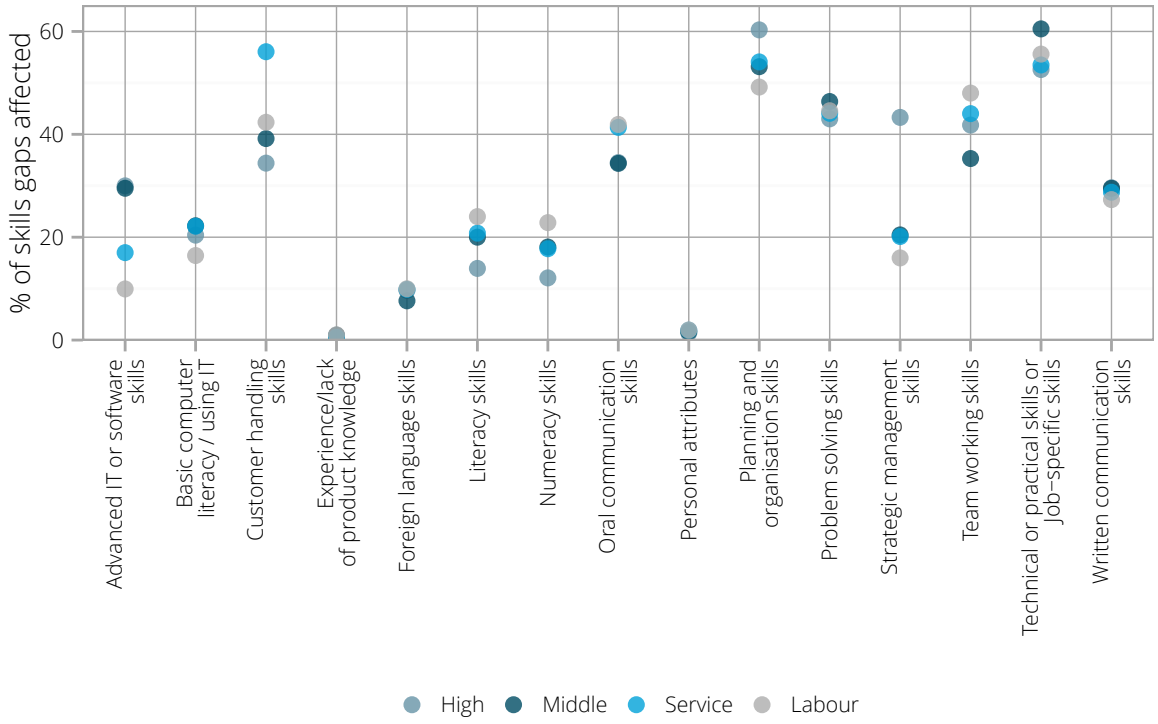
- **Alternative centres of excellence:** what if the new wave of Asian cities were able to take global leadership of sectors and activities upon which the UK has a strong reliance, such as financial services?
- **Robotics and artificial intelligence:** new developments and applications already allow for automation, but what if such technologies could be used to automate swathes of existing jobs, including those of today's professional workers?

Key messages

Our assessment of the trends and disruptions points towards a series of key implications for jobs and skills. Individuals and employers will need competencies to work across different disciplines, to collaborate virtually, to demonstrate cultural sensitivity and respond to increasingly flexible working practices as well keeping up with the new skills that new technologies will demand. Ensuring a supply of workforce skills in an increasingly virtual world in which organisational boundaries are less well-defined will require businesses to collaborate around skills development.

1 UKCES research by Störmer et al. (2014).

Figure 40 Skills that need improving, by skills gaps in each broad occupational group



Source: UKCES Employer Skills Survey 2013 (Table 80/1).

Workplaces are critical

Different workplace approaches carry real consequences for business growth and performance. At a more basic level, failure to engage with the challenges of making use of employee talents can also be bad for survival: evidence from private sector workplaces in the UK are that investing in workforce training raises survival rates by 13 per cent and that survival rates are higher for higher-skilled businesses.[54]

As we explored in our discussion of growth prospects, in the long term employment has and been growing and looks set to continue growing in favour of knowlege- and service-intensive sectors. In these market environments, it is increasingly workforce skills and their use which distinguish leading businesses.

Particularly in service sectors, getting the right skills in the right places and eliciting not only effort but creativity are critical steps for performance improvement. In growing sectors, the demands for new skills all point in favour of getting workers to apply those discretionary efforts: problem-solving, planning and organisation, customer-handling and team-working are all in high demand (Figure 40).

Yet too many workplaces are content to settle around ways of working optimised for the lowest possible skill level, allowing employee skills to go to waste for want of ambition. We see this through the long tail of management practice, limited action on management skills, and the levels of oveskill and overqualification.

54 Collier et al. (2011).

Opportunity

Headlines

- The labour market is polarising – but change is driven chiefly by growing high-skilled work.
- High-skilled jobs are changing, with rising expectations for skills and performance.
- Middle-skilled jobs' decline has consequences for career opportunities.
- Signs are that these consequences are focused on new entrants rather than existing workers.

Those same sectors driving employment growth also drive another trend: their workforces are made up increasingly of highly-skilled workers with analytical and creative skills, and low-skilled workers engaged in service delivery. While we've seen especially a great expansion in the number of high-skilled, graduate-level roles, the traditional middle-skill roles – clerical workers and tradesmen – have seen their numbers decline. That combination is often referred to as the 'hourglass' labour market.

It's a trend across the advanced economies, and is sometimes mistakenly simplified as a threat. Yet the 'hourglass' effect in many ways represents great opportunities: rising demand for high-skilled work, and increased efficiency with the potential to lower costs for consumers.

Certainly in the UK, it's the rise in high-skilled work which continues to the defining change to the labour market. That's a positive development: it's supported a rapid expansion in the graduate workforce, while maintaining the higher rates of pay graduates jobs have traditionally attracted.

But while that's a positive prospect overall, the concern is that this 'polarisation' of the labour market will see workers without high-level skills facing fewer opportunities. Where once these workers could rely on middle-skill roles as the basis of a career characterised by decent pay and progression, there is the risk that many end up in lower-paid jobs without the established pathways to move upwards.

The hourglass effect

Job polarisation has emerged as an important explanation of several labour market changes which have taken place since the 1970s. The discussion was well advanced before the recession of 2008-9, although events since then have heightened interest.[55]

A summary story of job polarisation and its 'hourglass' effect goes as follows: trade and technology complement high-skill labour in doing complex or creative work. But it also substitutes middle-skilled labour engaged in more routine tasks.

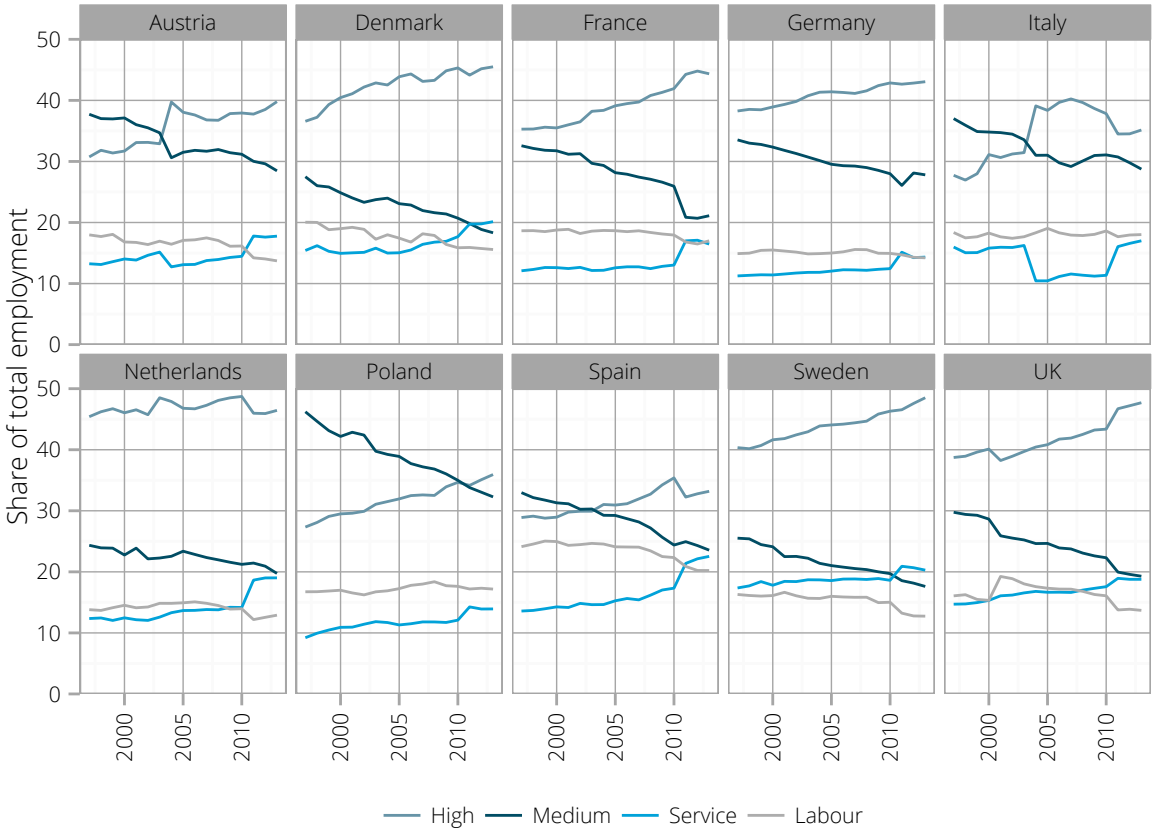
Together these two effects drive economic growth: highly-skilled workers are more productive, and we can deliver routine work more efficiently. That economic growth then drives an increased demand for those service roles which can't easily be automated because they require social interaction or high levels of manual dexterity.[56]

With very different institutional frameworks, most European labour markets show signs of just these changes (Figure 41). In all cases, high-skilled managerial and professional work has risen, service-intensive roles are stable and rising, and middle-skill and labour-intensive roles are in decline. The UK stands out as a leader in the trend, along with Sweden, Denmark and the Netherlands.

55 Looking at the US, Jaimovich and Siu (2012) investigate the potential for polarisation to intensify amidst recession.

56 An additional contributor to rising service-intensive roles is demographic change as society ages.

Figure 41 Employment shares by broad occupational group, 10 EU member states



Source: Eurostat, ELFS, 'Ifsa egised'. Major breaks in series reflect changes in occupational classification.

