UK Skill levels and international competitiveness

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Foreword

The UK Commission for Employment and Skills is a social partnership, led by Commissioners from large and small employers, trade unions and the voluntary sector. Our ambition is to transform the UK's approach to investing in the skills of people as an intrinsic part of securing jobs and growth. Our strategic objectives are to:

- Maximise the **impact** of employment and skills policies and employer behaviour to support jobs and growth and secure an internationally competitive skills base;

- Work with businesses to develop the best market solutions which leverage greater **investment** in skills;

- Provide outstanding labour market **intelligence** which helps businesses and people make the best choices for them.

The third objective, relating to intelligence, reflects an increasing outward focus to the UK Commission's research activities, as it seeks to facilitate a better informed labour market, in which decisions about careers and skills are based on sound and accessible evidence. Relatedly, impartial research evidence is used to underpin compelling messages that promote a call to action to increase employers' investment in the skills of their people.

Intelligence is also integral to the two other strategic objectives. In seeking to lever greater investment in skills, the intelligence function serves to identify opportunities where our investments can bring the greatest leverage and economic return. The UK Commission's third strategic objective, to maximise the impact of policy and employer behaviour to achieve an internationally competitive skills base, is supported by the development of an evidence base on best practice: "what works?" in a policy context.

Our research programme provides a robust evidence base for our insights and actions, drawing on good practice and the most innovative thinking. The research programme is underpinned by a number of core principles including the importance of: ensuring '**relevance**' to our most pressing strategic priorities; '**salience**' and effectively translating and sharing the key insights we find; **international benchmarking** and drawing insights from good practice abroad; **high quality** analysis which is leading edge, robust and action orientated; being **responsive** to immediate needs as well as taking a longer term perspective. We also work closely with key partners to ensure a **co-ordinated** approach to research.

This current report provides a short assessment, set in an international context, of recent progress and projected future performance of the UK in respect of the levels of skills held by the population; with formal qualifications used as a proxy for skills. Over the last decade, the UK have made huge progress in growing the skills of its workforce. We have increased those with higher qualifications (at a degree level or above) by more than half and reduced those with no qualifications by a third. However, when the UK's performance is set in an international context it becomes clear that other nations are increasing their skill levels more rapidly. At current rates of progress the UK runs the risk of falling behind. This is a real concern when viewed in the context of the UK's overall competitiveness in global markets.

Sharing the findings of our research and engaging with our audience is important to further develop the evidence on which we base our work. Evidence Reports are our chief means of reporting our detailed analytical work. All of our outputs can be accessed on the UK Commission's website at www.ukces.org.uk

But these outputs are only the beginning of the process and we are engaged in other mechanisms to share our findings, debate the issues they raise and extend their reach and impact. These mechanisms include our *Changing Behaviour in Skills Investment* seminar series and the use of a range of online media to communicate key research results.

We hope you find this report useful and informative. If you would like to provide any feedback or comments, or have any queries please e-mail info@ukces.org.uk, quoting the report title or series number.

Lesley Giles
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Executive Summary

Introduction

The focus of the present report is on the level of skills held by the UK population, as proxied by formal qualifications, both historically and in terms of projections to 2020. The context is the link between higher qualification and skill levels and improvements in productivity and economic performance in an international setting. The report builds on previous analyses of skill levels presented in the *Ambition 2020* reports of 2009[1] and 2010[2]. The reader should bear in mind that these projections simply indicate what would happen in the future if recent trends, which themselves are based on survey observations, continue; but many things might impact on their path through to 2020 and beyond, so considerable caution is needed in using these results.

This report assesses skills supply using possession of qualifications as the key measure. It is recognised that qualifications are only one, imperfect, measure of skills. Nonetheless, this analysis of the level of formal qualifications held by individuals is felt to provide a valuable insight in the UK's skills base.

UK results

The trends in qualifications over the last ten years have been strongly in favour of the highest qualification levels[3] (QCF4 and above) and away from the lowest qualification levels (less than QCF2). The proportion qualified at a high level increased from less than one quarter to more than one third of the population[4], whilst the proportion with no qualifications or low level qualifications as their highest qualification fell from 37 per cent to 27 per cent.

These historical trends are largely carried forward in the projections to 2020 and beyond. Over the period 2010 to 2020, the proportion qualified to Level 4+ is projected to rise from 34 to 44 per cent (an increase of 4.7 million individuals), while the proportion below Level 2 is projected to fall from 27 to 20 per cent (2.3 million fewer people at this level).

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[1] UKCES (UK Commission for Employment and Skills) (2009) *Ambition 2020: World Class Skills and Jobs for the UK. The 2009 Report.* UKCES, Wath-upon-Dearne.
[2] UKCES (UK Commission for Employment and Skills) (2010) *Ambition 2020: World Class Skills and Jobs for the UK. The 2010 Report.* UKCES, Wath-upon-Dearne.
[3] An explanation of the levels used in the report is provided at Annex A. Qualifications are defined here with reference to the Qualifications and Credit Framework (QCF). This is the national credit transfer system for vocational qualifications in England, Wales and Northern Ireland. This framework defines formal qualifications by their level (i.e. level of difficulty) and credit value (how much time the average learner would take to complete the qualification). Scotland has its own qualification framework, the Scottish Credit and Qualifications Framework (SCQF), and its own system of levels. Correspondences between the levels used in QCF / NQF and the SCQF are mapped in *Qualifications can cross boundaries* (SCQF, 2011).
[4] The results outlined here are for 19-64 year olds unless otherwise stated.

The report explores the impact of future migration patterns on UK skill levels. The main effect of net migration is to raise the proportions of the population below Level 2 and Level 4+, but lower them amongst Levels 2 and 3. None of the percentage point changes in qualifications mix are expected to be large (Level 3, the largest, falls by a couple of points).

Changes in retirement age also have a potential bearing on the stock of skills and hence qualifications held by the workforce. It might be expected that an increase in the age of retirement to 70 would raise the proportion of the lower qualified, as younger people tend to be more qualified than older individuals. However, a more complex picture emerges from the projections, with a tendency for the lower qualification levels to decline and the higher levels to rise. One influence is that mortality rates pick up sharply around retirement age, and are higher for people who are qualified at a lower level.

There are important gender differences in qualification levels. In 2010 females start with 34.8 per cent at Level 4+, compared with 32.5 per cent for males, and are projected to have a larger increase of 11.1 versus 9.2 percentage points. In contrast, females start with 28.3 per cent below Level 2 in 2010, compared with 25.9 per cent for males, their projected fall of 9.7 percentage points (2.6 for males) results in a lower proportion of women at this level than men by 2020.

Economic activity rates are higher the higher the qualification level of individuals. However, looking to the future those with no qualifications are projected to have the largest increase in economic activity rates (6 percentage points), whereas for the Level 4+ group, where the rate is already high, it is expected to rise by only 2.9 percentage points. The overall activity rate for all qualification levels is projected to be 83.9 by 2020, a rise of 5.3 percentage points, 2.2 of which arise from improvements in the qualification mix, while 3.1 percentage points come from increased activity at each qualification level. Changes to activity rates at the extremes of working age appear to reflect both the increasing need for young people to obtain higher formal qualifications and, not only older individuals' ability to work for longer, but also their need to off-set pressure on their pensions.

Spatial differences

There are important differences in estimated qualification levels for 2010 across the four nation states. In summary, the most notable of these are:

- Wales performs strongly relative to the UK average in terms of intermediate skills and is somewhat behind the UK average in respect of higher level skills.

- Scotland has a relatively large proportion of people who are qualified at a high level (Level 4+) and a small proportion who are low skilled.

- Northern Ireland performs less well than the UK average in respect of both high level and low level skills.

Scotland has the highest proportion of Level 4+ of the four nation states in 2010 (36.7 per cent) and Northern Ireland the lowest (30.4 per cent). While England has the largest projected increase at Level 4+, this is not sufficient to overtake Scotland by 2020 (45.7 per cent outturn compared with England's 44.2 per cent). Northern Ireland has the lowest projected value (40.3 per cent), but very close to the Welsh figure (40.7 per cent).

Scotland sets off with the lowest proportion below Level 2 (25.0 per cent in 2010) and Northern Ireland the highest (31.0 per cent). Despite having the largest projected decline (8.1 percentage points), Northern Ireland is still expected to have the largest proportion at this level in 2020 (22.9 per cent).

Within England, the lowest proportions below Level 2 in 2010 are in the South East and South West (both 24.0 per cent); while the South West has the lowest projected proportion by 2020 (17.4 per cent). The West Midlands has the largest percentage below Level 2 in 2010 (31.8 per cent), and is projected to be so again in 2020 (23.3 per cent).

London has the highest proportion of those at Level 4+ in 2010 (44.8 per cent), and is projected to be by far the highest in 2020 (59.1 per cent). At 20.6 per cent London's Level 7-8 category is projected to be around eight percentage points above the next highest region, Eastern England (12.8 per cent). The West Midlands has the lowest Level 4+ proportion in 2010 (27.7 per cent), but, by 2020 the North East (36.2 per cent) is lowest.

International comparative qualification performance

Analysis of the current international skills position and the projections to 2020 for 25-64 year olds paint a mixed picture of the UK's international ranking relative to other member countries of the OECD (Organisation for Economic Co-operation and Development):

- For *Low skills* (Below Upper Secondary level) the UK is currently ranked 21st, but is projected to be 25th by 2020 (i.e. there are 24 out of the 33 other countries with lower proportions).

- The UK's rank for *Intermediate skills* (Upper Secondary) falls slightly from its current position of 25th, to 26th in 2020.

- The UK's ranking in terms of the proportion of individuals with *Higher skills* (Tertiary*)* improves from a current position of 13th to one of 11th in 2020.

In comparison to the OECD average, the UK has a greater proportion of people with *Higher skills*, a similar proportion with *Low skills* and a much smaller proportion with *Intermediate skills*.

In contrast, countries like Germany have founded a successful economic strategy on a skills base that is weighted towards *Intermediate skills*, with a relatively small proportion qualified at a *Higher* level but also only a small proportion of the population holding no qualifications or low level qualifications.

It is important to bear in mind that the projected position of the UK in 2020 is based on a continuation of existing trends. It seems highly likely that at least some nations will see an improvement in the "trajectory" of their performance as a result of policy intervention and / or other factors, such as increased demand for higher level skills within their national labour markets.

Taking the results for the four UK home nations for 2020 at face value rankings have been constructed against the other 32 countries for which OECD data exist. It should be noted that the results and rankings for the four nations should be treated as indicative.

The results are discussed by level of qualification:

- There is a four percentage point difference in the proportion of individuals with *Low skills* across the four nation states, and the international rankings range from 24th (Wales) to 28th (Northern Ireland).

- There is a three percentage point difference for *Intermediate skills*, ranging from 37 per cent of individuals in this group in Wales (ranked 25th) to 34 per cent in Scotland (ranked 28th).

- In terms of *Higher level* skills Scotland exhibits the highest proportion (47 per cent, ranked 8th across OECD countries) and Northern Ireland the lowest (43 per cent and ranked 16th).

1   Introduction

The UK is in the process of transforming and rebalancing its economy, with a view to creating the conditions needed to ensure sustainable recovery over the long term. Sustainable recovery depends both on establishing an environment for the creation of jobs, primarily in the private sector, and having the skilled workforce that is needed to do them to a high standard.

In an unchanging world, this would seem to be a relatively simple task, but many changes are going on which, on the one hand, make this task much more difficult and, nevertheless, on the other, make it an imperative. Key competitor countries are not standing still; they are improving their skills base to offer increasingly high quality products at price levels that the UK finds increasingly difficult to match.

The present report deals with the issue of the profile of skills, as proxied by formal qualifications, in the UK. Where relevant data are available, it presents historical changes and trends, as well as projections through to 2020. It provides a breakdown as to how the picture differs across the four Nation States, the nine planning regions of England and makes an assessment of how the UK is fairing internationally. The comparisons of likely future performance are based upon a variety of models, as set out in Appendix A.

This report updates and builds on previous work by the UK Commission to assess the international skills challenge, as presented in its *Ambition 2020* reports for 2009 and 2010, using an approach designed to provide results that are consistent with this prior analysis.

Some care is needed when talking about the supply of qualifications. In the present report "supply" relates to the skills and qualifications held by the UK population at different points in time. Changes to supply are shaped by individual perceptions at each point in time about what the demand for qualifications and skills will look like in the future (e.g. how many jobs will there be requiring the associated higher qualifications and skills, and what wage premium will be attached to such jobs).

When looking at the supply of skills and qualifications for each of the UK nations and English regions there is also the added dimension to consider of workforce mobility. A relative increase in the demand for labour in a nation or region can attract highly skilled workers from elsewhere in the UK, either as inward commuters or inward migrants, resulting in an improvement in that area's supply of skilled and qualified individuals. No attempt is made to model this kind of mechanism in this report.

As with all projections and forecasts, the forward-looking results presented in this report should be regarded as indicative of likely trends, given a continuation of past patterns of behaviour and performance, rather than precise forecasts of the future.

In addition, the chief source upon which the projections are based is the Labour Force Survey (LFS). Like all surveys, the LFS is subject to sampling error: a degree of inaccuracy caused by observing a sample instead of the whole population. The impact of this issue on the projections is considered in more detail in the technical appendix to this report and in the accompanying technical reports.

Nonetheless, the projections provide a good starting point for assessing the likely trajectory of the UK's comparative international adult skills position, as proxied by qualifications.