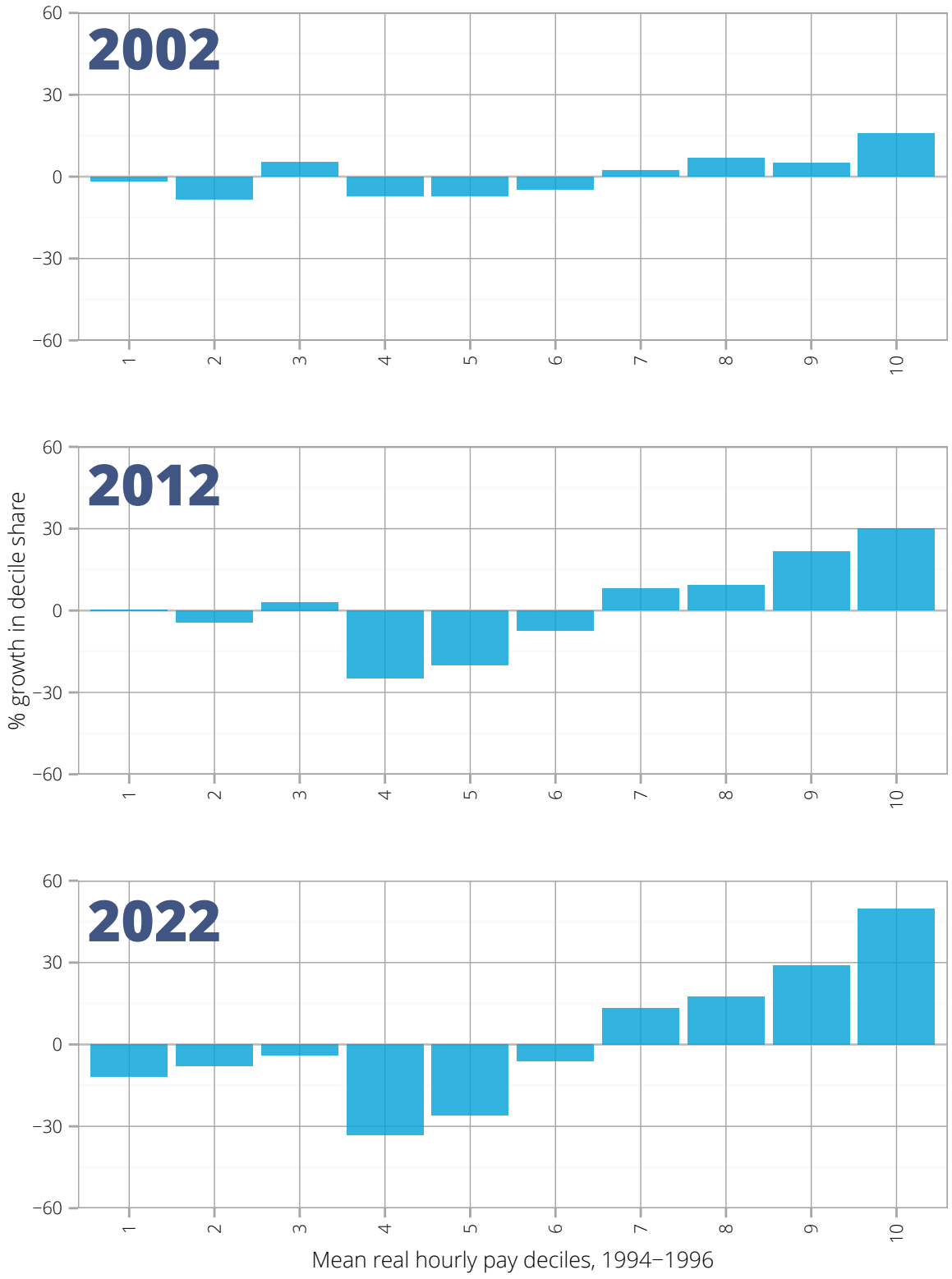
There is no shortage of research on the experience of job polarisation in advanced economies.[57] The interaction of falling trade barriers, the falling cost of computer power and new modes of work organisation all have parts to play. As growth has increasingly come from knowledge- and service-intensive sectors, it has raised the importance of skill, technology and organisation. Efforts to drive efficiencies through new technology and the adoption of new business models have together focused on ways of minimising routine activity.

The result has been a sustained shift away from jobs which deliver those routine tasks. These effects have worked through in different ways. Many skilled trades roles have declined as the UK's industrial production has increasingly concentrated in its high-value, high-skill specialisms, with a substantial reduction in its employment profile.

On the other hand, clerical, administrative and secretarial roles have fallen across sectors even as service sectors have expanded. Here, technological change has played a critical role: the need for massed ranks of typists and clerks has declined sharply as computerisation has allowed much easier access and manipulation of information.

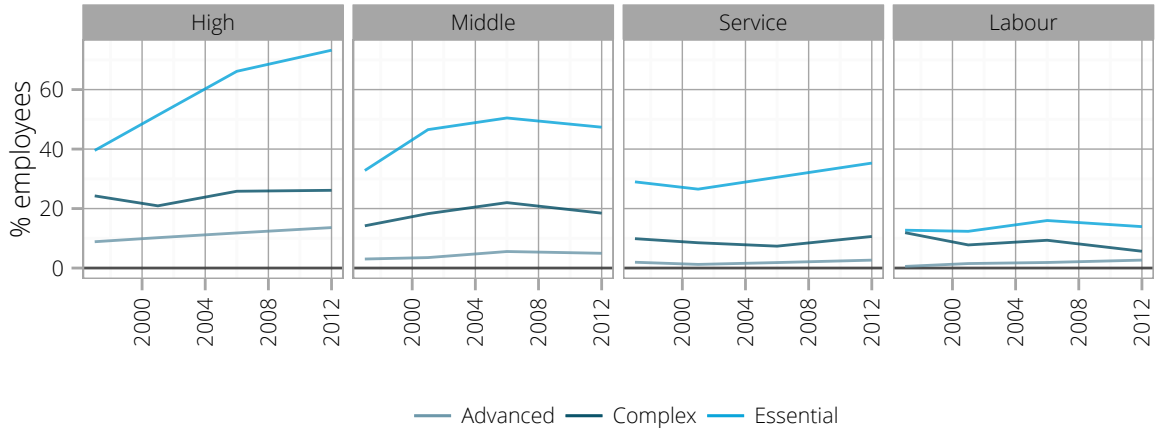
57 Acemoglu and Autor (2010) is a comprehensive statement of the theory and approach. Goos and Manning (2007), Sissons (2011), Bisello (2013), Plunkett and Pessoa (2013) and McIntosh (2013) all focus on the UK. Autor et al. (2003) gives an early look at the US. Goos et al. (2009) look across EU member states. Spitz-Oener (2006) looks at Germany. Autor (2014) gives an overview of the concepts and evidence.

Figure 42 'Hourglass' in full-time employment, occupations by 1995 pay deciles to '02,'12 and '22



Source: UKCES analysis of Labour Force Survey data. SOC Minor Groups are assigned to deciles for mean real hourly pay in 1994-1996. 2022 figures adapted from UKCES Working Futures 2012-2022. A backcasting method is used to overcome breaks in series.

Figure 43 Computer skill levels needed by broad occupational group, 1997-2012



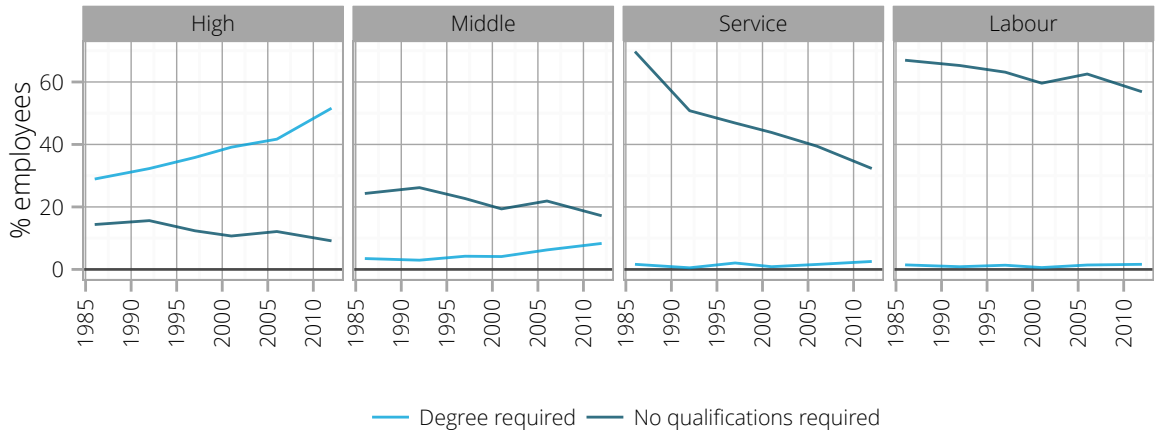
Source: UKCES analysis of Skills and Employment Surveys, 1997-2012.

Figure 42 highlights the continuing nature of the change over three time periods; the third uses our *Working Futures* projections to look ahead to 2022. In each case, occupations are ranked according to their wage percentile at the start of the period. We then look at how their respective share of employment has changed over time, and the 'hourglass' pattern of increase and decrease is striking: middle-skill jobs with mid-level pay are in decline, while especially high-skill jobs are growing.

The data suggest that this isn't simply a shift of job titles. The high-skilled occupations especially seem to be marked by substantial changes which align well with the hourglass hypothesis, and set them apart from other roles.

First, reflecting their complementarity with computer technologies, high-skilled roles have seen a sustained increase in the computer skills required to do the job (Figure 43). Second, reflecting a tendency to upskill, there is an increasing use of a degree requirement in hiring in high-skill jobs (Figure 44).

Figure 44 Qualification requirements (degree vs. none) by broad occupational group, 1986-2012



Source: UKCES analysis of Skills and Employment Surveys, 1986-2012.

Good news, but some risks

Luckily, the UK seems to have a lopsided hourglass: High-skill jobs have expanded substantially over recent decades, and our *Working Futures* projections suggest this will continue.

Over the period 1992-2022, we project that there will be some 7m additional high-skill managerial and professional jobs, alongside 2.4m additional service-intensive roles.These gains are offset by the loss of 2m middle-skill and 0.7m labour-intensive roles. So the good news is quite plain to see: over a 30 year period we add 6.7m net new jobs, and nearly three-quarters of the additions are in high-skill roles.

It's this process which has allowed for the rapid expansion of the graduate workforce since the 1980s without the loss of the graduate premium in earnings: supply has just kept pace with demand. As we have seen that expansion had been an important factor in productivity growth until the onset of recession in 2008-9; and since then it has helped blunt the worst effects of the slowdown.[58]

As well as the wider economy, that change has been great news for those large numbers benefiting from the increased opportunities of university education and then graduate-level high-skilled work. As the graduate workforce continues to expand, it looks set to bring further benefits.

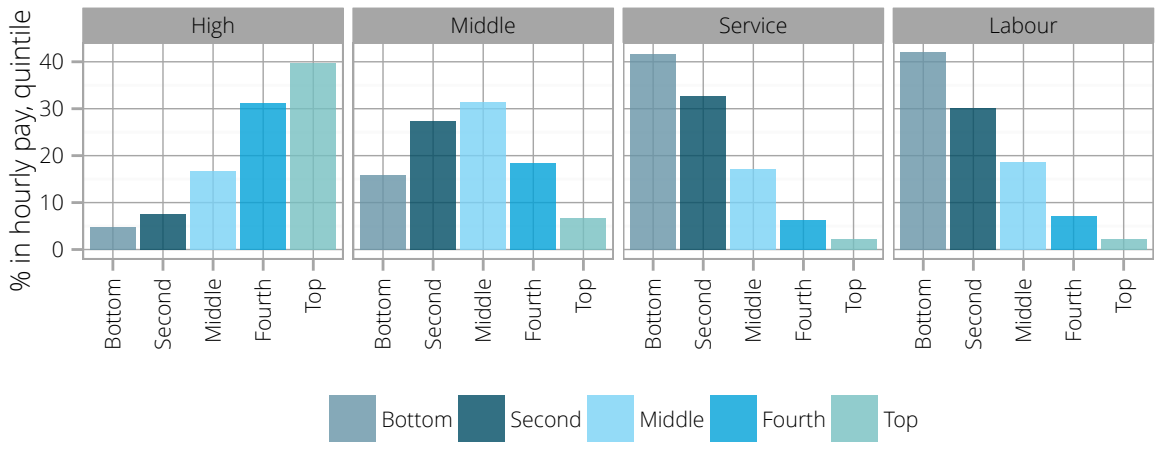
But what about the rest of the workforce? The worry is that the decline in middle-skill jobs especially means a loss of opportunity for those not able to enter high-skill jobs. Certainly middle-skill jobs are characterised by better pay (Figure 45) and better pay mobility (Figure 46) than service-intensive or labour-intensive roles.

Another question is: what about those who gain high-level skills but don't make it into high-level careers. The good news here is that the labour market has seemingly managed to maintain its ability to match graduates to graduate jobs amidst the rapid expansion of recent years. But the stable level of 30 per cent of graduates mismatched to jobs requiring lower skill level means a much larger number of overqualified graduates than we had before.[59]

58 Holland et al. (2013) estimate that a 1 per cent increase in the graduate share of the workforce raises the productivity level by 0.2 to 0.5 per cent.