The future skills mix of the UK adult population is of critical importance. The increased pace of globalisation and technological change, the changing nature of work and the labour market, and the ageing of populations are among the forces driving demand for a rising threshold of skills. For the individual, enhanced skills contribute to self-fulfilment, higher earnings and employment, and to innovation and productivity. Workforce skills are also a major factor in economic performance and success at the enterprise level. For the economy, there is a positive relationship between attainment and economic growth[5].

This report assesses skills supply using possession of qualifications as the key measure and skills and qualifications are often treated as being synonymous. This approach has the advantage that qualifications are easy to count, and data are readily available. However, it is recognised that qualifications are only one, imperfect, measure of skills. There are many individuals who possess skills that are highly valued by employers but who hold no formal qualifications. On the other hand employers may be sceptical of the value of some qualifications. Moreover, a general improvement in qualification levels is of limited benefit if it is not accompanied by the development of the 'right,' economically valuable skills, which employers demand and which can be effectively deployed in the workplace. Nonetheless, this analysis of the level of formal qualifications held by individuals is felt to provide a valuable insight in the UK's skills base.

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[5] See, for example, Organisation for Economic Co-operation and Development (OECD) (2004) *Lifelong Learning: Policy Brief*. OECD, Paris.

2   Qualifications trends and projections to 2020

The main UK qualifications modelling draws on a linear time series model, which was developed by HM Treasury for the Leitch Review of long term skills needs (see Appendix A for details of the model, as well as other models used elsewhere in the report). This model uses historical Labour Force Survey (LFS) data, broken down by gender and year of age (for those of working age) for six qualification levels (see Annex A for further information on levels). Individuals are allocated to a particular qualification level according to the highest qualification they hold.

2.1   Recent historical trends

Figure 1 and Table 1 set out the main historical trends. Figure 1 indicates the considerable improvement that has occurred at Level 4 and above. While Table 1 indicates that Level 4-6 had a larger percentage point increase than Level 7-8 (5.6 compared with 4.2), the latter doubled in absolute size over the period (compared with a 22 per cent increase in the proportion at Level 4-6). Levels 2 and 3 remained almost constant over the period, rising very slightly from 2000 to 2010 (0.5 and 0.8 percentage points respectively). Declines took place at Level 1 and amongst those with no qualifications (2 and 7.5 percentage points respectively).

Figure 1: Historical trends in qualification mix (19-64 year olds, %)
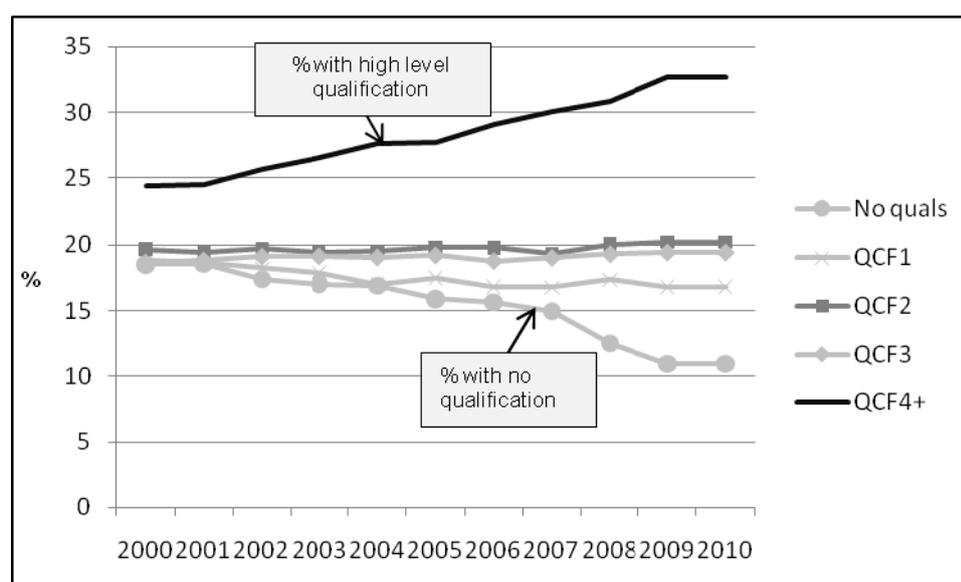
Source: Time series model

Table 1 further brings home the size of these changes in terms of the numbers of individuals involved. Over the ten year period, the number of individuals with Level 4+ rose by close to 4.5 million (almost a 10 percentage point rise), while those below level 2 fell by just under 3 million (a 10 percentage point fall). These changes took place against a population increase amongst 19-64 year olds of nearly 2.5 million.

Table 1: Changing distribution of qualifications in the UK (19-64 year olds)

| | 2000 | | 2010 | | 2000-2010 Change | |
	%	Nos ('000s)	%	Nos ('000s)	Percentage point	Nos ('000s)
Level 7-8	3.8	1,359	8.0	3,035	4.2	1,676
Level 4-6	20.1	7,089	25.7	9,721	5.6	2,631
Level 4+	23.9	8,449	33.7	12,756	9.8	4,306
Level 3	18.9	6,663	19.7	7,446	0.8	783
Level 2	20.2	7,126	19.7	7,437	-0.5	311
Level <2	37.1	13,107	27.0	10,199	-10.1	-2,908
Level 1	19.3	6,805	16.4	6,187	-2.9	-619
No Qualifications	17.8	6,301	10.6	4,013	-7.2	-2,289
All qualifications	100.0	35,345	100.0	37,838	0.0	2,493

Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

2.2 Projections to 2020 and beyond

The projections of future qualification levels are undertaken separately for males and females, by year of age (16 to 69), using either the last 10 years of historical data or the last five years. Immigrants and emigrants are modelled separately, in an attempt to identify the effects of net migration on qualification levels. These projections simply indicate what would happen in the future if recent trends continue, but many things might impact on their path through to 2020 and beyond, so considerable caution is needed in using these results.

The results based upon the trends over the ten years, 2000 to 2010, are set out in Table 2. It can be seen that the proportion qualified to Level 4+ is projected to rise from 33.7 to 44.1 per cent over this period (a 10.4 percentage point increase). As in the historical period, the percentage point rise is larger for Level 4-6 than Level 7-8 (5.8 compared with 4.6), but as a percentage of the 2010 base, Level 7-8 shows a larger rise. The largest fall is in those with no qualifications (a reduction in share of 4.9 percentage points, or a fall of 46 per cent compared with its 2010 value), which comprises the majority of the 6.9 percentage point fall in the below Level 2 group. In fact all levels of qualification other than the highest two show falls, although some of these are quite modest.

Table 2: Projected distribution of qualifications in the UK, 2020 (19-64 year olds)

	2010		2020		2010-2020 Change	
	%	Nos ('000s)	%	Nos ('000s)	Percentage point	Nos ('000s)
Level 7-8	8.0	3,035	12.6	4,969	4.6	1,934
Level 4-6	25.7	9,721	31.5	12,441	5.8	2,720
Level 4+	33.7	12,756	44.1	17,410	10.4	4,654
Level 3	19.7	7,446	17.2	6,782	-2.5	-664
Level 2	19.7	7,437	18.6	7,347	-1.0	-89
Level <2	27.0	10,199	20.0	7,906	-6.9	-2,293
Level 1	16.4	6,187	14.3	5,649	-2.0	-538
No Qualifications	10.6	4,013	5.7	2,257	-4.9	-1,756
All qualifications	100.0	37,838	100.0	39,445	0.0	1,607

Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

Comparing the results in Table 1 and Table 2, it can be seen that the rise in the number of individuals holding Level 4+ is projected to be even larger in absolute terms over the period 2010 to 2020 than over 2000 to 2010 (4.7 compared with 4.3 million), although the fall in below Level 2 is slightly more modest (2.3 compared with 2.9 million). This larger increase in the absolute number of those at Level 4 or above takes place against a background in which the increase in the UK population of age 19-64 over the projected period to 2020 is less than in the previous ten years (1.6 compared with 2.5 million) – an indication of the strength in the trends towards the highest levels of qualifications, driven, in part, by the growth of jobs in higher level occupations.[6]

Taking the projections forward to 2025 suggests that most of the trends continue in the same vein, although many things will impact on the actual outcomes in the interim. Level 4+ continues to rise by a further 3.7 percentage points (1.7 million individuals) from 2020 to 2025, while those at below Level 2 fall by a modest 0.7 percentage points (203,000 individuals). The bottoming out of the lowest skill levels occurs because a lower limit of 5 per cent is applied to each of the two levels (by gender and year of age), a figure which is broadly in line with international evidence (see Section 4 below).[7]

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[6] Wilson, R.A. and K. Homenidou (2011). *Working Futures* 2010-2020*: Main Report.* UK Commission for Employment and Skills. Wath-upon-Dearne. This report raises the issue as to the ways in which the projected large increase in supply of highly and very highly qualified individuals will be absorbed by the economy.

[7] This would eventually happen without the 5 per cent lower limit, as there is an absolute limit of zero for both levels.

2.3   The rate of improvement

It is difficult to say anything about private or public policies and their effects on qualification mix *per se*, but it is possible to say whether the historical trends at different points in time suggest that more recent projections are in some sense "more favourable" than earlier projections. The time series modelling has been carried out in several consecutive years and, while a number of changes have been made to the model, these will not have affected the overall results dramatically, allowing comparisons between them. As the model is estimated on the most recent ten years of data, each subsequent year of modelling differs by two years of data (the latest year is added into the historical data and, what was the tenth year, drops out). The first column of Table 3 shows the data periods.

Table 3: Consecutive projections, 2020

Data period	Level <2		Level 4+	
	%	000's	%	000's
2001-2010[a]	19.9	7,858	44.4	17,496
2000-2009[b]	19.7	7,776	43.8	17,289
1999-2008[c]	19.3	7,601	41.7	16,462

Notes: a) current report; b) unpublished report; c) Ambition 2020, 2010 Report

What Table 3 therefore shows is whether there have been any systematic changes to the forecasts over time as new data have emerged. The results in Table 3 show a great deal of stability in the results (as would be expected, as the models share eight years of data), nevertheless, the results suggest that, over time the data indicate a polarisation of qualification levels. While the changes, as expected, are very modest, at least in percentage point terms, as the proportion below Level 2 in 2020 rises from 19.3 to 19.9 per cent in 2020 and Level 4 and above rises from 41.7 to 44.4; in terms of numbers this translates into an additional 256,000 individuals below Level 2 and just over 1 million at Level 4 and above.

The principal implication of these results is that the trend towards higher level qualifications (Level 4 and above) has been accelerating. At the same time, the newer data have suggested that, although the proportion of individuals with lower level qualifications (less than Level 2) is still expected to fall, the size of this fall is somewhat smaller than the earlier models suggested. These findings, taken together, suggest a trend towards the polarisation of qualifications, which is squeezing Levels 2 and 3.

2.4   Migration

Given that emigration and immigration are explicitly modelled, it is possible to explore different scenarios with regard to future migration patterns. Immigrant qualifications are measured amongst the group of individuals who were not resident in the UK one year earlier[8] and emigrant qualifications are assumed to be the same mix as for the UK as a whole.

Figure 2a: Qualification mix (% of total), 2020
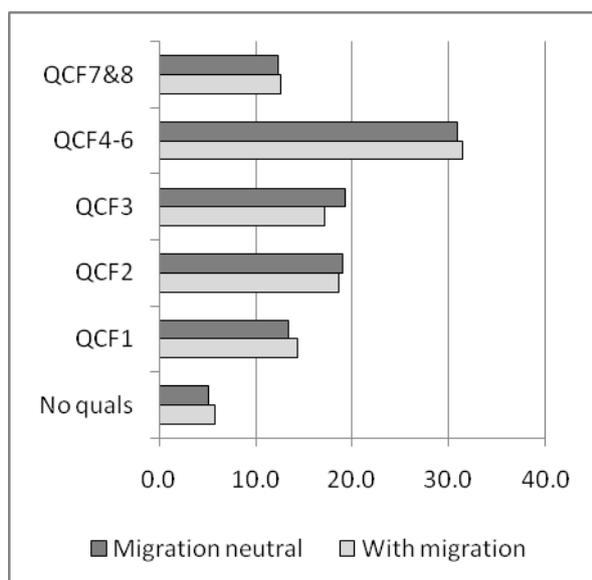
Figure 2b: Impact of migration on qualification mix (% of total), 2020
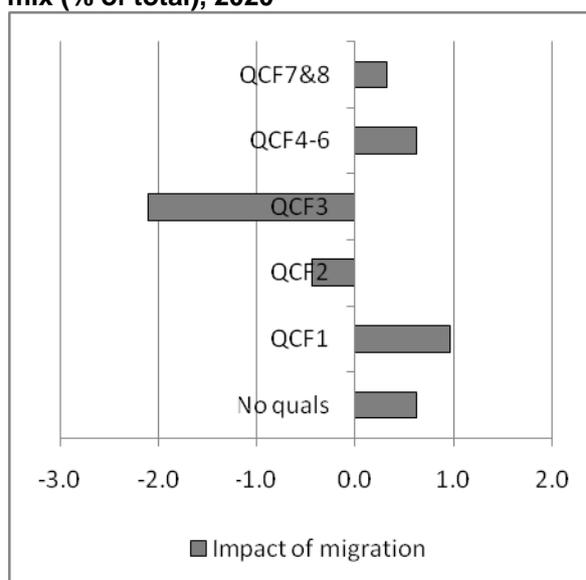
Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

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[8] Given small sample sizes, the results of this exercise should be treated with caution. Population of working age is estimated to be around 40 million and immigration is estimated to be just over 600,000 per annum (with net inward migration in the order of 200,000), based on ONS figures for 2009. Thus, based on a random sample, sample sizes for immigrants would be about 15 immigrants per 1000 population as a whole. Nonetheless, the results are probably indicative of how sensitive the overall UK outcome is to the effects of migration.