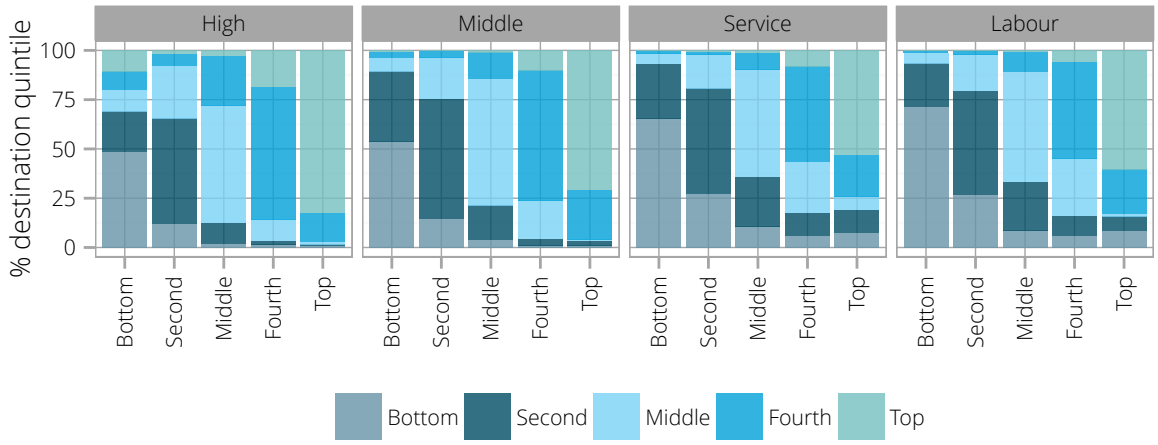
59 Green and Henseke (2014).

Figure 45 Distribution across pay quintiles by broad occupational group, since 2011



Source: UKCES analysis of Labour Force Survey, using hourly pay deflated by CPI to define quintiles.

Figure 46 12-month mobility across pay quintiles, by broad occupational group, since 2011



Source: UKCES analysis of 5-qtr Labour Force Survey, using hourly pay deflated by CPI to define quintiles.

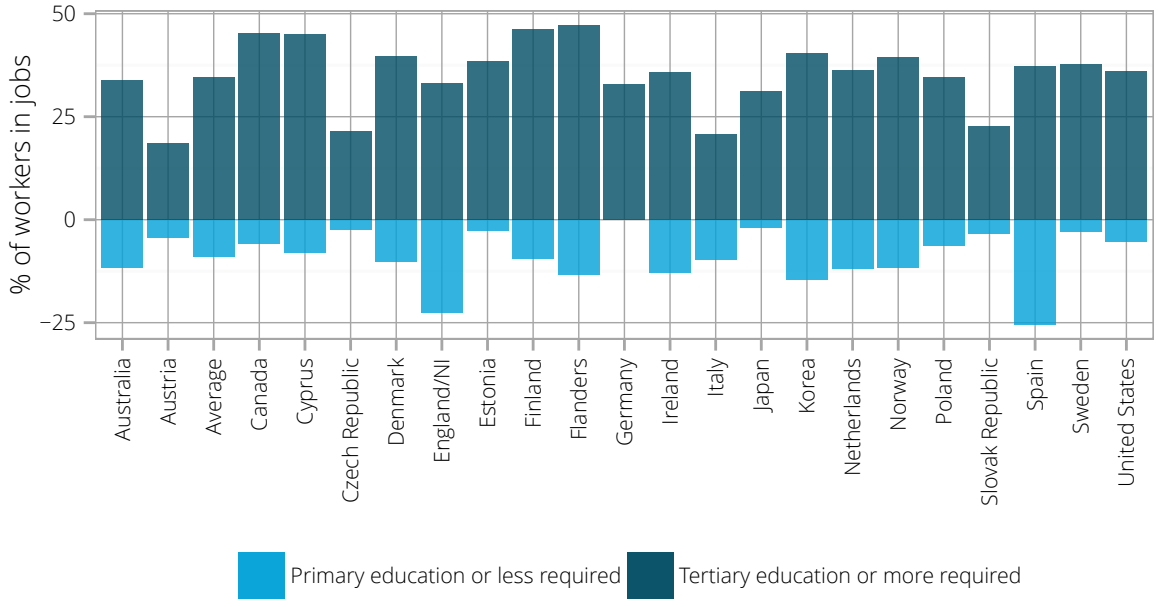
Risks from polarisation

The risks for mismatched graduates are perhaps more simply summarised. Recent research has shown that while the rate of graduate mismatch is stable, the consequences are becoming greater.

Graduates in non-graduate occupations continue to earn more than their colleagues in the same job. But graduates in 'graduate jobs' earn an increasing premium. Where matched graduates earned 47 per cent more in in the 1990s, they now earn 67 per cent more.[60]

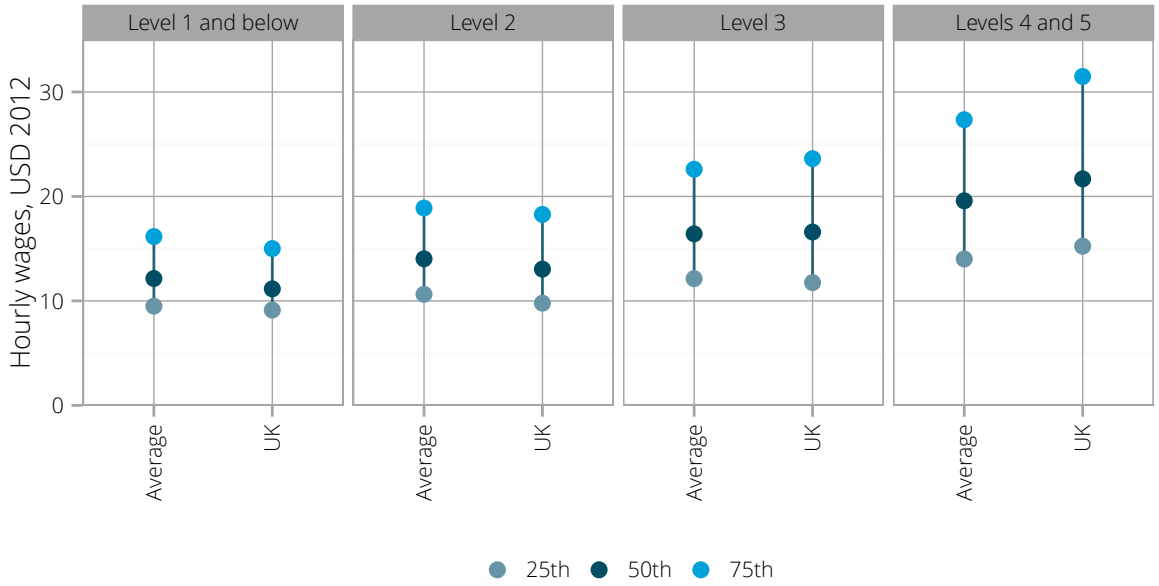
60 Green and Henseke (2014).

Figure 47 % of jobs requiring 'primary or less'/'tertiary or more' education, OECD economies



Source: OECD (2013), Figure 4.24. Note England/N Ireland only because of survey participation.

Figure 48 Pay distribution by literacy skill levels, UK (England/N Ireland) vs. OECD average, 2013



Source: OECD (2013), Figure 6.23. Note England/N Ireland only because of survey participation.

That's a telling indicator: skills pay, but they pay more where they're needed. For mismatched graduates as well as less skilled workers, another telling indicator is the degree to which the UK labour market is marked for its split between jobs requiring high or minimal education (Figure 47).

Perhaps reflecting the large number of workplaces less interested in developing and applying employee skills, the UK has the second-highest share of jobs seen by employees as requiring only primary education. Those unable to reach expanding high-skill opportunities find only limited outlets for their skills.

And just as skills pay when they're needed, those with limited skills find themselves in jobs where pay is low. In fact, low-skilled people in the UK are paid less on average than their counterparts in other countries participating in the OECD Survey of Adult Skills, while high-skilled people are paid more (Figure 48).[61]

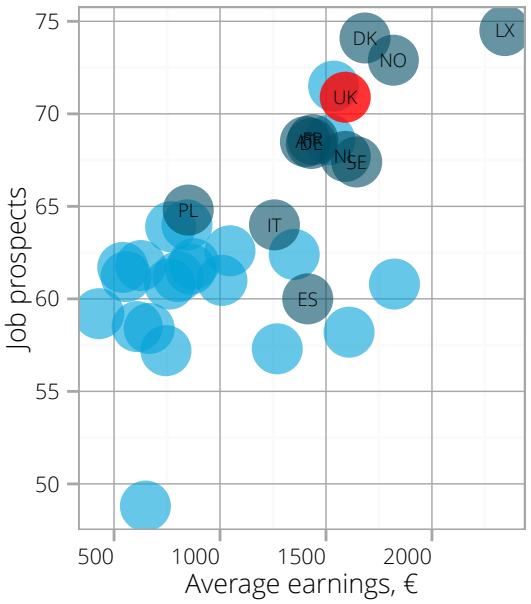
61 Note that only England and Northern Ireland participated in the survey.

The same evidence also helps to shed light on the high level of over-skilling and over-qualification among those with intermediate qualifications. The UK's large number of jobs designed for those with very little education offer little outlet for those with middle- or high-level skills.

Graduate work and job quality

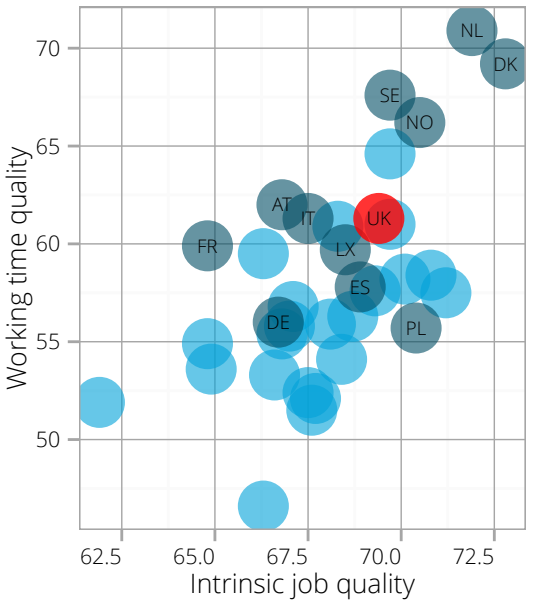
Meanwhile, even for those graduates who are successful in finding graduate work, the future may not be all that we think it is. Traditionally, the assumption has been that managerial and high-skill work offers a high level of job quality: while higher in pressure, the greater pay, autonomy and control were more than adequate compensation.

Figure 49 Extrinsic job quality



Source: Table A9, Eurofound (2012). Prospects is an index of job security and advancement opportunity.

Figure 50 Intrinsic job quality



Source: Table A9, Eurofound (2012). Intrinsic quality is an index of skills use, discretion, environment, work intensity.

Just as trade, outsourcing, and new technology is putting pressure on middle-skill employees' roles, it is having a particular effect in changing some of the traditionally more secure, autonomous work in knowledge-intensive sectors. To compete with the high-skilled workforce in emerging markets, there is the potential for a shift, so-called 'digital Taylorism', where standardisation and proceduralisation reshapes high-skilled work.[62]

If high-skilled jobs' expansion is characterised by a fall in job quality in this way, while middle-skill employment is in decline, it has the potential to adversely effect the UK's performance on job quality (Figure 49 and Figure 50). Job quality in the UK is good in international comparison; but it has already been diminished through the effects of recession, with increasing insecurity and work intensity reducing employee well-being.[63]

62 Brown et al. (2011).

63 See e.g. Festead et al. (2012), Green et al. (2012).

The declining middle

What about the direct consequences of the decline in the number of middle-skill jobs for those without tertiary-level education? The chief concern – motivating much of the discussion about job polarisation – is of an increasing number of displaced middle-skill workers left with no alternative but a 'dead-end' service-industry job, or of new workers who never get to start a middle-skill career.

This concern can be exaggerated, with phrases such as "hollowing out" thrown around all too easily. The hourglass effect does not mean an end to middle-skill roles. In fact, because of lifecycle and career changes, even to maintain their smaller overall numbers will require substantial new recruitment: in *Working Futures*, we project some 1.1m administrative and secretarial job openings, and 0.9m in skilled trades (Figure 51).

Consequently, although the total numbers of traditional middle-skill roles look likely to continue to fall, there will still be opportunities. So it's not a great surprise to find that are also skills shortages at these levels – including especially the skilled trades.

It's also important to remember that our ideas about jobs change over time. Certainly, it's true that that service-intensive roles are often characterised by high turnover and limited progression.[64] But it's a mistake to assume that job designs are preserved in aspic.

As demand for some of those roles grow, it is likely they will also evolve. The question is whether they will evolve quickly enough, and result in new career pathways that can create those progression opportunities.

But all those factors aside, what have been the consequences so far of the declining number of middle-skill jobs? Evidence from the US suggests that the decline is less likely to affect those currently in the middle-skill workforce than those trying to enter it.

In simple terms, the declining overall demand allows employers to prefer those with existing experience and their highly valuable job-specific practical skills. Meanwhile, for the unemployed and for new entrants to the labour market, the prospects of gaining work are sharply reduced.[65]

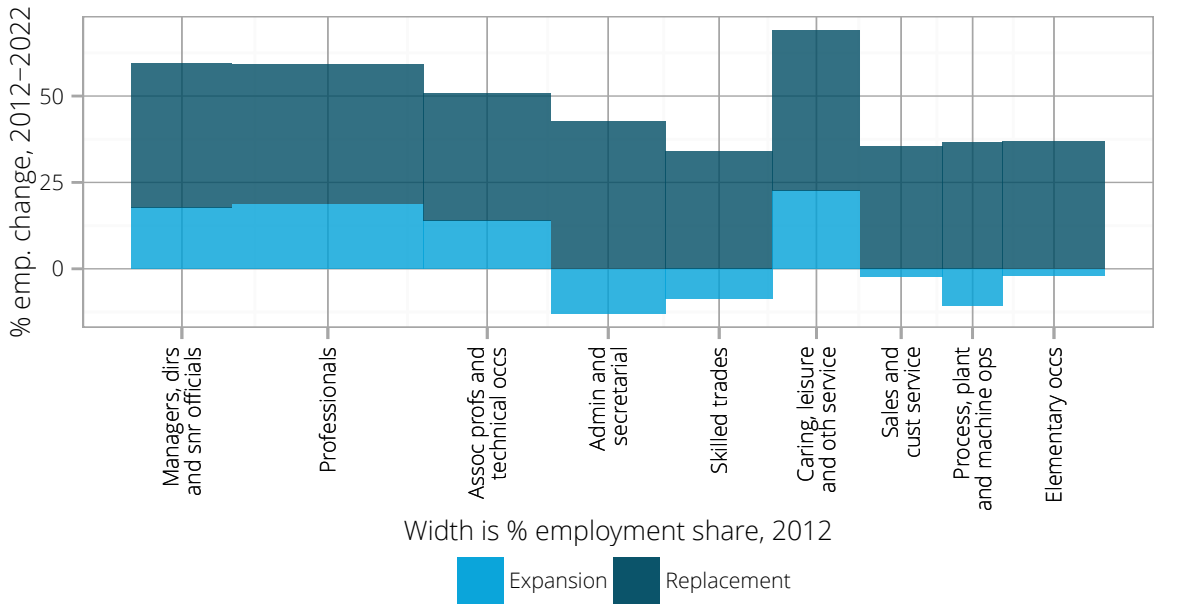
By comparing the flows to and from broad occupational groups, as well as to and from non-employment, we find that comparing the mid-1990s to the early-2010s, our own analysis finds similar results, including:

- Increased flow to and from high-skilled work, and also to middle-skill and service-intensive work.

64 Lloyd and Mayhew (2010).

65 Smith (2013), Cortes et al., (2014).

Figure 51 Projected expansion and replacement demand by occupation, 2012-2022



Source: UKCES Working Futures 2012-2022.

Figure 52 Broad occupational structure by age group, 1998, 2005, 2013

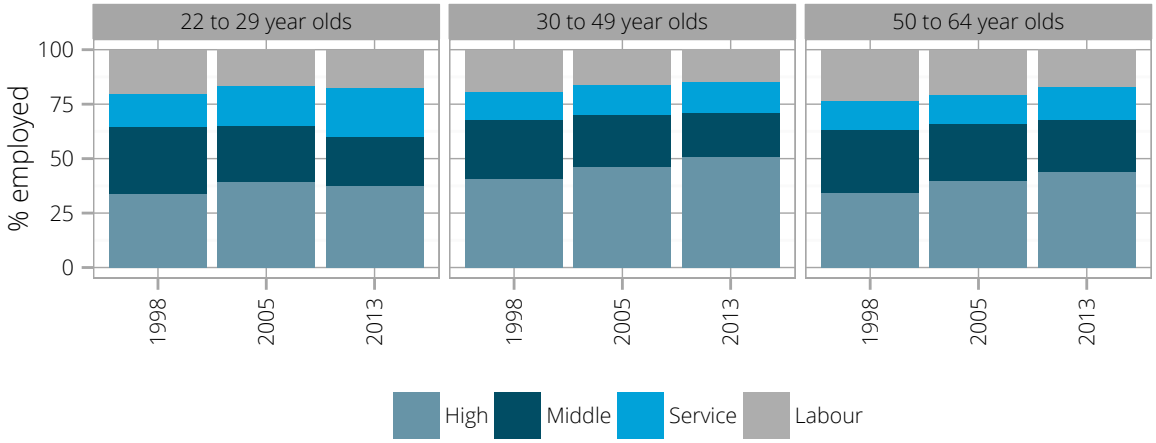
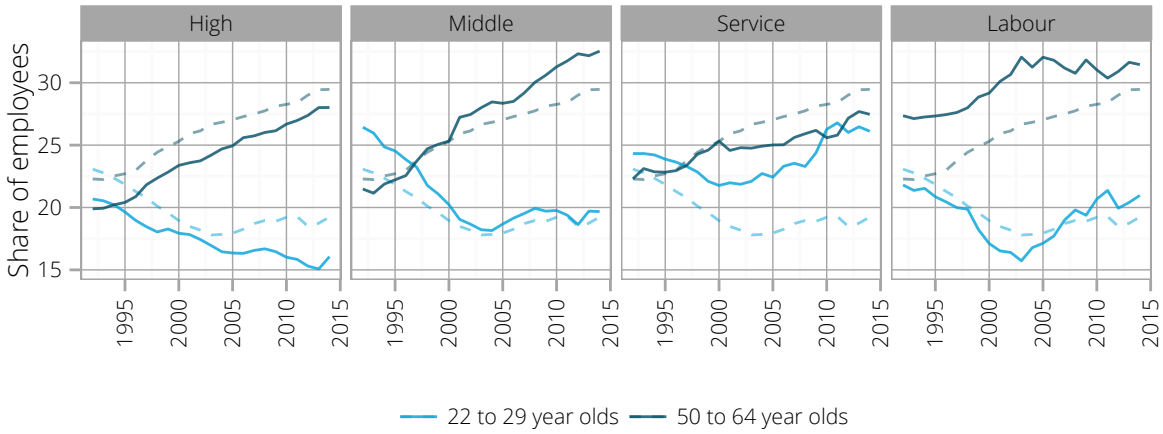


Figure 53 Share of younger and older workers by broad occupational group, since 1993

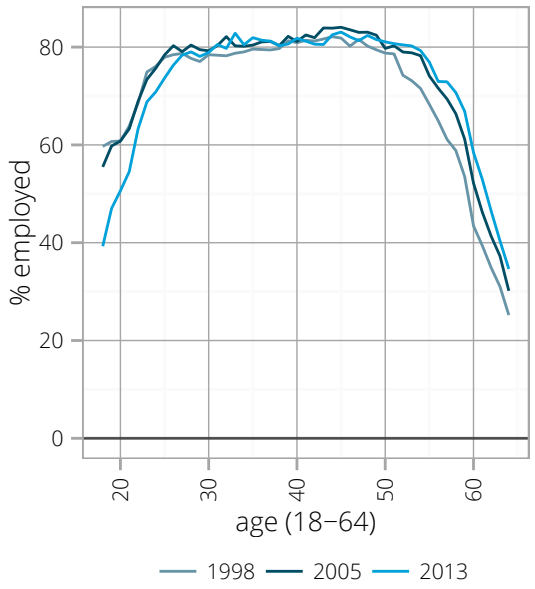


Source: Figure 52 and Figure 53 are UKCES analysis of Labour Force Survey.

- Increased outflow from middle-skill work to other forms of employment, a change unmatched in any other occupational group.
- Significant increases in the flow from service- and labour-intensive work to other employment.

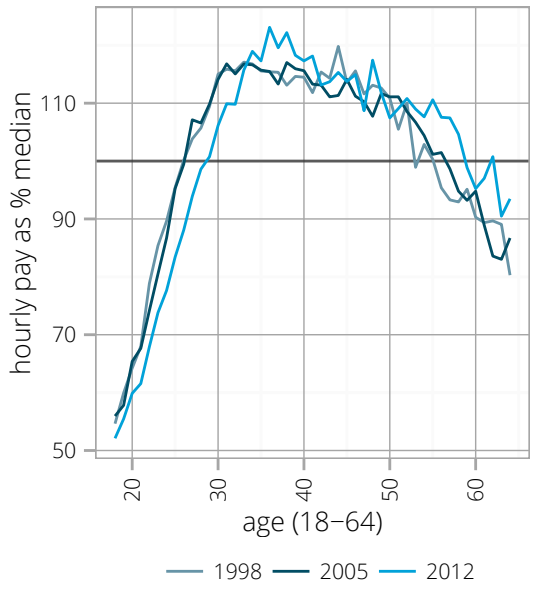
Further exploration suggests that much of the increased outflow from middle-skill roles to other work is attributable to non-graduate workers. More positively, non-graduates leaving middle-skill roles seem on this initial analysis as likely to 'bump up' to high-skill roles as 'bump down' into service-intensive or labour-intensive roles.

Figure 54 Lifecycle employment rates



Source: UKCES analysis of Labour Force Survey.

Figure 55 Lifecycle hourly pay as % median



Source: UKCES analysis of Labour Force Survey.

Young people and polarisation

Young people seem much more likely to move to service-intensive jobs, and much less likely to move to middle-skill roles. The consequences show through in the changing occupational structure of the workforce across different age groups.

In Figure 52 we focus on those over 21 (to filter out the effects of expanding university participation). We see that while the over-30s and over-50s have seen a fall in their share of middle-skill work, it's more than offset by an increase in their share of high-skilled work.

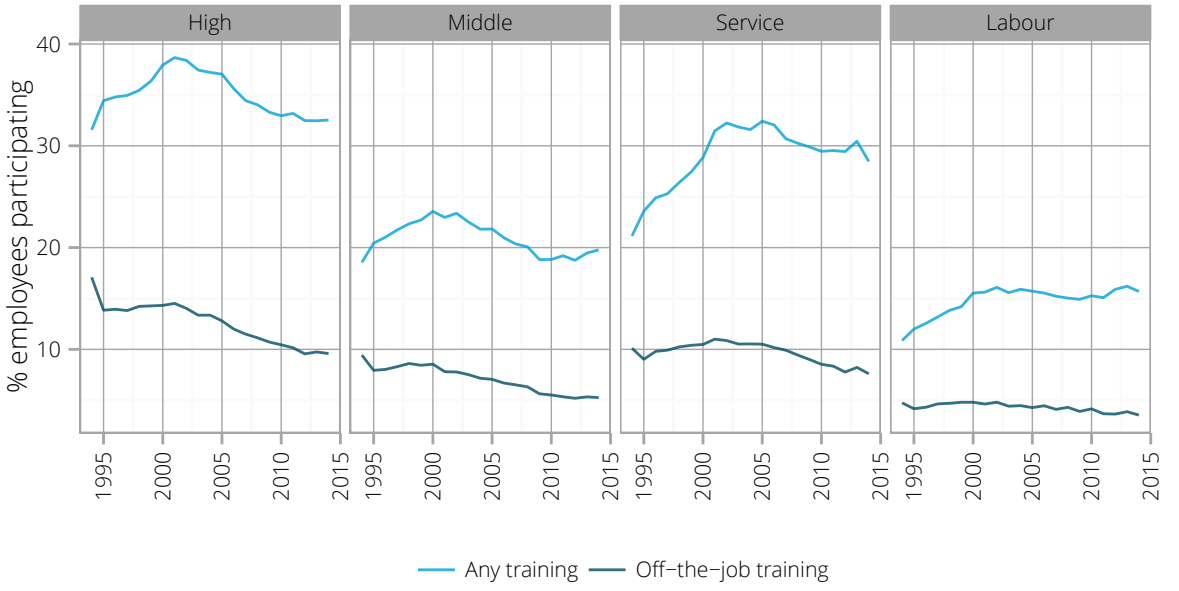
But 22-29 year olds have seen a decline in middle-skill work and, since 2005, high-skilled work. Instead, 22-29 year olds have seen the biggest increase going to service-intensive roles. We can see that effect in the middle-skill workforce (Figure 53) 'getting older' relative to the wider workforce.[66]

As a wider trend, we can see how, from 2005 to 2012, there has been a decisive shift in the lifecycle pattern of employment and earnings – with young people less likely to be working (Figure 54) and taking several years longer to reach median hourly pay (Figure 55).