Figure 2 shows the projected UK qualification proportions in 2020, including the measured effects of migration (the base-line model reported in Table 2 above) and, by way of example, when setting the effects of migration to be "neutral". Neutrality in this sense sets the qualification mix of immigrants to be the same as the qualification mix of emigrants (e.g. the same as the UK population as a whole). It can be seen from Figure 2a that the two outcomes do not differ greatly and, more clearly from Figure 2b, that the main effect of net migration is to raise the proportions lower than Level 2 and Level 4+, but lower them amongst Levels 2 and 3[9]. The most notable change is that the proportion qualified at Level 3 is lowered by around two percentage points when the effect of migration is factored in.

2.5 Retirement ages

The LFS data on qualifications does not lend itself naturally to the issue of the effects of changing retirement ages, as prior to 2008 qualifications data were not collected above the ages of 59 for women or 64 for men, unless the individual remained in employment[10]. In the modelling exercise, qualifications for these high age groups are estimated based upon the patterns of change in the proportions of individuals holding each qualification level across years of age.[11]

Based purely upon the demographics of the process, an increase in the age of retirement seems certain to increase the proportion of lower qualified individuals and lower the proportion of individuals with higher qualifications because, on balance, younger individuals tend to be more qualified than older individuals.

This is precisely what happens if it is assumed qualification levels become fixed at some age, after the vast majority of formal education is completed, as shown in Figure 3a[12]. In practice, the time series model does not give this result, as shown in Figure 3b – those with no qualifications and Levels 1 and 2 actually decline slightly as a proportion of the total, while Levels 3 and 4-6 rise.

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[9] This may again be partly a measurement problem, where it is more difficult to categorise middle-level foreign qualifications; historically, ONS has used a fairly crude allocative mechanism.
[10] Since 2008 the Labour Force Survey has extended its definition of working age, in respect of qualification variables, to include all individuals aged 16-69. However, since the projections draw on 10 years of historic data (2001-2010 in the current iteration) it is not yet possible to take advantage of this development.
[11] For males, the changing pattern across the 60 to 64 age group was used to predict the proportions for ages 65 to 69, while, in the case of females, the 50 to 59 age group was used to predict the 60-69 year olds.
[12] The results contained in Figure 3a are based on an experimental stock-flow model – see Appendix A.

Figure 3a: Qualifications fixed after formal education
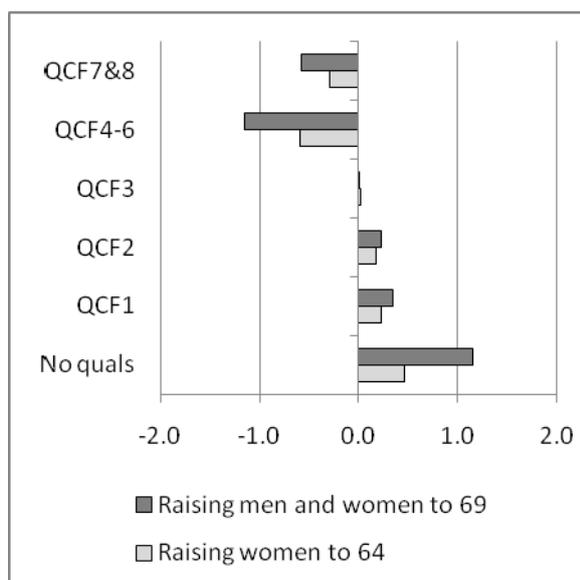
Figure 3b: Qualifications follow historical trend
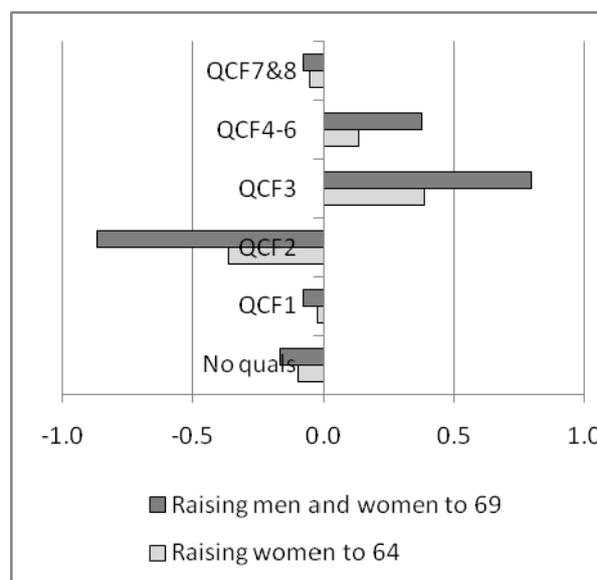
This complex and, at first sight, counterintuitive picture in Figure 3b is the result of a number of possible influences, for example, that: older individuals continue to improve their qualification levels; there are important differences in mortality rates across years of education and qualification levels for any given year of age[13]; death rates differ between males and females, where there are also gender differences in the qualification mix. The differential mortality rates, which affect the less qualified earlier and, for any given age, more severely, may well be an important determinant of this result (and one reason the present time series model is preferred to a stock-flow model, at least for older individuals).

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13 See the evidence in *Differences in Mortality Rates in Northern Ireland 2002-2005: A Section 75 and Social Disadvantage Perspective.* http://www.ofmdfmni.gov.uk/differences-in-mortality-rates-in-ni-2002-2005, p.7.

2.6 Gender differences

The model is estimated separately for males, females and all individuals[14] and Table 4 reports the main differences in the mix of qualifications and the changes in the mix over the projection period for those aged 19-64. It can be seen that females start, in 2010, with a somewhat higher proportion of individuals at Level 4 and above than in the case of males (34.8 compared with 32.5 per cent, which translates into a difference of 438,000 more females than males). Given that females are projected to have a considerably greater improvement at Level 4-6 than males in the period to 2020, with little difference in the improvement in Level 7-8, the gap between the genders widens, with 45.9 per cent of females at Level 4 or above, compared with 41.7 per cent of males (e.g. there is projected to be 765,000 more females qualified at this level in 2020 than males).

Table 4: Gender differences, 2010 and 2020, 19-64 year olds

	Males			Females			All individuals		
	2010 (% share)	2020 (% share)	pp change	2010 (% share)	2020 (% share)	pp change	2010 (% share)	2020 (% share)	pp change
Level 7-8	8.0	12.8	4.8	8.1	12.4	4.4	8.0	12.6	4.6
Level 4-6	24.5	28.9	4.4	26.7	33.5	6.7	25.7	31.5	5.8
Level 4+	32.5	41.7	9.2	34.8	45.9	11.1	33.7	44.1	10.4
Level 3	22.1	16.2	-6.0	16.9	16.7	-0.2	19.7	17.2	-2.5
Level 2	19.4	18.9	-0.6	20.0	18.7	-1.2	19.7	18.6	-1.0
Level <2	25.9	23.3	-2.6	28.3	18.6	-9.7	27.0	20.0	-6.9
Level 1	16.1	16.9	0.8	16.9	12.9	-4.0	16.4	14.3	-2.0
No Qualifications	9.8	6.3	-3.4	11.4	5.7	-5.7	10.6	5.7	-4.9
All qualifications	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0

Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

Looking at the bottom half of the table, in 2010, a higher proportion of women than males had less than Level 2 qualifications in 2010 (28.3 compared with 25.9 per cent, equivalent to 470,000 more women than men). However, the downward trend in this proportion is much stronger for females than for males (changes of 9.7 and 2.6 percentage points for females and males respectively), such that, by 2020, only 18.6 per cent of women fall into this low qualifications group, compared with 23.3 per cent of males (i.e. there is projected to be 955,000 more males than females in the less than Level 2 category).

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14 The all individual result is not a weighted average of males and females and is a check whether the results are broadly consistent (e.g. does the figure for all individuals lie between the male and female results).

2.7   Qualification levels and activity rates

Activity rates are higher the higher the qualification level of individuals, as can be seen from the third column of Table 5. Thus, insofar as qualification levels rise with the passage of time, this also tends to raise the activity rate within the economy. In addition, however, activity rates are also changing within each level of qualification.

The projected overall activity rate in 2020 (all qualification levels combined) is 83.9 per cent for all individuals aged 19 to 64, compared with 78.6 in 2010 (see the third and sixth columns of data in Table 5). These figures are weighted averages of the activity rates for each qualification level, where the weights are the relative numbers in the population across qualification levels. The largest increase in activity rates over the period is amongst those with no qualifications (as will be seen below, this is caused by the relatively large number of older individuals, coupled to a large change in activity around retirement age). Participation, which was already high amongst the Level 4 and above group, rises over the period by 2.9 percentage points, while Levels 2 and 3 both rise by 3.4 percentage points. Of the overall rise in the activity rate of 5.3 percentage points, it can be shown that 2.2 percentage points of this can be attributed to the improvements in qualifications of individuals over the projection period, compared with 3.1 percentage points attributable to the growth in activity rates within each of the qualification levels.[15]

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[15] This calculation is based upon what the 2010 qualification mix would yield with the 2020 participation rates compared with what the 2020 qualification mix yields with the 2020 participation rates.

Table 5: Overall activity rates by qualification level, 2010 and 2020, all individuals

	2010			2020			2020-2010
	Population	Active population	Activity rate	Population	Active population	Activity rate	
Level 7-8	3,049	2,722	89.3	4,969	4,511	90.8	1.5
Level 4-6	9,765	8,508	87.1	12,441	11,247	90.4	3.3
Level 4+	12,814	11,230	87.6	17,410	15,759	90.5	2.9
Level 3	7,480	5,999	80.2	6,782	5,667	83.6	3.4
Level 2	7,471	6,009	80.4	7,347	6,160	83.8	3.4
Level <2	10,245	6,649	64.9	7,906	5,528	69.9	5.0
Level 1	6,215	4,641	74.7	5,649	4,269	75.6	0.9
No qualifications	4,031	2,009	49.8	2,257	1,259	55.8	6.0
All qualifications	38,010	29,886	78.6	39,445	33,114	83.9	5.3

Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

Figure 4 sets out the projected activity rates for the different levels of qualification in 2020; these rates have been smoothed using a 5 year of age moving average to make the major features clearer. The very large differences in activity rates between individuals who hold a qualification at some level and those with no formal qualifications are immediately apparent. While Level 4-6 never falls below 90 per cent for ages 26 to 57 inclusive, those with no qualifications bumps along at just over 50 per cent for individuals in their early thirties onwards. While Level 3 and higher have very similar, high activity rates for most years of age, there is a clear ranking of Level 2, Level 1 and no qualifications below them.

Figure 4: Economic activity rates (% of population) by qualification level and age; all individuals, 2020
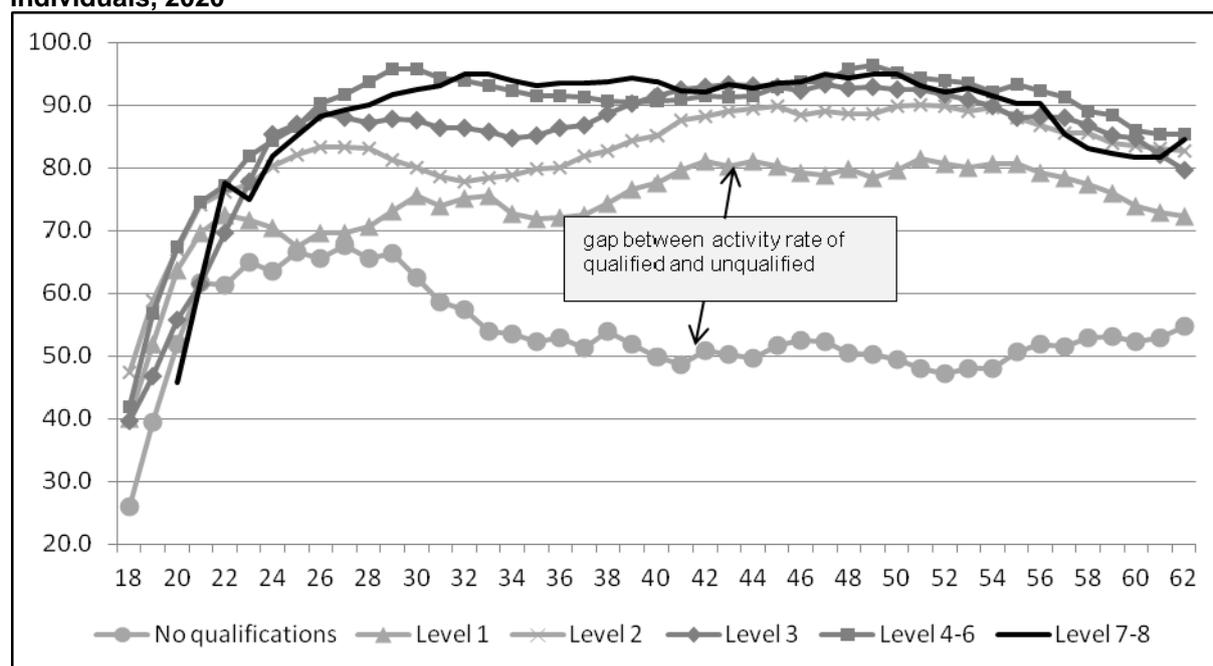
Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications. Five years of age moving average.

Figure 5 explores the main changes between 2010 and 2020 for each of the qualification levels (again, all the results are based upon five years of age moving averages to make the main relationships clearer). The high levels of activity for higher qualification levels can again be seen, both for 2010 and 2020. In the main, the activity rates for 2020 track those of 2010 quite closely for most qualification levels, at least for the main years in which individuals are likely to be working or seeking work, however, there are several interesting differences.

There is tentative evidence that activity rates for the group of individuals with no qualifications is projected to be lower in 2020 than 2010 for ages 33 through to 55. The lower activity rates in 2020 can also be seen amongst those with Level 1 for all ages through to around age 54, although the difference between 2010 and 2020 is modest for each age group. There is also tentative evidence of lower activity rates for Level 2 in 2020, but only up to about age 39.

Two further features are clear from Figure 5. The first is that there is a tendency for activity rates to be lower for younger age groups across all levels of qualification, at least up to Level 4-6. This may well be the result of the tendency of individuals to move to higher and higher qualification levels, where the study for these higher levels generally takes place earlier rather than later. The second additional feature is that activity rates amongst the oldest individuals (e.g. from around the mid-fifties onwards) are consistently higher in 2020 than in 2010 for all qualification levels. For Level 3, the difference between the 2020 and 2010 moving average levels of activity is 19.5 percentage points; the smallest differences are for no qualifications and Level 1 (11.9 and 10.9 percentage points respectively) and largest for the three highest qualification levels (all above 17 percentage points).

What the data appear to be revealing are tendencies for: young people to stay in formal education longer to become more qualified than previously; older individuals to stay on in work for longer, probably because they are healthier, living longer and, therefore able to do so, but perhaps also because, with the increasing move to poorer pension provision, they feel the need to do so.

Figure 5: Changes in activity rates 2010-2020, by level of qualification

a: No qualification
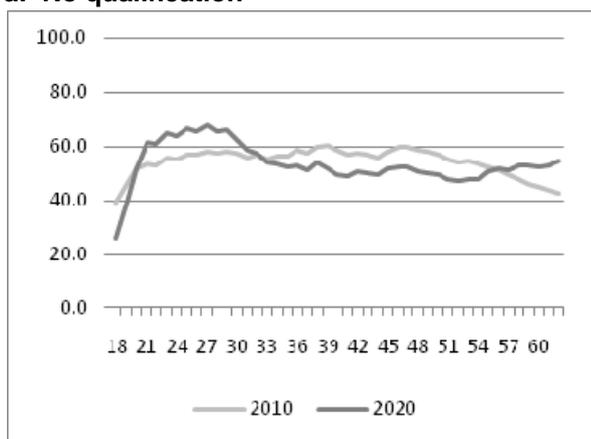
b: Level 1
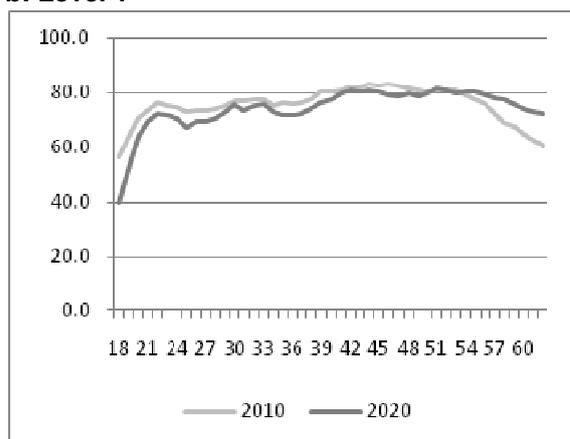
c: Level 2
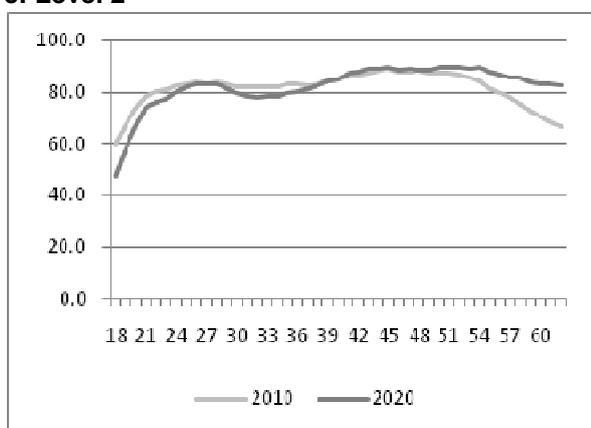
d: Level 3
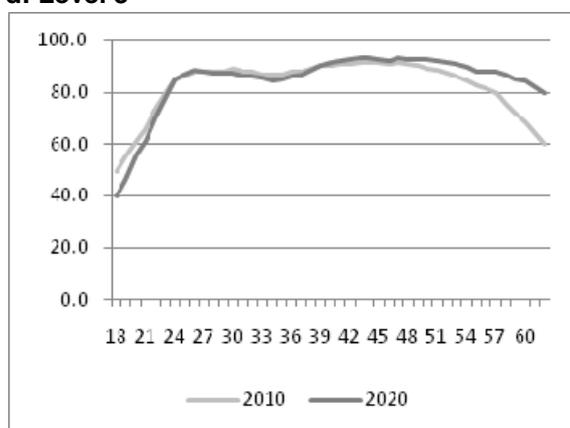
e: Level 4-6
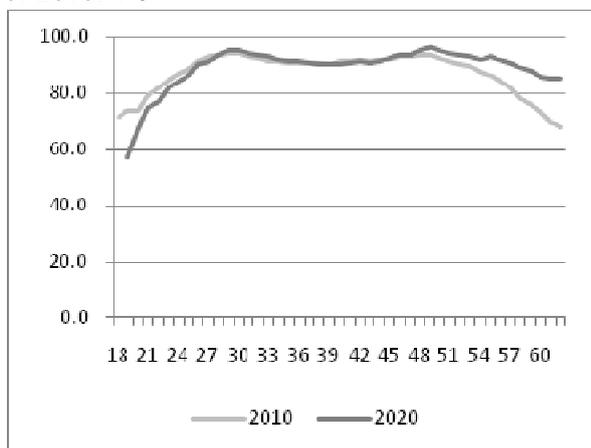
f: Level 7-8
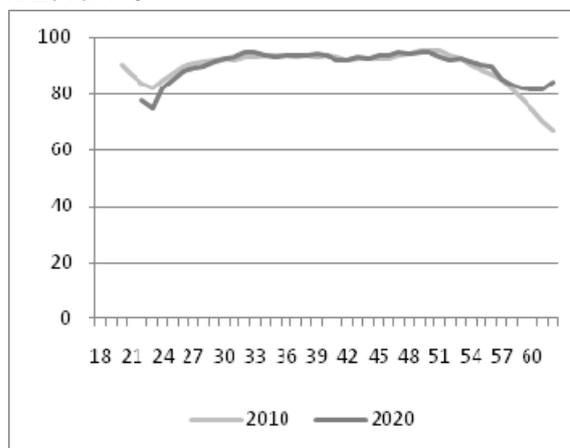
Source: Time series model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

3 Spatial differences in qualifications

3.1 Comparative performance across the four nations

There are important differences in both the mix of qualifications across the four nation states and in the changes projected to take place in each nation's qualifications mix, as shown in Table 6. Given the different absolute sizes of the four nation states it is difficult to make meaningful comparisons between them in terms of the numbers of individuals by level of qualification and, hence, the present discussion is couched in terms of percentages.

Scotland sets off in 2010 with the highest proportion of Level 4 and above of the four nation states (36.7 per cent) and this is projected to rise to 45.7 per cent by 2020. While this rise of 9.0 percentage points means that Scotland continues to have the highest percentage of Level 4 and above, England has a larger percentage increase of 10.8 percentage points. Within the Level 4 and above group, England has a higher proportion of Level 7-8 than Scotland in both years, and the highest percentage point increase of any country at this level from 2010 to 2020. On the other hand, Scotland has a higher percentage of individuals in Level 4-6 in both years (29.5 and 36.5 respectively) than England and the other two countries, but Northern Ireland has the highest projected percentage point increase between 2010 and 2020 (7.5).

Table 6: The four nations, 19-64 year olds

|	England			Scotland			Wales			Northern Ireland			UK		
	2010	2020	Change	2010	2020	Change	2010	2020	Change	2010	2020	Change	2010	2020	Change
Level 7-8	8.1	13.2	5.1	7.2	9.2	2.0	6.6	10.5	3.8	7.9	10.3	2.4	8.0	12.6	4.7
Level 4-6	25.3	31.1	5.7	29.5	36.5	7.0	24.5	30.3	5.8	22.5	30.0	7.5	25.7	31.4	5.9
Level 4+	33.4	44.2	10.8	36.7	45.7	9.0	31.1	40.7	9.6	30.4	40.3	9.9	33.7	44.1	10.6
Level 3	19.5	17.1	-2.4	19.7	17.3	-2.4	19.9	18.2	-1.8	19.0	19.1	0.2	19.7	17.2	-2.3
Level 2	19.8	18.7	-1.2	18.7	17.5	-1.2	21.0	20.3	-0.7	19.7	17.6	-2.1	19.7	18.6	-1.2
Level <2	27.3	20.0	-7.3	25.0	19.5	-5.5	28.0	20.8	-7.2	31.0	22.9	-8.1	27.0	20.1	-7.1
Level 1	17.1	14.7	-2.4	13.8	13.2	-0.6	15.0	12.9	-2.1	12.0	10.1	-1.9	16.4	14.4	-2.2
No Qualifications	10.2	5.3	-4.9	11.2	6.3	-4.8	13.0	7.9	-5.1	18.9	12.8	-6.2	10.6	5.7	-4.9
All qualifications	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0

Source: Four nations model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

All four countries show a slight reduction of the proportion of individuals at Level 2; the smallest reduction (0.7 percentage points) is projected for Wales, which has the highest percentage of Level 2 in both years of any of the four nations. Slightly larger reductions at Level 3 take place in three of the four nation states, with Northern Ireland having a very small projected increase of 0.2 percentage points between 2010 and 2020. Northern Ireland has the largest proportions of individuals at less than Level 2 in both years (31.0 and 22.9 per cent), despite also having the largest projected percentage point fall (8.1). Of this group, England has the largest percentages of individuals at Level 1 (17.1 and 14.7 for 2010 and 2020), as well as the largest percentage point fall for this level (2.4), while Northern Ireland has the highest proportions with no qualifications (18.9 and 12.8), as well as the highest percentage point fall for this group.

3.2 Comparative performance across the nine regions of England

Figure 6a shows the proportion of individuals below Level 2 in 2010 and 2020 across the nine planning regions of England, while Figure 6b translates this information into the corresponding projected changes between these two years. The lowest proportions below Level 2 are to be found in the South East and South West in 2010 (both 24 per cent), but by 2020 the lowest projected level is in the South West (17.4 Per cent). However, the largest percentage point fall is projected to be in the North East (9.8 percentage points). The largest percentage below Level 2 is found in the West Midlands in 2010 (31.8 per cent) and is projected to be so again in 2020 (23.3 per cent). The smallest percentage point fall at below Level 2 is projected to be in the South East (5.7) which is not surprising in view of its already low starting point in 2010.

Figure 6a: Proportion of adults (%) qualified below Level 2 by region, 2010 and 2020

Figure 6b: Change in proportion of adults (%) qualified below Level 2, 2010-2020
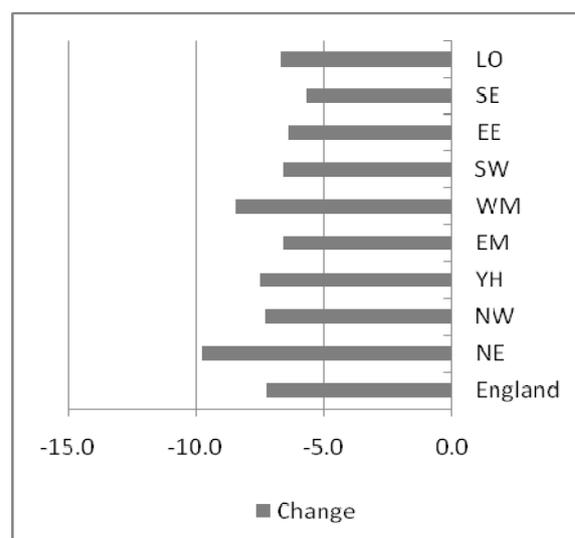
Source: Regional apportionment model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

Key to charts

LO	London	EM	East Midlands
SE	South East	YH	Yorkshire and the Humber
EE	East of England	NW	North West
SW	South West	NE	North East
WM	West Midlands		

Figure 7a and Figure 7b provide the corresponding results at Level 4 and above. London has by far the highest proportion of those at Level 4 and above in 2010 (44.8 per cent), which is projected to rise to 59.1 per cent, again the highest level of any region. By 2020, the only regions projected to be above the England average for this qualification level are London (14.9 percentage points higher than England as a whole) and the South East (just 0.9 percentage points higher than England). The regions with the lowest proportions are the West Midlands (27.7 per cent in 2010) and the North East (36.2 per cent in 2020).   The largest projected improvement is in London (14.3 percentage points) and the smallest is in the North East (8.3 percentage points).