Taken together, these patterns suggest a general pattern of middle-skill decline hitting hardest on new arrivals. Where established, experienced workers either stay in middle-skill work or move up to high-skill work, younger workers seem to find it more difficult to enter into middle-skill work. At the same time, they have – at least through the period including the recent recession – also found it difficult to enter the growing high-skilled workforce, leading to concerns about their future progression prospects.

66 For US evidence on ageing, see Autor and Dorn (2009).

Figure 56 Job-related education and training in the last 13 weeks, by broad occupational group



Source: UKCES analysis of Labour Force Survey, using ED13WK and JOBTRN.

Investing in learning

Individuals recognise the value of learning and development, and invest heavily in it. Some 93 per cent of people feel learning is something you should do throughout your life. But this doesn't always translate into action for everyone. You are more likely to learn if you are employed; in higher skilled full time work; and if you work in certain sectors such as the public sector, energy and financial services.

Motivations also change over the lifecycle, which may affect not only the propensity to engage, but also its purpose. For example, where younger workers will often pursue more career-focused development, older workers are more likely to fulfil personal interests.

There are various different indicators of learning across the UK. Worryingly, these point to one important and common trend; a significant decline in engagement, whether captured through participation rates, average training volume or funding.

Interestingly too this decline began well before the recession. The average participation rate in training over the last four weeks for those in work rose during the 1990s from 12.8 per cent in 1995 to a peak of 15 per cent in 2001 and then back to 13 per cent in 2010, where it has remained steady ever since.

Wider measures of learning have also seen declines. For instance the 2010 National Adult Learning Survey, which captures formal learning leading to a qualification as well as informal learning, has identified an 11 percentage point decline overall between 2005 and 2010.[67]

Adult participation in all categories of learning in the three years preceding the survey was 69 per cent, down from 80 per cent in 2005.[68] The most prominent decline has been in taught, classroom-based learning; Figure 56 shows that every broad occupational group has seen some decline in off-the-job training.

67 BIS (2012).

68 BIS (2012).

Equally, the NIACE Adult Participation in Learning survey, which covers the whole of the UK, has also seen a decline since 2001, with participation in learning in the last 3 years falling from 46 to 38 per cent of adults in 2013.[69] Perhaps more significantly, over a similar period, the duration of training fell sharply, with the result that the average training volume per worker declined by about half.[70]

Some of this owes itself to declining opportunities at work. The UK Commission's Employer Skills Survey identifies a 14.5 per cent real terms fall in expenditure between 2005 and 2011, and the Continuing Vocational Training Survey suggests a more drastic fall of 29 per cent over a similar timeframe.[71] Whilst the Employer Skills Survey expenditure data for 2011 and 2013 are not directly comparable, they suggest a further decline of £2.4bn in employer investment.

Investment and opportunities to learn

The decline in learning varies, and has certainly been more concentrated among those with less prior education. But the decline is a widely-experienced change, which makes it harder to explain by a simple shift between workers. In part, yes, it is likely that there has been a falling engagement in or demand for learning. Indeed, there is evidence that a reduction in public or employer-funded opportunities, combined with the pressures on household budgets since the recession has had some effect.

Over time, these developments seem likely to reinforce inequalities in the skill distribution. However, we should not jump to the conclusion that these developments are entirely negative. Investments in personal learning and development have a cost in time and money.

Where a decline in learning reflects the improvement in educational opportunities, reducing the need for remedial training, then a fall in investment may represent an improvement. Equally, the decline in formal training expenditure and intensity may reflect, in some workplaces, an increasing opportunity to learn at work. Part of this may be by experience, but it also may be supplemented by access to online learning resources.

For employees of such workplaces, the opportunity for extensive formal training may have declined, but the skills gained by participating in decisions and solving problems may have expanded. But as we know, many – probably the majority – of workplaces do not seem likely to offer such rich opportunities to learn. And where they do, there are additional considerations: is the knowledge transferable? Are supporting online learning resources of sufficient quality? How do employees gain the qualifications to signal the skills they have gained?

Opportunity and the hourglass

Perspective is important: at the simplest level, we should keep in mind that the largest change is the rapid growth of high-skill roles, and even in decline, there will continue to be middle-skill job openings. Together, these changes are labour demand reshaping to take advantage of opportunities brought by changing trade and technology. Those opportunities make for better growth prospects, and are not to be taken for granted.

But aggregate improvement can bring losers as well as winners at the individual level. Traditional middle-skill jobs have provided a route to prosperity for many without advanced skills, and are well supported by strong career pathways. If they are to continue to decline, we need to identify what the decline of those pathways will mean for opportunity, and how best we might tackle the consequences.

69 Hughes and Aldridge (2013).

70 Green et al. (2013).

71 BIS (2013).

Skills & performance

Headlines

- Skills shortages are highly focused put highly persistent and have damaging consequences.
- High-skill and STEM occupations are the most critical to performance in high-growth sectors.
- Sector experience of skills problems differ, but some sectors are much better at responding.
- There is a particular weakness in generating high-level vocational skills.

Even as unemployment increased rapidly during recession, the UK labour market has demonstrated persistent skills shortages in meeting employers' recruitment needs. Skills gaps too characterise a large number of work-places.

Evidence suggests that these problems impede business performance and so have knock-on consequences for productivity. While in principle, they should be transient signs of problems being solved, in practice skilled labour supply does not adapt with sufficient readiness.

The consequences are felt especially acutely in particular skills and occupations. Skills shortages are heavily concentrated in high-skill roles and STEM roles, as well as in the skilled trades. While sectors have varying levels of skills shortages and skills gaps, their response in terms of training and investment in workforce skills varies on its own.

Just as we have seen that the high-skill workforce has expanded to meet rising demand, it is at higher skill levels where the most pressing needs will exist. But we also know that it is practical experience and job-specific skills that often distinguishes new recruits – and yet our high-level skills provision remains geared to an academic model, rather than a vocational route.

Skills shortages and gaps

As the economy and labour market have recovered and recruitment activity has increased there has been a resurgence in skill shortages. Between 2011 and 2013, the UK Commission's Employer Skills Survey found that while overall vacancies increased by 12 per cent, skill shortage vacancies increased by 60 per cent.

The longer time series from the Employer Skills Survey that we have for England indicates that the volume of skill shortages is now approaching its pre-recession (2007) level and that the proportion of vacancies that are skill shortages has already surpassed the 2007 position.

Skill shortages are not universal but are instead focused in particular roles. Employers reported a total of 146,000 in 2013, and only around 4 per cent of workplaces are affected by shortages at any given time. However, shortages comprise nearly a quarter of all vacancies, tend to be concentrated in particular sectors and often persist for long periods.

There is an argument that says skills shortages shouldn't matter; that they are a sign of a problem being solved. But research has long shown that the labour market does not always find the supply of the particular skills in the particular place necessary. Analysis of skills shortages in the 1980s suggested that matching European levels would have meant 0.4 per cent faster annual productivity growth.[72]

72 Haskel and Martin (1993).

The most common types of skills shortages across all occupations relate to technical, practical or job-specific skills. These skills are best gained, and can sometimes only be gained, in a workplace setting, illustrating the critical role that employers have to play in helping to overcome skills shortages. Further shortages focus on more generic skills, like problem-solving, planning and organisational and customer-handling, as well as strategic management; again, these are often likely to be best developed through application in the workplace.

Skills gaps are much more widespread challenge than skills shortages, with 15 per cent of establishments reporting any skills gap. Looking at the proportions of staff involved, a total of 1.4m employees have a gap in the skills necessary to do their job.

Skills gaps are more evenly distributed across occupations, although lower-skilled occupations are more prone to gaps. Sales and customer service and elementary roles face the highest density of gaps and, taken together, account for around 40 per cent of the total volume of skills gaps. In sectoral terms, hotels and restaurants faces by far the the greatest density of skills gaps.

Skills in high-skill and STEM roles

The UK Commission's Employer Skills Survey 2013 indicates that there were 58,000 skill shortages in higher-skill management, professional and technical occupations, accounting for around two-fifths of total skill shortages in the economy at that time. This proportion has been maintained since before the recession.

Different types of skills mismatch

Skill mismatches are a signal of imbalance between supply and demand in the labour market, between the skills available and the skills required. They constrain organisations from being able to meet market needs, opportunities or public service objectives. Three key types of mismatch are described below.

Skills shortage describes a situation in which employers are unable to, or have difficulty in, employing the people they need because they are not available in sufficient numbers with the skills they require. A key measure of this is skills shortage vacancies (SSV), a subset of vacancies, which are defined as "hard-to-fill" because of a lack of skills, work experience or qualifications in the candidates applying for a role.

Whilst skill shortages represent skill deficiencies which arise in the 'external' labour market, **skill gaps** arise within the 'internal' labour market of organisations. Skill gaps occur when employees are not 'fully proficient' in their job, not having the skills required to undertake effectively the full range of duties expected.

To some extent an employer's recruitment approach will determine whether a skills shortage or gap is registered. If a candidate is recruited with sub-optimal skills and experience the deficiency becomes a skill gap; whereas if the vacancy is kept it becomes a skill shortage.

A reliance on **migrant labour** can also be a reflection of mismatch between skills demand and domestic skills supply. At the same time, skills mismatches can also reflect not a lack of skill but a failure to apply them in the workplace; people's skills may be being **under-used**. When individuals are over-skilled or over-qualified for the jobs they do, this may reflect under-utilisation of skills, and hence employers not sufficiently making use of their employees' available skills within the workplace. But it may also suggest individuals are not pursuing the 'right' qualifications or training valued by employers.

Figure 57 Occupations with the highest levels of skills shortage

Occupation	SOC code	Vacancies	SSVs	SSV % vacs	Rank (n)
Mechanical engineers	2122	2,200	1,500	69%	1 (57)
Engineering professionals n.e.c.	2129	2,700	1,600	59%	3 (113)
Science, engineering and production technicians n.e.c.	3119	2,100	1,100	56%	4 (66)
Design and development engineers	2126	1,800	900	51%	5 (97)
Programmers and software development professionals	2136	7,400	3,600	49%	7 (251)
Human resources and industrial relations officers	3562	11,300	4,900	44%	12 (293)
IT and telecommunications professionals n.e.c.	2139	2,800	1,100	40%	16 (83)
Estate agents and auctioneers	3544	2,600	1,000	38%	19 (100)
Special needs education teaching professionals	2316	800	300	38%	20 (57)
Quantity surveyors	2433	1,300	500	37%	21 (63)

Figure 58 Vacancies since 2007

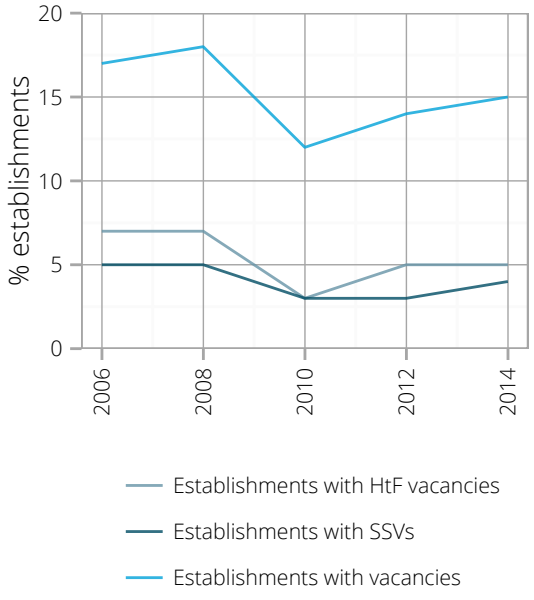
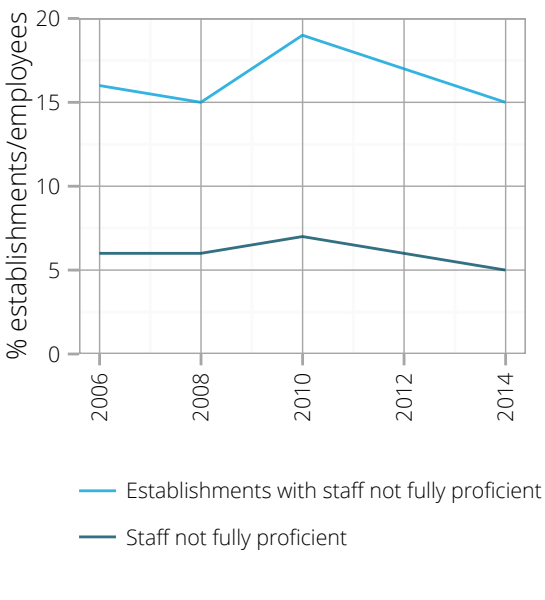


Figure 59 Skills gaps since 2007



Source: Figure 57: UKCES Employer Skills Survey 2013.
'n.e.c.' is not elsewhere classified; cases where n<50 excluded; values rounded to nearest 100.
Figure 58 and Figure 59 are from UKCES Employer Skills Survey 2013 (Annex 7).

The higher level areas that are most striking in terms of the prevalence of shortages are health professionals (primarily reflecting shortages of nurses and medical practitioners) and science, research, engineering and technology professionals. Higher level shortages are concentrated by sector, with manufacturing most acutely affected, but also business services. In contrast to shortages at intermediate level, skills shortages for higher level occupations are disproportionately concentrated in larger firms and firms seeking to compete in international markets.

Shortages of STEM professionals affect a range of sectors across the economy, including manufacturing, computing and professional services. The STEM professionals category has been among worst affected occupational areas in terms of skill shortages throughout this period, with density levels well above the average recorded by each iteration of the survey.

The role of migration

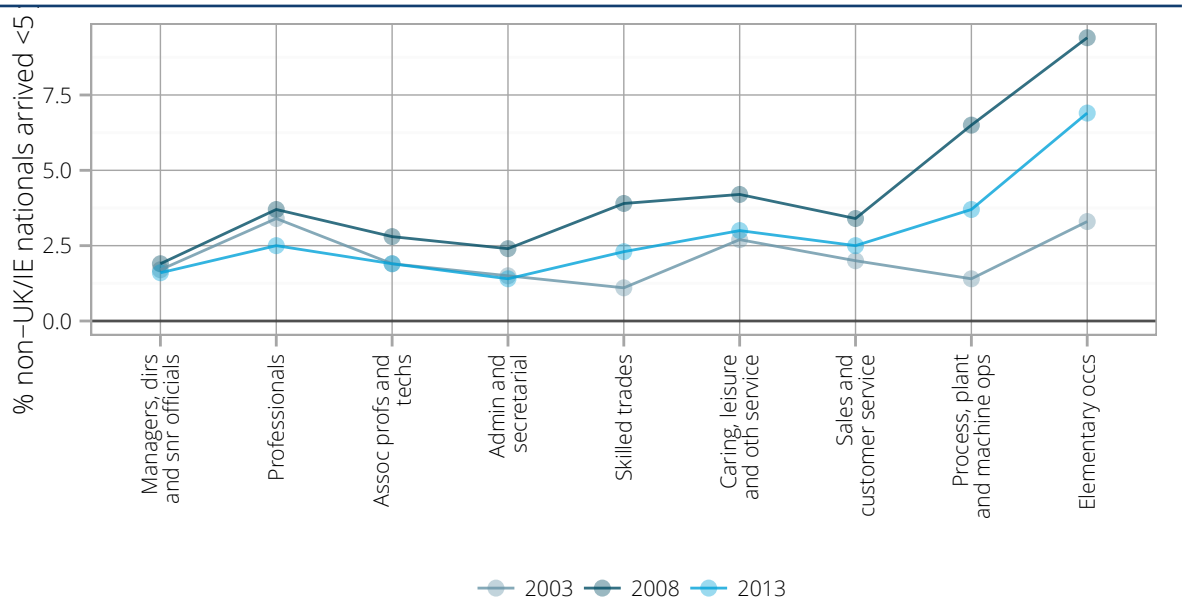
One of the largest changes in the UK labour market through the 2000s was a sizeable increase in immigration. The extension of freedom of movement to new EU member states has led to an increased number of recent migrants employed in the UK, in all sectors and most parts of the country.

As Figure 60 highlights, the profile of the recent migrant workforce has subsided somewhat from the heights seen as the recession started. But they remain higher than a decade ago, and this is especially the case in the skilled trades and most of all in labour-intensive roles.

While there's broad agreement that high-skilled migration is beneficial, there are concerns that entry into low-skilled roles has negative consequences, in terms of pay and opportunity, and perhaps sustaining businesses in a low skill equilibrium.[1] But it's also important to recognise the response of the native workforce to increasing migration; there is evidence of low-skilled native employees making use of their advantage in communication skills.[2]

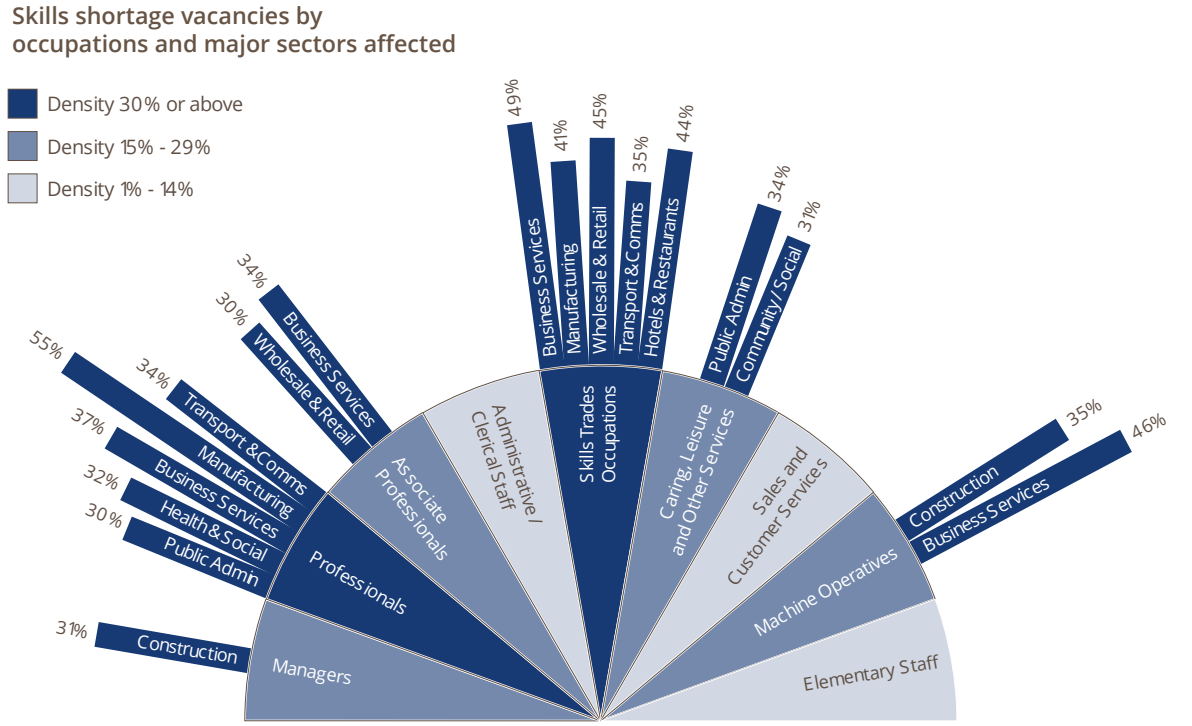
1 See e.g. Migration Advisory Committee (2014).
2 Bisello (2014).

Figure 60 The profile of recent migrant employment, by major occupation, 2003-2013



Source: UKCES analysis of Labour Force Survey.
'Recent migrant' is non-UK/Irish nationals arrived within the last 5 years.

Figure 61 Skills shortage vacancies by occupations and major sectors affected, 2013



Source: UKCES Employer Skills Survey 2013.

The acute shortages of STEM professionals highlighted by employers are not simply a function of under-supply of qualified people from the education system. While the volumes taking A levels and graduate level courses in some of these subjects have risen in the past decade, recent analysis of graduate destinations show that an increasingly large share (up to 60 per cent) of STEM graduates immediately enter non-STEM roles.[73]

The science, research, engineering and technology professionals category has the highest density of skill shortages of any of the 25 occupational groups. At 43 per cent it is almost twice as high as the overall average of 23 per cent and it is the third highest of the occupational groups in terms of overall volume of shortages (with 13,000).

Figure 61 sets out occupations with the highest density of skills shortage, based on the UK Commission's Employer Skills Survey. The analysis is limited to higher skilled occupations for which we have sufficient data to make an estimate. Five of the top 10 detailed occupations relate to the STEM professions, with mechanical engineers ranked highest here, as they are in the overall list of all shortages. With regard to occupations with the greatest volume of shortages at this detailed level, programmers and software developers and HR officers stand out as the largest areas.

73 UKCES research by Bosworth, et al. (2013).

Higher skilled roles are more difficult than other roles to fill because of a lack of experience (84 and 60 per cent of vacancies respectively) rather than formal qualifications (28 per cent), reinforcing the general pattern for all vacancies. Higher level shortages are also more likely to be connected to technical, practical or job specific skills, to advanced IT or software skills or to a lack of strategic management skills.

Skills shortages for middle-skill jobs

There is then a pressing need for greater advanced skills, especially STEM. But there is also a cluster of acute skills shortages at middle-skill level, in the skilled trades (Figure 61). Many are concentrated in growth sectors – including health, business services and manufacturing – and are often matched with skills gaps.

On the surface, this finding sits oddly with what we've discussed in this paper. After all, these jobs are often declining in number, so why should there be a shortage? But as we have also seen, declining numbers are typically achieved by cutting new entrants, and seeing the workforce age: such an approach then leads to a limit on the number available to do the job.

What about the problems we saw earlier, with under-utilisation of the skills of those with intermediate qualifications? Again, looking beneath the surface is important. In more technical work, such as the skilled trades, the content of skills and qualifications matters as much as their level.

Spatial and sectoral differences

Just as skills shortages and skills gaps concentrate in growth-critical jobs, they also appear in different local and sectoral labour markets. These variations tell us a lot about the development of our weaknesses in workforce skills and workplace practice, and also about why some problems carry greater consequences than others.