Figure 7a: Proportion of adults (%) qualified at Level 4 and above by region, 2010 and 2020

Figure 7b: Change in proportion of adults (%) qualified at Level 4 and above, 2010-2020
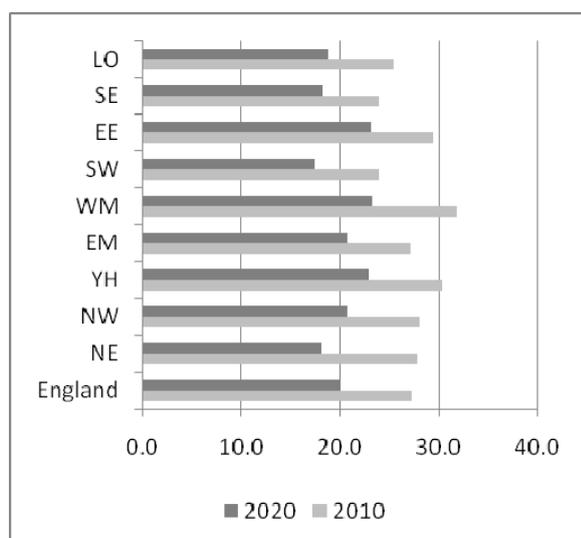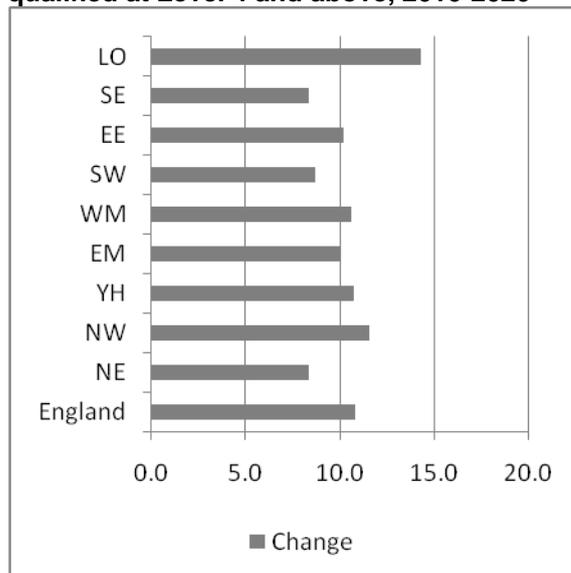

Source: Regional apportionment model.
Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.

Finally, Table 7 sets out the full breakdown of the six levels of qualification examined in the present Report for 2020. It can be seen that London has by far the highest proportion in the Level 7-8 category (20.6 per cent), around 8 percentage points above the next highest region, Eastern England (12.8 per cent). The lowest percentages at this highest level of qualification are to be found in the West Midlands (9.6 per cent, and less than half the level projected for London) and the East Midlands (10.5 per cent).

All of the regions approach the lower limit of 5 per cent for those with no qualifications; the main exception is the West Midlands (8.6 per cent). However, there are more important differences across Level 1, ranging from 12.1 per cent in the North East to 18.3 per cent in Eastern England.

Table 7: Regional differences in qualifications mix (%), 2020

	LO	SE	EE	SW	WM	EM	YH	NW	NE	England
Level 7-8	20.6	12.7	12.8	12.0	9.6	10.5	11.8	11.8	10.7	13.2
Level 4-6	38.5	32.7	27.1	31.7	28.7	30.4	27.0	29.9	25.5	31.1
Level 4+	59.1	45.5	39.9	43.7	38.3	40.9	38.8	41.7	36.2	44.2
Level 3	10.0	18.7	18.2	19.7	17.3	18.7	18.3	17.3	21.6	17.1
Level 2	12.2	18.1	19.3	20.4	21.1	19.8	20.0	20.2	24.0	18.7
Level <2	18.8	18.4	23.3	17.6	23.3	20.7	22.9	20.7	18.1	20.0
Level 1	13.2	13.4	18.3	12.6	14.7	15.7	17.0	15.4	12.1	14.7
No Qualifications	5.6	5.0	5.0	5.0	8.6	5.0	5.9	5.4	6.0	5.3
All qualifications	100.0	100.8	100.7	101.4	100.0	100.0	100.0	100.0	100.0	100.0

Source: Regional apportionment model.
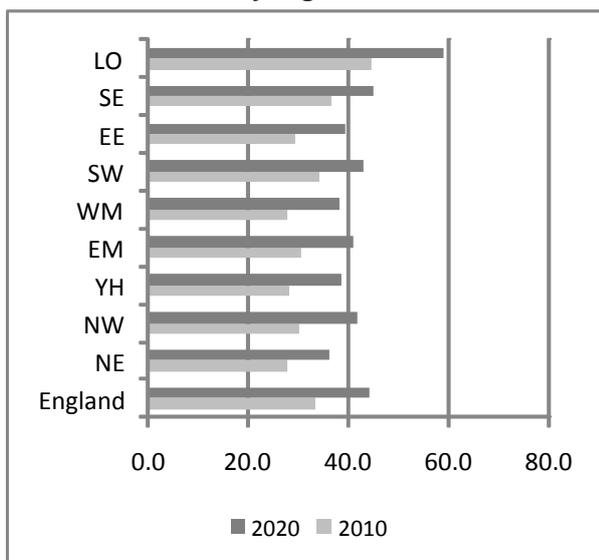*Note: "No qualifications" are all individuals below Level 1 and, therefore, include some individuals with Entry Level qualifications.*

# 4 UK's international comparative qualification performance

4.1 Introduction

The International Skills Model projects the educational attainment of the adult working-age population (aged 25-64) in OECD countries, distinguishing between: *Low skills* (Below Upper Secondary), *Intermediate skills* (Upper Secondary) and *Higher skills* (Tertiary).

These levels correspond broadly with below QCF2 (*Low)*, QCF2-3 (*Intermediate*) and QCF4 and above (*High*)[16].

The model uses OECD data for the most recent 10 years (from 2000 to 2009), to identify trends in changes in educational attainment for the countries for which data are available. Complete data are available for 30 countries, although it is possible to make reasonable estimates for 33 countries.[17] The model uses historical trends to generate stylised international education level projections to 2020 and, more tentatively, to 2025[18].

To provide consistency with the approach used in the *Ambition 2020* analyses of 2009 and 2010 we have included data from the main time series model for the UK and nations outlined in Section 2 above, rather than the OECD results for the UK[19]. An analysis based purely on OECD results is provided at Appendix B.

The projections provide a starting point for assessing whether the likely trajectories indicate that the UK's comparative international adult skills position will improve or deteriorate over the projection period.

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[16] It should be noted that while there is likely to be considerable overlap, at least for the UK, the match is still unlikely to be perfect and, in addition, there are numerous problems with regard to consistency in such international comparisons. See the technical report for further details.

[17] Note that, in recent years, Japan does not distinguish between Below Upper Secondary and Upper Secondary and only provides the total for the two levels. The separation of the two levels, based on earlier trends has become increasingly tenuous as time has gone by and the results for Japan, other than at the *Tertiary* level, should be treated with considerable caution.

[18] The methodology is set out in Bosworth, D.L. (2012). International Skills Model: Technical Report, 2012. IER. University of Warwick.

[19] Note, however, that the results discussed here differ from those in Section 2 insofar as they relate to individuals aged 25-64, rather than 19-64 as previously, in order to correspond with the age coverage of the OECD data.

Countries are ranked according to their most recent position[20] and in 2020 in terms of:

- The proportion of *Low skills* (lowest to highest)

- The proportion of *Intermediate skills* (highest to lowest); and

- The proportion of *High skills* (highest to lowest).

In general, given that productivity and earnings are positively linked to educational attainment, there is a general tendency to think in terms of a small proportion of *Low skills* (relative to *Intermediate* and *High skills*) and large proportion of *High skills* (relative to *Low* and *Intermediate skills*) as being "good". [21]

As is clear from the following tables, relatively small differences in proportions (% qualified) can have quite a major impact on a country's ranking against any of the three indicators.

4.2   Current levels of qualifications and recent progress

This section discusses the UK's current position, based upon the most recent data – see Table 8 – and discusses how this differs from the then current position reported in *Ambition 2020: The 2010 Report[22]*.

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[20] Data for the UK and nations is taken from the main time series and four nations models which draw on Labour Force Survey data for 2010. Data for the other 32 countries is taken from OECD data for 2009. In the previous *Ambition 2020* report data for the UK and nations relates to 2009 whilst OECD data for other countries relates to 2007.

[21] While, for simplicity, this is the interpretation adopted below, in practice, whether changes in the three proportions should be said to be "good" or "bad" may depend on the different countries' strategies for growth and other dimensions of well-being, which may require a more complex outcome in terms of the proportions of individuals at different education levels.

[22] UK Commission (2010). *Ambition 2020: World Class Skills and Jobs for the UK*. The 2010 Report. UK Commission for Employment and Skills.

Table 8: Current international skills position

Low skills (Below upper secondary)			Intermediate skills (Upper secondary)			High skills (Tertiary)		
Country	% Qualified	Rank	Country	% Qualified	Rank	Country	% Qualified	Rank
Japan	8.4	1	Czech Republic	75.9	1	Canada	49.5	1
Czech Republic	8.6	2	Slovak Republic	75.2	2	*Israel*	44.9	2
Slovak Republic	9.1	3	Poland	66.8	3	Japan	43.8	3
Estonia	11.1	4	Austria	62.8	4	United States	41.2	4
United States	11.4	5	Hungary	60.7	5	New Zealand	40.0	5
Poland	12.0	6	*Slovenia*	60.0	6	Korea	38.8	6
Canada	12.4	7	Germany	59.1	7	**Scotland**	**37.8**	**n/a**
Switzerland	13.1	8	*Estonia*	53.0	8	Finland	37.3	7
Sweden	14.2	9	Sweden	52.7	9	Australia	36.9	8
Germany	14.5	10	Switzerland	51.7	10	Norway	36.7	9
Slovenia	16.7	11	Japan	47.8	11	*Estonia*	36.0	10
Finland	18.0	12	**EU21 average**	**47.7**	**n/a**	Ireland	35.9	11
Austria	18.1	13	United States	47.4	12	Switzerland	35.2	12
Israel	18.2	14	Finland	44.7	13	**England**	**35.1**	**n/a**
Norway	19.3	15	**OECD average**	**44.1**	**n/a**	**United Kingdom**	**35.0**	**13**
Hungary	19.4	16	Norway	44.0	14	Denmark	34.3	14
Korea	20.1	17	Denmark	42.0	15	Belgium	33.4	15
Denmark	23.7	18	Korea	41.2	16	Sweden	33.0	16
EU21 average	**25.3**	**n/a**	France	41.1	17	**Wales**	**33.0**	**n/a**
Scotland	**25.8**	**n/a**	Netherlands	40.6	18	Netherlands	32.8	17
Netherlands	26.6	19	Italy	39.8	19	Iceland	32.8	18
OECD average	**26.7**	**n/a**	**Wales**	**38.6**	**n/a**	**Northern Ireland**	**32.7**	**n/a**
New Zealand	27.8	20	Luxembourg	38.6	20	Luxembourg	31.0	19
United Kingdom	**28.0**	**21**	Canada	38.1	21	**OECD average**	**30.0**	**n/a**
England	**28.1**	**n/a**	Greece	37.7	22	Spain	29.7	20
Wales	**28.4**	**n/a**	Belgium	37.2	23	France	28.9	21
Ireland	28.5	22	*Israel*	36.9	24	**EU21 average**	**27.0**	**n/a**
Australia	29.0	23	**England**	**36.8**	**n/a**	Germany	26.4	22
Belgium	29.4	24	**United Kingdom**	**36.8**	**25**	Greece	23.5	23
France	30.0	25	**Scotland**	**36.4**	**n/a**	*Slovenia*	23.3	24
Luxembourg	30.3	26	Ireland	35.7	26	Poland	21.2	25
Northern Ireland	**31.9**	**n/a**	**Northern Ireland**	**35.4**	**n/a**	Hungary	19.9	26
Iceland	34.1	27	Australia	34.1	27	Austria	19.0	27
Greece	38.8	28	Iceland	33.1	28	Mexico	15.9	28
Italy	45.7	29	New Zealand	32.2	29	Slovak Republic	15.8	29
Spain	48.2	30	Spain	22.1	30	Czech Republic	15.5	30
Mexico	64.8	31	Mexico	19.3	31	Portugal	14.7	31
Turkey	68.9	32	Turkey	18.3	32	Italy	14.5	32
Portugal	70.1	33	Portugal	15.2	33	Turkey	12.7	33

Source: OECD Education Database and LFS, ONS
Note: Distribution of the 25–64 year old population by highest level of education attained. Excludes Chile.

Table 9: International skills projections 2020

Low skills (Below upper secondary)			Intermediate skills (Upper secondary)			High skills (Tertiary)		
Country	% Qualified	Rank	Country	% Qualified	Rank	Country	% Qualified	Rank
Canada	5.0	1	Czech Republic	75.7	1	Canada	60.6	1
Czech Republic	5.0	1	Slovak Republic	73.4	2	New Zealand	58.9	2
Hungary	5.0	1	Hungary	67.9	3	Korea	56.2	3
Ireland	5.0	1	Poland	63.0	4	Ireland	52.8	4
Japan	5.0	1	Austria	62.4	5	Japan	52.3	5
Korea	5.0	1	Germany	60.5	6	Israel	47.7	6
Norway	5.0	1	Slovenia	56.7	7	Switzerland	47.3	7
Poland	5.0	1	**EU21 average**	**51.8**	**n/a**	**Scotland**	**47.1**	**n/a**
Slovak Republic	5.0	1	Sweden	51.1	8	United States	46.8	8
Finland	5.7	10	Finland	50.2	9	Australia	46.7	9
Sweden	7.1	11	Norway	49.6	10	Luxembourg	46.6	10
Slovenia	7.2	12	Italy	49.0	11	**England**	**46.1**	**n/a**
Estonia	9.8	13	Greece	46.6	12	**United Kingdom**	**46.1**	**11**
Switzerland	10.1	14	Estonia	46.6	13	Netherlands	45.8	12
United States	10.1	15	**OECD average**	**45.2**	**n/a**	Norway	45.4	13
Germany	10.9	16	Belgium	45.0	14	**Wales**	**44.9**	**n/a**
Luxembourg	11.8	17	Japan	43.1	15	Finland	44.1	14
EU21 average	**11.9**	**n/a**	United States	43.1	16	Estonia	43.6	15
Austria	12.0	18	France	42.9	17	Iceland	43.6	16
Australia	13.1	19	Switzerland	42.6	18	**Northern Ireland**	**43.1**	**n/a**
Belgium	13.6	20	Ireland	42.3	19	Denmark	43.0	17
Netherlands	13.7	21	Luxembourg	41.6	20	Sweden	41.8	18
OECD average	**15.4**	**n/a**	Netherlands	40.4	21	Belgium	41.4	19
New Zealand	16.2	22	Australia	40.2	22	Spain	39.6	20
Israel	17.6	23	Korea	38.8	23	**OECD average**	**39.3**	**n/a**
Wales	**18.0**	**n/a**	Denmark	38.0	24	**EU21 average**	**36.4**	**n/a**
Scotland	**18.8**	**n/a**	**Wales**	**37.1**	**n/a**	Slovenia	36.0	21
Denmark	19.0	24	**Northern Ireland**	**35.2**	**n/a**	France	35.7	22
United Kingdom	**19.2**	**25**	Iceland	34.9	25	Poland	32.2	23
England	**19.2**	**n/a**	**United Kingdom**	**34.7**	**26**	Greece	32.1	24
Greece	21.2	26	Israel	34.7	27	Germany	28.6	25
France	21.3	27	**England**	**34.6**	**n/a**	Hungary	27.1	26
Iceland	21.5	28	Canada	34.4	28	Austria	25.7	27
Northern Ireland	**21.7**	**n/a**	**Scotland**	**34.1**	**n/a**	Portugal	23.0	28
Spain	28.5	29	Spain	31.9	29	Slovak Republic	21.8	29
Italy	29.6	30	Mexico	26.4	30	Italy	21.4	30
Portugal	56.4	31	New Zealand	25.0	31	Czech Republic	19.5	31
Mexico	58.4	32	Turkey	23.7	32	Turkey	17.7	32
Turkey	58.6	33	Portugal	20.6	33	Mexico	15.2	33

Source: International time series educational model, UK time series model, four nations apportionment model
Note: Distribution of the 25–64 year old population by highest level of education attained. Excludes Chile.

The UK's current ranking of 21st for *Low skills* is slightly below the ranking of 19th in the previous *Ambition 2020* report. However, a number of things have changed: France has slipped below the UK, while three new countries[23] are now included (Estonia, Slovenia and Israel), which all report smaller percentages of *Low skills* than the UK. Thus, **in terms of the previous set of countries, the UK would have moved up one place for *Low skills*.**

The UK's current ranking for *Intermediate skills* is also lower than in the last report, placed 25th rather than 21st. Again, the principal reason lies in the addition of the three new countries (Estonia, Slovenia and Israel), all of which have higher proportions skilled at this level than the UK. In addition, Belgium has moved from just behind the UK to just in front. Thus, **in terms of the previous set of countries, the UK has moved down one place with regard to *Intermediate skills*.**

Finally, in terms of the change in ranking for *High skills*, the UK has fallen from 12th position to 13th, as a result of the entry of Israel and Estonia, both with greater proportions of *High level skills* than the UK. In addition, Switzerland has overtaken the UK. However, the UK has moved ahead of two countries in the previous results, and now lies above Denmark and Belgium. **In terms of the previous set of countries, the UK has therefore moved up one place for *High skills*.**

4.3   Projections of attainment in 2020 (and beyond)

In terms of *Low skills*, the UK is currently ranked 21st, but is projected to be 25th by 2020 (compare Table 8 and Table 9). There is no issue now that other countries enter the rankings; the same 33 countries appear in 2020. Thus, **the projections suggest that the UK's position on *Low skills* worsens relatively as it falls behind Ireland, Luxembourg, Australia and Belgium.**

The UK's position with respect to *Intermediate skills* falls marginally from 25th to 26th. While the UK has overtaken Israel and Canada, lying marginally above them in 2020, **the UK itself is projected to be overtaken by Ireland, Australia and Iceland.**

Finally, the UK's ranking in terms of *High skills* improves, moving from 13th to 11th. While Norway, Finland and Estonia fall below the UK during the period to 2020, **Luxembourg moves marginally ahead.**

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[23] A fourth country, Chile, has also been included in the OECD data set, but is excluded from the present discussion as it only has information for two years.

4.4   UK and four nations

In view of the approach taken (see Appendix A) the projected results and rankings presented here for the four nations should be treated as purely indicative[24].

Table 9 suggests that the 2020 results for England are almost identical to those for the UK, which is not too surprising given the relatively small populations of Scotland, Wales and Northern Ireland compared to England, as well as the fact that, while there are important differences in the education and training systems, there are also a number of similarities. However, a very small difference between the UK and England in the proportion of *Intermediate skills* results in a one place lower rank for England than the UK.

Taking the remainder of the 2020 results by level of qualification, Table 9 indicates that the one percentage point lower proportion of *Low skills* in Wales than the UK as a whole only changes its projected international ranking *vis-a-vis* countries outside of the UK by one place, but the three percentage point higher value in Northern Ireland places its ranking downwards by four places.

Scotland has a one percentage point lower proportion of *Intermediate skills* than the UK as a whole, associated with a ranking that is three places lower. Wales' two percentage point difference gives it a ranking that is one place higher than the UK. However, Northern Ireland's very slightly higher percentage point score for *Intermediate skills* still puts it one rank higher than the UK (the scores are identical when rounded to a whole number).

In terms of *High level skills*, the rankings are fairly sensitive to variations in the proportions: Scotland exhibits a projected one percentage point higher value than the UK, linked to a three place higher rank; Wales and Northern Ireland both have lower proportions of *High level skills* than the UK (one and two percentage points lower respectively), and both are associated with lower ranks than the UK (13th and 16th respectively).

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[24] In particular, it should be noted that the historic Labour Force Survey estimates for the nations, upon which the projections are based, rely on relatively small sample sizes; nonetheless they are considered to be adequate for the present purpose.

5   Conclusions

Principal projections[25]

The focus of the present report has been on the levels of skills as proxied by formal qualifications, both historically and in terms of projections to 2020.

The trends in qualifications over the last ten years have been strongly in favour of the highest qualification levels (QCF4 and above) and away from the lowest qualification levels (less than QCF2). The number of individuals with Level 4+ rose by just under 4.5 million (almost a 10 percentage point rise), while those below Level 2 fell by nearly 3 million (about a 10 percentage point reduction).

These historical trends are largely replicated in the projections to 2020 and beyond. Over the period 2010 to 2020, the proportion qualified to Level 4+ is projected to rise from 33.7 to 44.1 per cent (a 10.4 percentage point increase, associated with an additional 4.7 million individuals). Over the same period, the proportion below Level 2 is projected to fall from 27.0 to 20.0 per cent (a 6.9 percentage point fall, associated with about 2.3 million fewer people at this level).

Of course, these are linear projections which indicate what is likely to happen if recent trends continue into the future. The report shows that, as the ten year historical period has been moved over the sequence of projections made for the UK Commission, the positive effect on the most highly qualified and negative effects on the least qualified have increased over time. Looking to the future, the impacts of current and future government policies, for example, the effects of the changes to the payment of tuition fees in higher education, will become clearer over the next few years, as the new system becomes bedded in. This may affect future participation rates in education.

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[25] Unless otherwise indicated all numbers or proportions discussed below relate to 19-64 year olds.

Impact of migration

The model allows for the effects of migration on the qualification mix (which has become an important policy issue in recent years), although the results should be treated with some caution given the problems of measuring the qualifications of migrants. Comparing the results allowing for migration with a "neutral" base-line case (i.e. that immigrants have the same skill mix as emigrants) shows that the main effect of net migration is to raise the proportions of the population with lower than Level 2 and Level 4+, but lower them amongst Levels 2 and 3. None of the percentage point changes in qualifications mix are large (the reduction in Level 3 by just over a couple of percentage points is the largest impact of migration).

Retirement age

A further issue concerns the impact of increases in the age of retirement; an area which again should be treated with caution because of data issues. Based purely upon the demographics of the process, an increase in the age of retirement seems certain to increase the proportion of lower qualified individuals and lower the proportion of individuals with higher qualifications because, on balance, younger individuals tend to be more qualified than older individuals. The results show that a much more complex picture emerges, with a tendency for the lower qualification levels to decline (particularly Level 2) and the higher levels to rise (Levels 3 and 4-6). There are a number of factors potentially at play, for example, some older individuals continue to obtain qualifications and there are differences in mortality rates across different qualification levels, which tend to favour those in the higher qualified groups.

Gender

With respect to gender, it seems important to map the differences between the male and female outcomes. There are important gender differences both in the projected changes and in the levels, both in 2010 and 2020. Females start with a higher proportion of Level 4+ in 2010 than males (34.8 compared with 32.5 per cent) and are projected to have a larger increase at this level (11.1 compared with 9.2 percentage points). While females start from a higher percentage of below Level 2 (28.3 per cent in 2010) compared with males (25.9 per cent), they have a much larger projected decline (9.7 compared with 2.6 percentage points), which results in a lower proportion of women at this level than men by 2020.

Activity rates

The main time series qualification model also makes projections of activity rates, broken down by level of qualification. The largest increase in activity rates over the period to 2020 is projected to be amongst those with no qualification (6 percentage points). Participation, which was already high amongst the Level 4+ group, rises by a further 2.9 percentage points, while Levels 2 and 3 both rise by 3.4 percentage points. The overall activity rate for all qualification levels is projected to be 83.9 per cent in 2020, a rise of 5.3 percentage points, of which 2.2 percentage points arises from improvements in the qualification mix (as the more highly qualified have higher activity rates), while 3.1 percentage points comes from the growth in activity rates within each of the qualification levels.

Spatial differences in the qualifications mix

The four nations

There are important differences in both the current mix of qualifications across the four nation states and in the changes projected to take place to each nation's qualifications mix. In terms of the starting point, Scotland sets off in 2010 with the highest proportion of Level 4 and above of the four nation states (36.7 per cent) compared with Northern Ireland, which has the lowest proportion (30.4 per cent). While England has the largest projected increase in the proportion at Level 4+ (10.8 percentage points), this is not sufficient to overtake Scotland by 2020 (which has 45.7 per cent in 2020, compared with England's 44.2). The projections indicate that Northern Ireland will still have the lowest projected proportion by 2020 (40.3 per cent), but this is now very close to Wales' figure (40.7 per cent).

Scotland sets off with the lowest proportion of individuals below Level 2 (25.0 per cent in 2010) and Northern Ireland with the highest proportion (31.0 per cent). Despite having the largest projected decline in the proportion below Level 2 (8.1 percentage points), Northern Ireland is still expected to have the largest proportion at this level in 2020 (22.9 per cent).

The nine planning regions of England

The lowest proportions of people qualified below Level 2 in 2010 are to be found in the South East and South West (both 24 per cent), while the South West has the lowest proportion of any region by 2020 (17.4 Per cent). The largest percentage below Level 2 in 2010 is found in the West Midlands (31.8 per cent), and is projected to be so again in 2020 (23.3 per cent). London has by far the highest proportion of those at Level 4+ in 2010 (44.8 per cent), which is projected to rise to 59.1 per cent by 2020; again the highest level of any region. London also has by far the highest proportion in the Level 7-8 category (20.6 per cent), around 7 percentage points above the next highest region, Eastern England (12.8 per cent). The region with the lowest Level 4+ proportion in 2010 is the West Midlands (27.7 per cent) and, in 2020, the North East (36.2 per cent).

UK's international comparative qualification performance

Principal results

The UK does not perform very well in terms of its educational attainment rankings both in terms of its international position in 2009 and in terms of its trends in the years up to 2009. It is perhaps not surprising, therefore, that the projections to 2020 and beyond also do not paint a favourable picture of the UK's international ranking. The UK exhibits its strongest relative performance in respect of *High level* attainment but sits well down the rankings for *Low skills* and *Intermediate skills* attainment.

In terms of *Low skills*, the UK is currently ranked 21st (i.e. there were 20 other countries in OECD with a smaller proportion of people qualified at this level), but is projected to be 25th by 2020.

With respect to *Intermediate skills,* attainment the UK is ranked 25th currently and is projected to fall to 26th place by 2020.

Finally, the UK's ranking in terms of the proportion of individuals with *High level* qualifications improves through to 2020, moving from 13th to 11th.

What the present analysis cannot show is where each country actually will be by 2020 or 2025. However, the results act as a potential stimulus, of different magnitudes in different countries, for policy changes that will affect the future rankings. The changes in rank are relatively small for the UK, unlike those of a number of other countries. It is hard to believe that a number of the countries showing deteriorations in their rankings will not react to slow or to reverse the adverse movements. However, the response may be more nuanced than this argument suggests. There are obviously costs in reducing the proportion in the *Low skills* category; these will include the foregone income during the extra years of education, but may also include rising marginal costs of educating increasingly "difficult to teach" young people. In addition, a strong economy may not require everyone to be educated to *Intermediate level* or higher, it may still have jobs for individuals with lower education and skill levels.

Tentative comparisons of the four nation rankings

Taking the results of the four nation states at face value, rankings have been constructed against the other 32 countries for which OECD data exist (i.e. excluding the UK and the four nation states). The projected results for each level of qualification for 2020 are as follows:

- The variation in the proportion of individuals with *Low skills* is relatively small across three of the four nation states and their rankings would be the same or almost the same as for the UK as a whole (24th or 25th). Wales is projected to have the lowest proportion of individuals qualified at this level by 2020, around one percentage points lower than the UK average (ranked 24th compared with 25th). Northern Ireland, with a three percentage point higher proportion of *Low skills*, differs significantly in rank (29th).