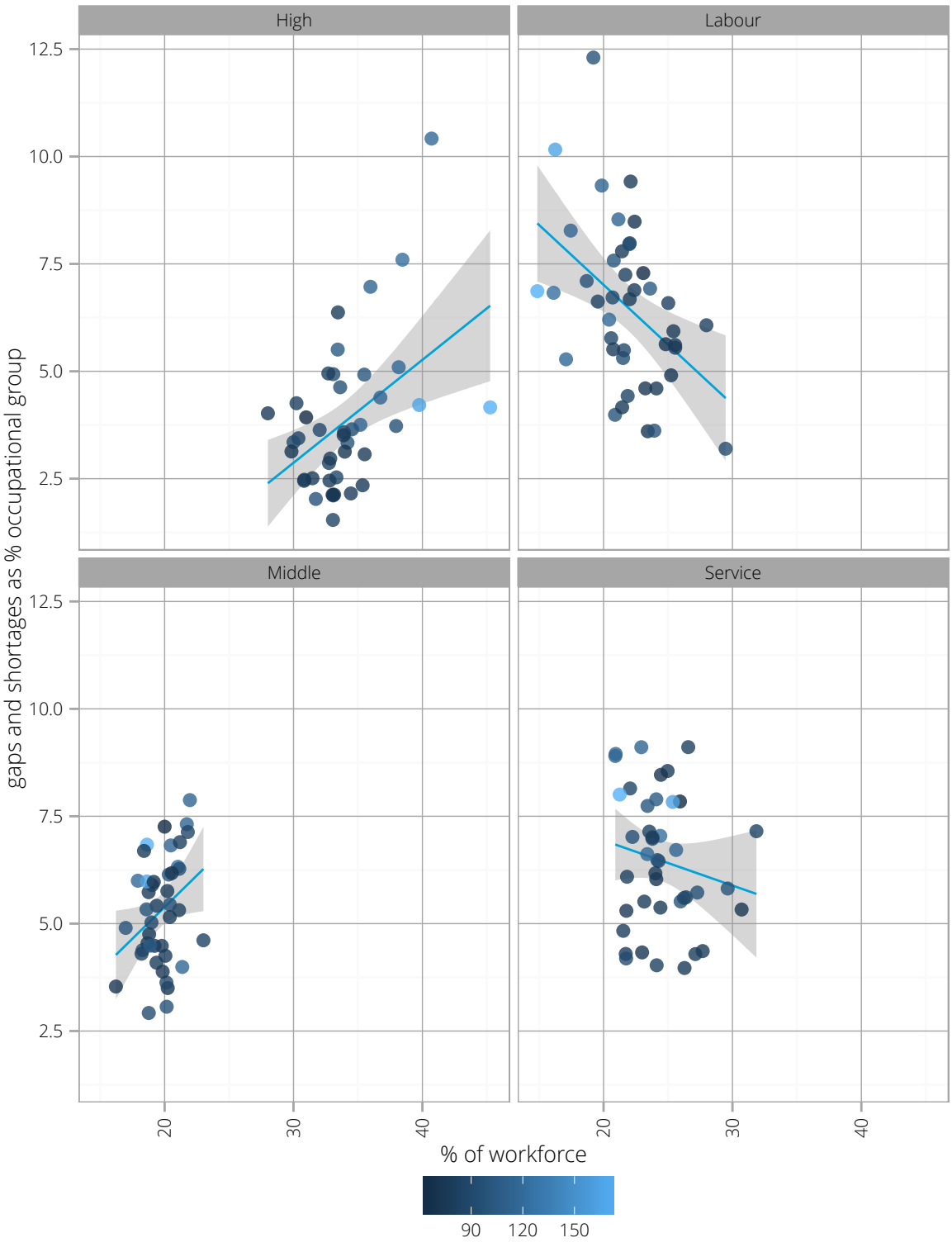
There are no areas without significant numbers of workplaces affected by skills gaps and skills shortage vacancies. Among those with the highest concentrations of gaps and vacancies are those in London and the South East which have a track record of leading growth.

As Figure 62 on page 72 highlights, by looking at Devolved Administrations and English LEP areas, patterns differ importantly by the sort of job roles in demand. Most clearly, there is substantial variation in the share of high-skilled jobs; and a greater number leads to a higher rate of skills shortage. The exceptions to this trend are the most-productive areas, such as London, which also benefit from a deep pool of high-skilled talent.

By contrast, middle-skill and service-intensive roles are subject to a lot of variety, but in quite limited ways. The real difference is with those areas with high labour-intensive shares of the workforce, where skills shortages seem to reflect a smaller local workforce. A story emerges here: high-skill and labour-intensive skill shortages both concentrate as growing pains in areas shifting to a higher skill workforce.

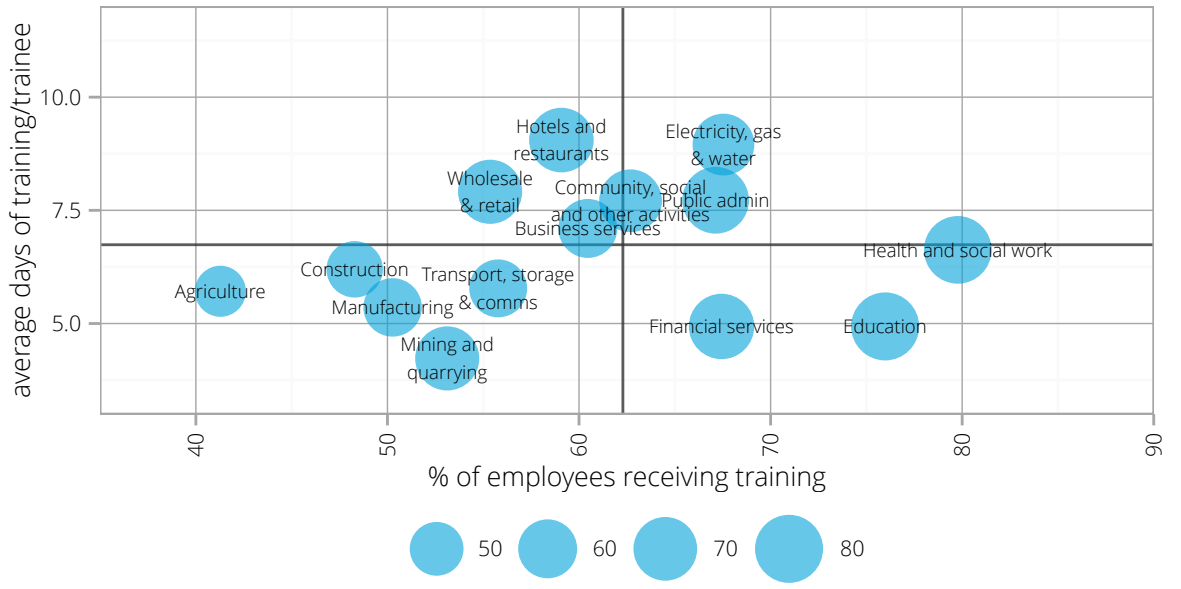
We know from sector intelligence, especially from the UK Commission's Employer Skills Survey, the difference sector and workplace makes to the response to skills problems. That applies not only to the skills demanded, but the variation in efforts to recruit, train and develop the workforce necessary to provide them.

Figure 62 Skills shortages and gaps in local labour markets, 2013



Source: UKCES Employer Skills Survey 2013. Bubbles are English LEPs and the three Devolved Administrations. Bubble colour is 2012 real GVA per head (UK=100). Trend lines are OLS.

Figure 63 Training levels and intensity by sector, 2013



Source: UKCES Employer Skills Survey 2013.
Bubble size denotes percentage of employers reporting assessment of training.

Figure 63 shows the wide variety in sector response in terms of the coverage of employee training, and its intensity. In many sectors, little more than half of employees receive training, and even then for many it is a relatively small amount. Even in some of our more knowledge-intensive sectors, intensive training is highly selective.

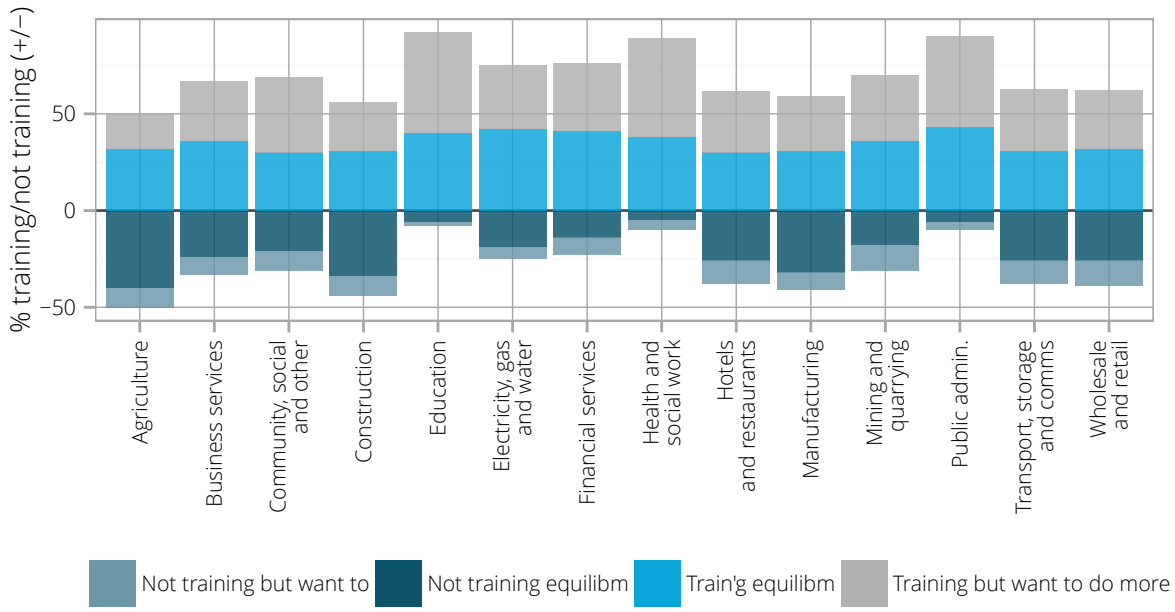
When combined with the 'hourglass' factors reshaping employment, it's easy to see how the difference between the high-skilled and the less-skilled can become so substantial. As skilled workers are typically more likely to receive training, the increasing scale of high-skilled jobs and service-intensive jobs, coupled with typical employer practice, can make for a yawning gap in opportunity.

Yet businesses know for themselves the consequences of inaction here. By their own perception, lack of investment in skills development is an important contributory factor in the lack of staff proficiency.

Around three in ten gaps are attributed to staff having not received appropriate training, whilst two-fifths are due to workers' skills remaining inadequate after receiving training. Management capability and workplace quality are also significant issues. Two-fifths of gaps are associated with lack of motivation.

With all of this feedback, it's hardly surprising that employers themselves recognise that a large minority of businesses – some four in ten – recognise that they should train more. Even among the third of workplaces where no training took place in the past year, one in three recognise a need to train (Figure 64).

Figure 64 Training equilibrium, establishments by sector



Source: UKCES Employer Skills Survey 2013, Table 129.

High-skills the vocational way

Vocational pathways can add relevance and applicability to learning. Work-based routes can also offer a more assured route to a career. The potential benefits of this route are reflected in the economic returns already achieved by high-level vocational learners.[74]

But while there is a history of higher take-up in Scotland, the rest of the UK is patchy. The OECD's recent *Skills beyond School* review of England highlighted the gap here: the post-secondary vocational sector has been the 'neglected middle child', lost between the further and higher education systems.[75]

Taken together, participation in the four main vocational routes do not make up even ten per cent of the level of participation in undergraduate degrees in England. New Higher Apprenticeships have been welcomed by employers and students, they remain few in number.

The gap is particularly noticeable in international comparison. Like the UK, the US has limited intermediate skills but a large graduate supply; but the US does much better in delivering advanced skills in these more practical modes (Figure 65).

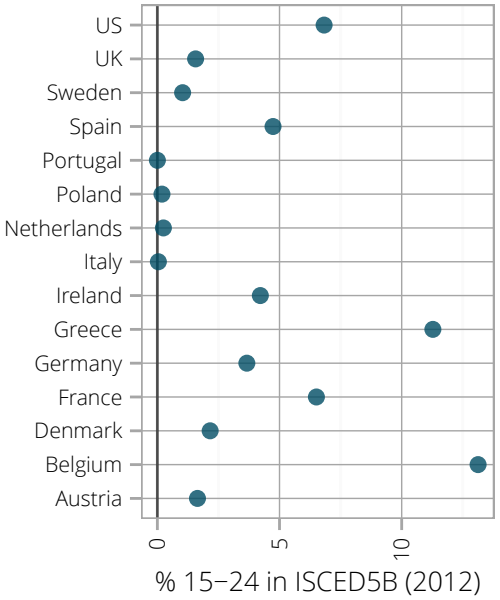
If we are to bridge this gap, we may have to see a change in education delivery models, to allow a better fit with students' work commitments. Recent changes have led part-time HE enrolments to fall by a quarter even as full-time enrolments have grown by 9 per cent (2008/9-2012/13).