- Scotland has a one percentage point lower proportion of *Intermediate skills* than the UK as a whole, associated with a rank two places lower (28th compared with 26th=). Wales' two percentage point higher value of *Intermediate skills* improves its rank by one place *vis-a-vis* the UK as a whole (25th compared with 26th=). Northern Ireland has a marginally higher proportion of people qualified at *Intermediate level* than the UK, meaning that its rank is one higher (25th compared with 26th=).

- In terms of *High level skills*, Scotland exhibits a one percentage point higher value than the UK, linked to a three place improvement in rank (8th compared with 11th); Wales and Northern Ireland both have lower proportions of *High level skills* than the UK (45 and 43 per cent respectively), and are ranked 13th and 16th respectively.

Appendix A: The models used to project the profile of qualifications

A.1 Introduction

The present Report draws upon four models of qualifications supply. Three of these models are inter-related:

- the main "time series" qualifications model[26];

- the four nations "apportionment model"[27];

- The nine regions "apportionment model"[28].

There is also a further stand-alone model:

- The international time series education model[29].

There is a group of other models used to inform the work, including educational transition models (pseudo-cohort models) and stock-flow qualification models. The present discussion provides a brief introduction to the four models used directly in the present Report.

A.2 Main "time series" qualifications model

This model focuses on **projecting the qualification distribution across all adults in the UK population through to the year 2020** (and to 2025). It is a linear time series model, which was developed by HM Treasury for the Leitch Review of long term skills needs[30]. This model uses historical Labour Force Survey (LFS) data, broken down by gender and year of age (for those of working age) for six qualification levels[31]. Individuals are allocated to a particular qualification level according to the highest qualification they hold. The detailed procedures used to estimate the proportion of the population qualified at different levels using LFS data are set out in the technical report for the main time series model.

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[26] Bosworth, D.L. (2012). UK Qualifications Projections – "Time Series" Model. Technical Report. (forthcoming, draft available from the author).

[27] Bosworth, D. and G. Kik (2011). England, Scotland, Wales and Northern Ireland Projections: Apportionment Model. Technical Report. March. (Unpublished, a copy can be obtained from the author).

[28] Bosworth, D. and G. Kik (2011). Regional Projections. Technical Report. March. (Unpublished, a copy can be obtained from the author).

[29] Bosworth, D.L. (2012). International Education Model, 2012. Technical Report. January. (forthcoming, draft available from the author).

[30] *Prosperity for all in the Global Economy - World Class Skills.* (see fn. 1).

[31] Qualification and Credit Framework levels QCF1, QCF2, QCF3, QCF4-6 and QCF7-8, plus those with no qualifications (which correspond broadly with the National Qualifications Framework levels 1-5, plus no qualifications). See Annex A.

Thus, as an example, the model projects the proportion of males aged 16 that have no qualifications, using the trends in such males over the period 2001 to 2010. It repeats this exercise for males of each age, from 16 to 64, and for each qualification level (no qualifications, QCF1, …, QCF3, QCF4-6 and QCF7-8). It then repeats this exercise for females and for males and females combined. The expectation is that the weighted sum of the projections for males and females should take a similar value to the projections for all individuals combined.

Various constraints are placed on the projections, for example, that:

• qualification proportions always sum to 100;

• qualification numbers always sum to the ONS 2010-based population projections across the different levels of the QCF.

• each qualification proportion always lies between 0 and 100;

• the combined proportion of those with no qualifications and QCF1 has a lower limit of five per cent.

There are several "special groups" that form a focus within the modelling process, in particular:

• those retiring and moving outside the labour force;

• migrants and, in particular, the net difference in qualifications between immigrants and emigrants.

The retirement group is both interesting and challenging in terms of the modelling process. The LFS does not collect qualifications data from individuals over "retirement age" if they are not in employment[32]. Clearly, the changes to the earliest age of retirement for increasing numbers of people and the proposed changes for the future make it important to say something about the qualifications of older individuals who, historically, would have moved out of the labour force but, by 2020 and 2025 will be kept within it for longer periods. Given the lack of LFS data, this is done by modelling the changing qualification mix of individuals as they age from 50 to 59 for females and 60 to 64 for males, in order to say what the qualification mix of 60-69 year old females and 65-69 year old males looks like. The estimated qualifications mix for older individuals is projected forward in the same way as for younger.

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[32] Since 2008 the Labour Force Survey has extended its definition of working age, in respect of qualification variables, to include all individuals aged 16-69. However, since the projections draw on 10 years of historic data (2001-2010 in the current iteration) it is not yet possible to take advantage of this development.

The effects of migration became a major issue over the last 15 to 20 years. The work attempts to model immigrant and emigrant groups separately from the main, non-migratory population of the UK. Immigrants are proxied by the group of individuals in the LFS who were not resident in the UK one year earlier. There are at least two major problems with this group: first, while immigrant numbers can be quite large (e.g. circa 600,000), sample sizes in the LFS are quite small, especially when broken down by gender, year of age and qualification level; second, it is extremely difficult to allocate many foreign qualifications to the different levels of the QCF. Similarly, there is no direct survey information for the emigrant group in the LFS, so the assumption is made that this group has the same qualifications mix as the population as a whole.

Thus, the main time series qualification model proceeds by subtracting out cumulative net migration from the UK population as a whole, before dealing separately with the qualifications of immigrants, emigrants and the non-migratory population. The historical trends in qualification mix for those not resident in the UK one year ago and for the UK population as a whole (proxying both the emigrant and non-migratory groups) are separately projected forward to 2020 (and 2025). These are translated into numbers of immigrants, emigrants and non-migrants, by level of qualification, from which the net migration numbers can be isolated by level of qualification. Net migration by qualification (year of age and gender) are then cumulated and added back to the projections of the non-migrant population. All figures are constrained to sum to the ONS 2010-based projections.

A.3   Four nations apportionment model

This model takes the UK results and disaggregates them for England, Scotland, Northern Ireland and Wales. Thus, the basic inputs are the separate LFS data on qualification levels according to the six levels of the QCF (defined in A.2 above), broken down by gender and year of age (16 to 64). In practice, the data by year of age are sparse for the three less populous nation states and, most particularly for Wales and Northern Ireland.[33] The approach adopted is to look at the proportions of the UK individuals at each qualification level held by each nation state. For example, the proportions of those with no qualifications who reside in Northern Ireland or in England or the proportions of those at QCF3 who are located in Wales or in Scotland.

Historical data are set up in this way for all qualification levels, for males, females and all individuals and separately for ages 16-64, 19-64 and 25-64, rather than by year of age (thereby, avoiding small sample size problems). The proportions of individuals to be found in each of the four nation states tend to be relatively stable and to change slowly with time. The historical proportions over the period 2001-2010 are used to project forwards to 2020 and 2025. Thus, given the numbers of individuals in the UK at each qualification level, it is possible to divide them between the four nation states using the projected proportions. Then the numbers of individuals by qualification level are used to construct the qualification mix within each of the four nation states for the three broad age bands outlined above.

A.4   Nine regions (of England) apportionment model

It is not necessary to dwell too long on the apportionment model that provides the projections for the nine planning regions within England, as this model is identical in its approach to that of the four nation state apportionment model described in Section A.3. In brief, the input to the model is the outcome for England from Section A.3, notably the numbers of individuals by qualification level over the projection period to 2020 and beyond that reside in England. This is combined with historical data on the proportion of each qualification level held within each of the regions (e.g. what proportions of those with no qualifications reside in Yorkshire and Humberside or in the South East). These proportions are projected forward and used to allocate the numbers of individuals in England at each qualification level between the nine planning regions. The resulting numbers are then used to construct the distribution of qualifications across the six QCF groups (see A.2 above) in each of the regions.

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[33] Otherwise, it would be possible to develop four time series models equivalent to the one described in A.2, that project the proportions of each qualification level forward for each country in turn and, then, to adjust the resulting proportions for each country so that the weighted sum are equal to the corresponding overall figure for the UK.

A.5 International time series educational model

The international time series model takes the data from the OECD Education Database (formerly Education at a Glance)[34] as the principal input. These data are the proportions of the population aged 25 to 64 with educational attainments at *Low* (Below Upper Secondary), *Intermediate* (Upper Secondary) and *High (*Tertiary) levels.[35] The data were revised to give a much more consistent historical series a couple of years ago; since then, however, a small number of problems appear to have crept back in.

The modelling simply takes the most recent ten years of data (at the time of writing 2000 to 2009) and fits linear trends which are then used to project forward the proportions of individuals at the three education levels through to 2020 and beyond. All projections are constrained so they sum to 100 for each country.

A number of countries pose particular problems; for example, Japan does not distinguish the separate results for *Low* and *Intermediate* levels (i.e.. they only report the combined *results for Below Upper Secondary / Upper Secondary* alongside the *Tertiary* group). A number of countries do not have complete time series data for 2000 to 2009. For example, an extreme case is Chile, which first participated in the Education Database in 2009 and only provided two years of data. While it is a fairly easy decision to omit Chile from the comparator group because it is not possible to make sensible projections from just two observations, other decisions on inclusion and exclusion are more difficult. As a rule of thumb, as many countries as possible have been included, even if this means adjustments to the historical data have to be made or somewhat shorter historical periods of data have to be utilised.

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[34] http://www.oecd.org/document/2/0,3746,en_2649_39263238_48634114_1_1_1_1,00.html
[35] These levels correspond broadly with below QCF2, QCF2-3 and QCF4 and above respectively. However, while there is likely to be considerable overlap, at least for the UK, the match is still unlikely to be perfect and, in addition, there are numerous problems with regard to consistency in such international comparisons.

Appendix B: Comparisons using international skills model

As previously noted, the *Ambition 2020* reports for 2009 and 2010 **used the main time series model projections for the UK and nations**, rather than the OECD results in respect of the current international skills position of the UK and the international time series model for the projected position for 2020. To provide consistency over time we have retained this approach as the basis of the main international results presented in this report (see chapter 4).

It is important to bear in mind that the two models (the main time series and the international model) undertake projections in somewhat different ways using different data sources, raising questions of whether like is being compared with like.

For the sake of completeness we present here a set of results based solely on the international model, which is derived from OECD data (see Appendix A for details of the international model).

Current international skills position

Looking at the current position first of all the UK secures a higher ranking under the international model (which uses OECD data for 2009) than in the main results for two out of the three qualification indicators.

- The UK is ranked 19th in terms of *Low skills* (see Table 11) compared with a ranking of 21st under the main results (see Table 8).

- With regard to *Intermediate skill*, the UK is ranked 25th based on the international model and also occupies 25th place in the main results.

- Finally, Table 11 shows that the UK is ranked 9th at *High* level using the international model and 13th in the main results (see Table 8).

Projections to 2020

In terms of *Low skills*, the UK was ranked 19th in 2009, but is projected to be 23rd by 2020 (compare Table 11 and Table 12). The projections suggest that the UK's position worsens relatively. While the UK moves marginally ahead of both Israel and Denmark, the UK falls behind Luxembourg, Australia, Belgium, the Netherlands and New Zealand.

The UK's position with respect to *Intermediate skills* remains unchanged, ranked 25th in both years. While the UK has overtaken Israel and Canada in terms of the proportion of US, lying marginally above them in 2020, the UK at same time has been overtaken by Ireland and Australia.

Finally, the UK's ranking in terms of *High level* qualifications worsens very slightly from 2009 through to 2020, moving from 9th to 11th. While Finland falls below the UK during the period to 2020, Luxembourg and Switzerland move marginally ahead and Ireland more substantially ahead.

Looking to 2025, there are still changes in the rankings. In particular, the UK maintains its 23rd rank with respect to *Low skills*, improves on its *Intermediate* rank slightly (25th to 23rd) and improves its *High level skills* rank from 11th to 8th.

Table 10 provides a comparison of where the UK ranks based on the simple time series international model and where it ranks when using the results of the more complex, main qualifications time series model reported in section 4. It can be seen that in the main qualifications model, the proportion of *Low skills* is about 2 percentage points higher than in the international model, giving a slightly less favourable rank (25th compared with 23rd). Both *Intermediate* and *High level skills* exhibit slightly lower proportions in the main time series model (approximately two percentage points and one percentage point lower respectively). This lowers the rank of *Intermediate* from 25th to 26th equal, but has no effect on the rank for *High level skills*.

Table 10: UK rankings: international and main time series models, 2020, 25-64

Education / qualification level	International model		Main time series model	
	%	Rank	%	Rank
Low (Below Upper secondary)	17	23	19	25
Intermediate (Upper secondary)	37	25	35	26=
High (Tertiary)	47	11	46	11

Table 11: Current international skills position (UK figure and ranking based on OECD data)

Low skills (Below upper secondary)			*Intermediate skills* (Upper secondary)			*High skills* (Tertiary)		
Country	% Qualified	Rank	Country	% Qualified	Rank	Country	% Qualified	Rank
Japan	8	1	Czech Republic	76	1	Canada	50	1
Czech Republic	9	2	Slovak Republic	75	2	Israel	45	2
Slovak Republic	9	3	Poland	67	3	Japan	44	3
Estonia	11	4	Austria	63	4	United States	41	4
United States	11	5	Hungary	61	5	New Zealand	40	5
Poland	12	6	Slovenia	60	6	Korea	39	6
Canada	12	7	Germany	59	7	Finland	37	7
Switzerland	13	8	Estonia	53	8	Australia	37	8
Sweden	14	9	Sweden	53	9	United Kingdom	37	9
Germany	15	10	Switzerland	52	10	Norway	37	10
Slovenia	17	11	Japan	48	11	Estonia	36	11
Finland	18	12	**EU21 average**	**48**	**n/a**	Ireland	36	12
Austria	18	13	United States	47	12	Switzerland	35	13
Israel	18	14	Finland	45	13	Denmark	34	14
Norway	19	15	**OECD average**	**44**	**n/a**	Belgium	33	15
Hungary	19	16	Norway	44	14	Sweden	33	16
Korea	20	17	Denmark	42	15	Netherlands	33	17
Denmark	24	18	Korea	41	16	Iceland	33	18
EU21 average	**25**	**n/a**	France	41	17	Luxembourg	31	19
United Kingdom	26	19	Netherlands	41	18	**OECD average**	**30**	**n/a**
OECD average	**27**	**n/a**	Italy	40	19	Spain	30	20
Netherlands	27	20	Luxembourg	39	20	France	29	21
New Zealand	28	21	Canada	38	21	**EU21 average**	**27**	**n/a**
Ireland	28	22	Greece	38	22	Germany	26	22
Australia	29	23	Belgium	37	23	Greece	24	23
Belgium	29	24	Israel	37	24	Slovenia	23	24
France	30	25	United Kingdom	37	25	Poland	21	25
Luxembourg	30	26	Ireland	36	26	Hungary	20	26
Iceland	34	27	Australia	34	27	Austria	19	27
Greece	39	28	Iceland	33	28	Mexico	16	28
Italy	46	29	New Zealand	32	29	Slovak Republic	16	29
Spain	48	30	Spain	22	30	Czech Republic	16	30
Mexico	65	31	Mexico	19	31	Portugal	15	31
Turkey	69	32	Turkey	18	32	Italy	15	32
Portugal	70	33	Portugal	15	33	Turkey	13	33

Excludes Chile (rank 27) Excludes Chile (rank 14) Excludes Chile (rank 23)

Source: OECD Education Database, 2009 data
Note: Distribution of the 25–64 year old population by highest level of education attained.

Table 12: International skills projections 2020 (UK figure and ranking based on international time series model)

Low skills (Below upper secondary)			Intermediate skills (Upper secondary)			High skills (Tertiary)		
Country	% Qualified	Rank	Country	% Qualified	Rank	Country	% Qualified	Rank
Canada	5	1	Czech Republic	76	1	Canada	61	1
Czech Republic	5	1	Slovak Republic	73	2	New Zealand	59	2
Hungary	5	1	Hungary	68	3	Korea	56	3
Ireland	5	1	Poland	63	4	Ireland	53	4
Japan	5	1	Austria	62	5	Japan	52	5
Korea	5	1	Germany	61	6	Israel	48	6
Norway	5	1	Slovenia	57	7	Switzerland	47	7
Poland	5	1	**EU21 average**	**52**	**n/a**	United States	47	8
Slovak Republic	5	1	Sweden	51	8	Australia	47	9
Finland	6	10	Finland	50	9	Luxembourg	47	10
Sweden	7	11	Norway	50	10	United Kingdom	47	11
Slovenia	7	12	Italy	49	11	Netherlands	46	12
Estonia	10	13	Greece	47	12	Norway	45	13
Switzerland	10	14	Estonia	47	13	Finland	44	14
United States	10	15	**OECD average**	**45**	**n/a**	Estonia	44	15
Germany	11	16	Belgium	45	14	Iceland	44	16
Luxembourg	12	17	Japan	43	15	Denmark	43	17
EU21 average	**12**	**n/a**	United States	43	16	Sweden	42	18
Austria	12	18	France	43	17	Belgium	41	19
Australia	13	19	Switzerland	43	18	Spain	40	20
Belgium	14	20	Ireland	42	19	**OECD average**	**39**	**n/a**
Netherlands	14	21	Luxembourg	42	20	**EU21 average**	**36**	**n/a**
OECD average	**15**	**n/a**	Netherlands	40	21	Slovenia	36	21
New Zealand	16	22	Australia	40	22	France	36	22
United Kingdom	17	23	Korea	39	23	Poland	32	23
Israel	18	24	Denmark	38	24	Greece	32	24
Denmark	19	25	United Kingdom	37	25	Germany	29	25
Greece	21	26	Iceland	35	26	Hungary	27	26
France	21	27	Israel	35	27	Austria	26	27
Iceland	21	28	Canada	34	28	Portugal	23	28
Spain	29	29	Spain	32	29	Slovak Republic	22	29
Italy	30	30	Mexico	26	30	Italy	21	30
Portugal	56	31	New Zealand	25	31	Czech Republic	20	31
Mexico	58	32	Turkey	24	32	Turkey	18	32
Turkey	59	33	Portugal	21	33	Mexico	15	33

Source: International time series educational model

Note: Distribution of the 25–64 year old population by highest level of education attained. Chile is omitted as insufficient data exist to make the projection for 2020.

Annex A: Qualification levels

Main stages of education / employment (top to bottom):
- Professional or postgraduate education, research or employment
- Higher education / Advanced skills training
- Entry to professional graduate employment
- Specialised education and training
- Qualified/Skilled worker / Entry to higher education / Completion of secondary education
- Progression to skilled employment. Continuation of secondary education.
- Secondary education Initial entry into employment or further education
- Qualifications can be taken at any age in order to continue or return to education or training

Qualifications and Credit Framework/National Qualifications Framework for England, Wales and Northern Ireland* (www.ofqual.gov.uk)

LEVEL	
8	Vocational Qualifications Level 8
7	Fellowships, NVQ Level 5, Vocational Qualifications Level 7
6	Vocational Qualifications Level 6
5	NVQ Level 4, Higher National Diplomas (HND), Higher National Certificates (HNC), Vocational Qualifications Level 5
4	Vocational Qualifications Level 4
3	NVQ Level 3, Vocational Qualifications Level 3, GCE AS and A Level, Advanced Diplomas
2	NVQ Level 2, Vocational Qualifications Level 2, GCSEs at grade A*–C, ESOL skills for life, Higher Diplomas, functional skills Level 2 (English, mathematics & ICT)
1	NVQ Level 1, Vocational Qualifications Level 1, GCSEs at grade D–G, ESOL skills for life, Foundation Diplomas, functional skills Level 1 (English, mathematics & ICT)
Entry Level	Entry Level Certificates (sub levels 1–3), ESOL skills for life, functional skills Entry Level (English, mathematics & ICT)

Credit and Qualification Framework for Wales (www.cqfw.net)

LEVEL	
8	Doctoral Degrees
7	Master's Degrees, Integrated Master's Degrees, Postgraduate Diplomas, Postgraduate Certificate in Education (PGCE), Postgraduate Certificates
6	Bachelor's Degrees with Honours, Bachelor's Degrees, Professional Graduate Certificate in Education (PGCE), Graduate Diplomas, Graduate Certificates
5	Foundation Degrees, Diplomas of Higher Education (DipHE), Higher National Diplomas (HND)
4	Higher National Certificates (HNC), Certificates of Higher Education (CertHE)
3	NVQ Level 3, Vocational Qualifications Level 3, GCE AS and A Level, Welsh Baccalaureate Qualification Advanced
2	NVQ Level 2, Vocational Qualifications Level 2, Welsh Baccalaureate Qualification Intermediate, GCSEs grade A*–C
1	NVQ Level 1, Vocational Qualifications Level 1, GCSEs at grade D–G, Welsh Baccalaureate Qualification Foundation
Entry Level	Entry Level Certificate (sub levels 1–3)

National Framework of Qualifications for Ireland (www.nfq.ie)

LEVEL	
10	Doctoral Degree, Higher Doctorate
9	Master's Degree, Post-graduate Diploma
8	Honours Bachelor Degree, Higher Diploma
7	Ordinary Bachelor Degree
6	Advanced Certificate, Higher Certificate
5	Level 5 Certificate, Leaving Certificate
4	Level 4 Certificate, Leaving Certificate
3	Level 3 Certificate, Junior Certificate
2	Level 2 Certificate
1	Level 1 Certificate

The Scottish Credit and Qualifications Framework (www.scqf.org.uk)

LEVEL	
12	Professional Development Awards, Doctoral Degrees
11	SVQ Level 5, Professional Development Awards, Postgraduate Diplomas, Master's Degrees, Integrated Master's Degrees, Postgraduate Certificates,
10	Bachelor's Degrees with Honours, Professional Development Awards, Graduate Diplomas, Graduate Certificates
9	Bachelor's/Ordinary Degrees, Professional Development Awards, SVQ Level 4, Graduate Diplomas, Graduate Certificates
8	Higher National Diplomas, SVQ Level 4, Professional Development Awards, Diplomas of Higher Education (DipHE)
7	Professional Development Awards, Higher National Certificates (HNC), Certificates of Higher Education (CertHE), SVQ Level 3, Advanced Highers
6	Highers, SVQ Level 3, Professional Development Awards, National Progression Awards, National Certificates
5	Intermediate 2, Credit Standard Grade, SVQ 2, National Progression Awards, National Certificates
4	Intermediate 1, General Standard Grade, Scottish Vocational Qualifications (SVQ) 1, National Progression Awards, National Certificates
3	Access 3, Foundation Standard Grades, National Progression Awards, National Certificates
2	Access 2, National Progression Awards, National Certificates
1	Access 1

Framework for higher education qualifications in England, Wales and Northern Ireland (www.qaa.ac.uk/academicinfrastructure/fheq)

LEVEL	
8	Doctoral Degrees
7	Master's Degrees, Integrated Master's Degrees, Postgraduate Diplomas, Postgraduate Certificate in Education (PGCE), Postgraduate Certificates
6	Bachelor's Degrees with Honours, Bachelor's Degrees, Professional Graduate Certificate in Education (PGCE), Graduate Diplomas, Graduate Certificates
5	Foundation Degrees, Diplomas of Higher Education (DipHE), Higher National Diplomas (HND)
4	Higher National Certificates (HNC), Certificates of Higher Education (CertHE)

The table gives an indication of how you can compare qualifications across national boundaries. Examples of major qualifications at each level are provided. For more detail of the qualifications in another country, you will need to consult the website given at the head of each column.

This leaflet is designed to give some information to help you begin this process, for example, by telling you what your qualification, or qualifications you are interested in studying, are broadly comparable to in other countries.

Qualifications can cross boundaries – a rough guide to comparing qualifications in the UK and Ireland. July 2009.

* The Qualifications and Credit Framework (QCF) will eventually replace the National Qualifications Framework (NQF).

Source: Qualifications can cross boundaries – a rough guide to comparing qualifications in the UK and Ireland

List of previous publications

Executive summaries and full versions of all these reports are available from
www.ukces.org.uk

Evidence Report 1
Skills for the Workplace: Employer Perspectives

Evidence Report 2
Working Futures 2007-2017

Evidence Report 3
Employee Demand for Skills: A Review of Evidence & Policy

Evidence Report 4
High Performance Working: A Synthesis of Key Literature

Evidence Report 5
High Performance Working: Developing a Survey Tool

Evidence Report 6
Review of Employer Collective Measures: A Conceptual Review from a Public Policy Perspective

Evidence Report 7
Review of Employer Collective Measures: Empirical Review

Evidence Report 8
Review of Employer Collective Measures: Policy Review

Evidence Report 9
Review of Employer Collective Measures: Policy Prioritisation

Evidence Report 10
Review of Employer Collective Measures: Final Report

Evidence Report 11
The Economic Value of Intermediate Vocational Education and Qualifications

Evidence Report 12
UK Employment and Skills Almanac 2009

Evidence Report 13
National Employer Skills Survey 2009: Key Findings

Evidence Report 14
Strategic Skills Needs in the Biomedical Sector: A Report for the National Strategic Skills Audit for England, 2010

Evidence Report 15
Strategic Skills Needs in the Financial Services Sector: A Report for the National Strategic Skills Audit for England, 2010

Evidence Report 16
Strategic Skills Needs in the Low carbon Energy generation Sector: A Report for the National Strategic Skills Audit for England, 2010

Evidence Report 17
Horizon Scanning and Scenario Building: Scenarios for Skills 2020

Evidence Report 18
High Performance Working: A Policy Review

Evidence Report 19
High Performance Working: Employer Case Studies

Evidence Report 20
A Theoretical Review of Skill Shortages and Skill Needs

Evidence Report 21
High Performance Working: Case Studies Analytical Report

Evidence Report 22
The Value of Skills: An Evidence Review

Evidence Report 23
National Employer Skills Survey for England 2009: Main Report

Evidence Report 24
Perspectives and Performance of Investors in People: A Literature Review

Evidence Report 25
UK Employer Perspectives Survey 2010

Evidence Report 26
UK Employment and Skills Almanac 2010

Evidence Report 27
Exploring Employer Behaviour in relation to Investors in People

Evidence Report 28
Investors in People - Research on the New Choices Approach

Evidence Report 29
Defining and Measuring Training Activity

Evidence Report 30
Product strategies, skills shortages and skill updating needs in England: New evidence from the National Employer Skills Survey, 2009

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The impact of student and migrant employment on opportunities for low skilled people

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The Role of Skills from Worklessness to Sustainable Employment with Progression

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A Review of Occupational Regulation and its Impact

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International Approaches to the Development of Intermediate Level Skills and Apprenticeships

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Engaging low skilled employees in workplace learning

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Developing Occupational Skills Profiles for the UK

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UK Commission's Employer Skills Survey 2011: UK Results

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UK Commission's Employer Skills Survey 2011: England Results

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Understanding Training Levies

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An Initial Formative Evaluation of Best Market Solutions

Evidence Report 60
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