We will also have to see a large shift in those levels of employer commitment and investment to training. Intermediate vocational learning requires intensive employer involvement to be a success; high-level vocational learning will require more. Employers will need to work with education providers in designing vocational pathways and ensuring that the right skills are developed.

74 Conlon and Patrignani (2010).

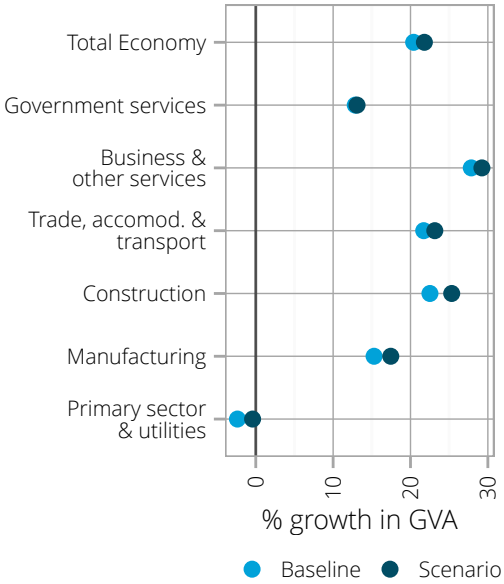
75 Musset and Field (2013).

Figure 65 Advanced education participation



Source: Eurostat, 'educ_enrl1tl', with cohort population data. ISCED5B is tertiary education "practically oriented and occupationally specific".

Figure 66 Projected growth, 2012-2022



Source: UKCES Working Futures 2012-2022. 'Baseline' is the basis of the main projections, 'Scenario' considers upskilling in key sectors.

The impact of improving skills

What if some of our key sectors' acute skills shortages were alleviated? Given what we know about the higher costs and lower productivity resulting from skills shortages, it seems obvious we would be better off.

As part of the latest iteration of the *Working Futures* labour market model an alternative scenario was developed which explores the potential impact on future economic performance of an improved skills profile within defined industry sectors.

This scenario models an uplift of the supply of skilled labour to four sectors:

- Energy
- Advanced manufacturing
- Construction
- Digital and ICT.

Upskilling is modelled as a general shuffling of the qualification profile of the workforce. The assumed scale of upskilling is considered within the plausible bounds for a step increase in skills investment. No assumption is made about what interventions would be required to achieve the assumed uplifts to skills, and at what cost, or to whom.

Across the four sectors it results in a relatively small number (22,700) of workers moving up, each by one qualification level. But the results are impressive: in the first three sectors, productivity growth improves by 0.1 per cent per annum over 10 years, and Digital and ICT productivity growth improves by 0.05 per cent per annum. The larger effect comes from spillovers as skills shortages are alleviated and firms can get on with growing their business.

Over the period 2012-2022 this results in a net employment gain of over 150,000 jobs and a 1.2 per cent gain in output relative to the baseline scenario of *Working Futures* (Figure 66). The latter is equivalent to gaining half of an extra year's growth, achieved from an incremental shift in the skill levels of fewer than 1 in 1,000 of the UK's workforce.

Efficiency & effectiveness

Headlines

- Recovery allows us a platform to tackle longer term issues: competition makes it a necessity.
- Workplace practice needs to change if we are to achieve lasting gains in productivity.
- Opportunity and performance are intertwined: success in one breeds success in the other.
- Substantial benefits available if we raise workplace practice and performance.

The experience of the last recession has shaken confidence that productivity will necessarily rise year-on-year, and that gains in living standards will follow. The evidence presented in this paper touches on some of the reasons why that's the case. Some of the trends which found force in recession had been gathering for some time, relatively unnoticed.

There are worries today, as there were after the recession in the 1990s, about whether the new jobs created by growth are confined to low-skill, casual employment. While not complacent, we take the evidence presented here as grounds for optimism that as continued growth causes the labour market to tighten, for the majority of people this won't be a problem.

And if so, that's positive not only for those newly employed in those jobs, but also because it allows us to focus on the deeper-seated issues we've touched on in these pages. These are the issues which offer the possibility of restoring some of our lost progress on productivity, and of ensuring decent career opportunities for all those keen to work hard and invest in their skills.

These issues present challenges to government, employers, and employees. Those challenges argue for flexibility and adaptability, for long-term investment and making the most of the workforce's skills and talents. Perhaps most importantly, they highlight the need to be sensitive to the conditions that create the problems, and to avoid the assumption that there are quick and easy fixes.

Resilient employment

The evidence tells a story of a labour market which is highly efficient at getting people into work. Through some combination of greater flexibility and improved practice, employment proved much more resilient to the recession of 2008-2009 than it had been in the 1980s and 1990s.

Considering that the recent recession was far sharper than those previous episodes, the fact that unemployment increased less and recovered more quickly is impressive. Given the severe human consequences of unemployment, things could have been much worse.

There are justifiable concerns about the quality of some of the jobs created. There have been big increases in 'involuntary' part-time and temporary work, although even now the UK compares well with many other European economies. While headline employment is back to pre-recession levels, if we exclude those with involuntary part-time work there is still some distance to travel.

An expanding high-skilled labour market

There's also good news in the sustained growth of high-skilled employment. The UK has now one of the highest shares of high-skilled jobs among the advanced economies, having grown high-skilled work just as quickly as we have rapidly expanded the graduate workforce. The trend looks to continue, offering many the prospect of quality work on relatively high pay.

Indeed, the international evidence suggests that highly skilled people earn a high premium in the UK labour market. Qualifications too offer substantial earnings returns, and help to lower the risk of unemployment.

The long term trends suggest that prospects for the high-skilled will only continue to improve as the economy grows. The fact that high-skilled employment did not, overall, fall during recession is a testimony to just how robust these trends have turned out to be.

While there is understandable concern about 'hourglass' trends, it is important to remember that for the skilled, these trends represent significant opportunities. And so far for the UK, these opportunities have been greater in number than those lost at middle-skill level.

Tough times for the less-skilled

If the UK labour market is a good place to be highly skilled, then it can prove a more hostile environment for those with less skill. The same changes reshaping our economy and expanding high-skill opportunity are diminishing the traditional paths to progress through low- and middle-skill work.

Part of this decline is the consequence of those 'hourglass' trends. Expanding job opportunities outside of high-skill roles have been concentrated in service occupations, offsetting steep declines in labour-intensive and middle-skill roles.

It in some of these middle-skill roles that we know we've had some of the strongest career pathways for those not equipped for high-skill jobs. At the same time, service occupations are too often characterised by low levels of pay and job quality, and without the same established pathways to get on and forge a successful career.

Limits on opportunity

Just as the highly skilled earn a premium in the UK labour market, low-skilled workers seem to earn a little less than the average across countries participating in the OECD Survey of Adult Skills.

But it isn't just low-skilled workers feeling the consequences of limited opportunity. It seems that middle-skill workers are at greater risk of being left behind. Their jobs aren't changing to complement new technology like high-skilled jobs; and they are at the greatest risk of finding themselves with skills and qualifications under-used.

For established, experienced middle-skill workers, there are reasonable prospects of moving up to one of the new high-skilled jobs. There is however one group, already hit hard by recession, which also seem to be at greater risk by changing occupational structures.

Young people have not had the opportunity to take advantage of progression through middle-skill work. They seem to have been caught out in a shift in employers' demand in favour of experience at work. They look most likely to be forced into a split between low-end service work and high-skilled jobs, with at present only limited prospects to move between the two categories.

The decisive role of the workplace

It's in our workplaces that our future productivity will be determined. The setbacks of recent years mean that we are now less successful at turning employees' skills into customer orders for goods and services. If we are to find out way back to rising productivity – the lifeblood of long term gains in living standards – then we will have to see a substantial change in workplace practice for many businesses.

This question cannot be separated from the concerns we can see about opportunity. We know we have a long tail of poorly managed workplaces. We also know that we have too many workplaces where managers seek to eliminate skill from job roles – we have a high number of employees seeing their jobs requiring just primary-level education.

While in some industries new technology has allowed for a lower-skill workforce, in others it seems to have been used to minimise the human element because recruitment, development and management is found to be difficult. But the consequences are underused employees, with poor levels of motivation and little opportunity to apply their skills to achieve greater productivity and earn better pay.

The *Growth through People* opportunity

Those setbacks to our productivity bring home just how important it will be to make the most of all our available skills and talents. Not only do we want to make up lost ground, but we also want to push on to lasting improvements well into the future.

To do that, we cannot leave skills underused for want of better workplace practice; not when the potential returns are too great. While we know we have a labour market efficient at getting people into work, we need to see a labour market effective at making the most of employees' skills.

Many of our problems can be simply solved. The changes driving the 'hourglass' labour market bring benefits for the skilled, as well as cheaper, better quality products and services for the consumer. But we need to think about how we can help our workforce adapt to those changes, and ensure that as the old pathways to progression decline, new ones evolve to take their place.

Equally, where solutions are possible they will often be difficult to implement. Changing workplace practice is not in the gift of government; while public policy can enable, success will depend on businesses making the choice to embrace new ways of working.

The UK Commission for Employment and Skills has set out a new consensus for action on just these questions in *Growth through People: a statement on skills in the UK*. The five priorities – backed by employers, employees, as well as from education – provide a foundation for progress on all of these themes (see opposite page).

Looking ahead

The same concerns drive the UK Commission for Employment and Skills to continue to seek out new frontiers for intelligence on the trends in our labour market. Building on our work for *Growth through People*, we are looking ahead to further investigations into themes such as:

- *Getting in:* the changes in the labour market for young people, and in particular the decline of combined work and study.
- *Inequality:* how the years of recession and recovery have hit upon the labour market prospects of different social groups.
- *Getting on:* hourglass labour market trends and their effect on employees' career prospects.
- *Workplace performance:* further exploration of the links between workplace practice and productivity.
- *Moving up:* understanding the strengths and limitations of the UK's expanding high-skill labour market.

HOW TO DELIVER GROWTH THROUGH PEOPLE

1 Employers should lead on skills and government should enable them

- We need a new level of leadership from employers to take responsibility for competitiveness and growth.
- Employers, working with each other and with their employees and trade unions, should raise the bar on skills in sectors, regions and supply chains. Collaboration is vital to building the skills we need for competitiveness.
- Governments should commit to supporting employer leadership on skills, individually and in partnerships, as a central part of long-term growth plans and a way of aligning public and private resources.

2 Improving workplace productivity should be recognised as the key route to increasing pay and prosperity

- Up to 90 per cent of the current workforce will still be in work in the next decade. To tackle the productivity deficit for the economy as a whole, there must be a much greater focus on job design, technology and progression for those in work.
- Equipping people with the right skills and giving them the best opportunities to use them will lead to better paid jobs.
- This means better leadership and management of people and organisations, increased employee engagement and more transparency about the value of people to business success.

3 'Earning and learning' should be the gold standard in vocational education

- We need a step change in attitude and uptake of quality vocational routes into good jobs. High quality apprenticeships should be a normal career pathway for many more young people, and a normal way for businesses to recruit and develop their talent pipeline.
- Employers, working collaboratively, should have the lead role in designing apprenticeships to ensure they have value in the labour market. The public contribution should be channelled via employers to stimulate greater employer uptake.
- In England, long-term stability in vocational education and training is essential for employers to have the confidence to engage.

4 Education and employers should be better connected to prepare people for work

- To create new pathways into work we need to start much earlier. All schools should have links with local businesses and use those links to inform and inspire young people about the breadth of career opportunities available.
- Further education colleges should be supported to work with employers to deliver higher level technical and professional education to meet the UK's technical skills gaps.
- Closer collaboration between employers, colleges and universities is essential to ensure there are seamless opportunities to work and learn over the course of longer working careers.

5 Success should be measured by a wider set of outcomes not just educational attainment

- We need to align measurement of schools, colleges and universities more clearly with the outcomes that are needed for sustained growth through people.
- These outcome measures should be more prominent in demonstrating accountability and key outcome data shared widely with employers, individuals and communities.
- Reliable labour market intelligence should be widely used to support better decision making by individuals, employers and education providers.

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