Analysis of the Points Based System

List of occupations skilled to NQF level 4 and above for Tier 2

Migration Advisory Committee

February 2011

Migration
Advisory
Committee

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Chapter 1: Introduction

1.1 The Migration Advisory Committee

1.1 The Migration Advisory Committee (MAC) is a non-departmental public body comprised of economists and migration experts that provides transparent, independent and evidence-based advice to the Government on migration issues. The questions we address are determined by the Government.

1.2 Previously we have provided advice on the design of Tiers 1 and 2 of the Points Based System (PBS) for managed migration, the shortage occupation lists used under Tier 2, and transitional labour market access for citizens of new European Union (EU) accession states. Most recently, in November 2010, we provided advice on the first annual limits on Tiers 1 and 2 of the PBS (Migration Advisory Committee, 2010a).

1.2 Policy context

1.3 On 19 July 2010, the Government introduced interim limits on out-of-country applications for Tier 1 (General) and in-country and out-of-country applications under the Resident Labour Market Test (RLMT) and shortage occupation routes of Tier 2.

1.4 Following a commission from the Home Secretary, on 18 November 2010 we published our report on the first annual limits on PBS Tiers 1 and 2 for 2011/12 and supporting policies (Migration Advisory Committee, 2010a). In that report we set out required limits on Tiers 1 and 2, based on assumptions on matters including the coverage of the limits, the underlying objective for net migration and the role of work-related migration in achieving that objective. We also set out potential policies to improve selection of the migrants who have the most to contribute to the UK. We suggested that, in line with the general objective of improved selectivity, consideration could be given to raising the minimum skill level for the RLMT, shortage occupation and intra-company transfer routes of Tier 2.

1.5 We have previously argued that it is appropriate for Tiers 1 and 2 of the PBS to target skilled migrants. Ruhs (2008) argues that there is a general economic case for selecting predominantly skilled immigrants and admitting the low skilled only in exceptional cases for selected occupations or industries. The general preference for skilled immigrants is mainly due to three factors:

- Skilled immigrants are more likely to complement the skills and capital of existing residents.

- The net fiscal impact is more likely to be positive in the case of skilled immigrants.

- Potential long-term growth effect and spillover benefits are more likely to arise from skilled migration.

1.6 On 23 November 2010, the Home Secretary outlined a policy package for the PBS that will be introduced alongside the first annual limits on non-European Economic Area (EEA) migration in April 2011.

1.7 The Home Secretary announced that the RLMT and shortage occupation routes will be subject to an annual limit of 20,700 places for out-of-country applicants in the year from April 2011. This limit will not apply to in-country applications from individuals already in the UK, dependants of Tier 2 migrants, or applications relating to jobs attracting a salary of more than £150,000. The intra-company transfer, sportsperson and minister of religion routes will also be excluded from this annual limit.

1.8 The Home Secretary also announced that applications for the RLMT and shortage occupation routes will be restricted to 'graduate-level' occupations from April 2011.

1.3 What we have been asked to consider

1.9 In December 2010 the Government asked the MAC to provide advice in relation to the minimum skill requirement for occupations and job titles under Tier 2. Specifically, the Government has asked that we answer the following two questions:

1. *"What Standard Occupational Classification (SOC) codes should be considered as graduate level occupations for the purposes of Tier 2 of the Points Based System?"; and*

2. *"How should the current Shortage Occupation Lists for the UK and Scotland be revised to remove jobs below graduate level?"*

1.10 In this report we respond to the first of these questions. We will respond to the second question in a separate report to be submitted to the Government in February 2011.

1.11 Both of the questions relate to raising the minimum skill requirement under Tier 2 from the current threshold of National Vocational Qualification (NVQ) level 3 to 'graduate-level'. We have worked on the basis that the more selective list of SOC codes could be applied by the Government to any or all of the Tier 2 intra-company transfer, RLMT or shortage occupation routes.

1.12 In the commissioning letter for this report, the Minister for Immigration stated that "*the relevant indicator of 'graduate-level' for this purpose should be NVQ level 4, the next step up from the current minimum threshold of NVQ 3.*" We have assumed that this also includes those qualifications that are equivalent to NVQ level 4 or above (NVQ4+). We have taken the NVQ4+ benchmark as given for our main analysis in this report, although the issue of qualification levels and

equivalence is discussed further below.

1.13 Our main analysis and the resulting list of occupations skilled to NVQ4+ or equivalent are based on SOC 2000 instead of the updated SOC 2010 classification which was published by the Office for National Statistics in June 2010. This is because the datasets used for our work are not yet available in SOC 2010 format. We believe, as discussed in Chapter 3, that a revised list of skilled occupations should be produced once the relevant datasets become available.

1.14 The first question we have been asked by the Government requires that we identify those occupations skilled to NVQ4+ or equivalent. We have considered the skill level of all 353 occupations at the 4-digit SOC 2000 level, the most detailed level available.

1.15 The UK Border Agency already maintains a list of 'graduate occupations' for the intra-company transfer route sub-categories for graduate trainees and skills transfers.[1] The list of occupations skilled to NVQ4+ or equivalent provided in this report is not based on the UK Border Agency list, but derived afresh from our own analysis.

1.16 The second question requires that we consider whether there are any jobs on the current shortage occupation lists for the UK and Scotland that sit within 4-digit SOC occupations that are skilled below NVQ level 4 or equivalent, but where the jobs themselves are skilled to at least NVQ4+ or equivalent.

1.17 It is also possible that there are individual jobs not on the current shortage occupation lists for the UK and Scotland that are themselves skilled to NVQ4+ or equivalent but that sit within 4-digit SOC occupations skilled to a lower level. The Government has not asked us to consider these jobs in either of its questions to us, and we have not done so.

1.4 NVQ level 4 and the wider qualifications framework

1.18 The position of NVQ level 4 and equivalent qualifications within the National Qualifications Framework (NQF) is shown in Table 1.1, alongside an illustration of how the various NQF levels, in turn, equate to levels within the Framework for Higher Education Qualifications (FHEQ). The NQF was revised in 2006 so that it could recognise the level of a qualification more precisely. To achieve this, the number of levels in the NQF was increased from six (entry level to level 5) to nine (entry level to level 8). Entry level to level 3 did not change under the new framework, but the old levels 4 and 5 were disaggregated into the new levels 4 to 8.

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[1] www.ukba.homeoffice.gov.uk/sitecontent/documents/employersandsponsors/pointsbasedsystem/tier2-ict-graduate-occ-list

Current NQF level	Example NQF qualifications	Equivalent QCF qualifications	Old NQF level (1)	Equivalence in FHEQ
	Table 1.1: The equivalence of the Qualifications and Credit Framework (QCF), the Framework for Higher Education Qualifications (FHEQ) and the National Qualifications Framework (NQF), for National Qualifications Framework levels 3 and above			
8	National Vocational Qualifications (NVQs) at old NQF level 5*.	Award, certificate and diploma in strategic direction.	5*	D (doctoral): doctorate.
7	Fellowships and fellowship diplomas; diploma in translation; NVQs at old NQF level 5*.	Advanced professional awards, certificates and diplomas.		M (master's): master's degree, postgraduate certificates and diplomas.
6	National diploma in professional production skills; NVQs at old NQF level 4*.	BTEC advanced professional diplomas, certificates and awards.	4*	H (honours): bachelor's degree, graduate certificates and diplomas.
5	Higher national diplomas; other higher diplomas; NVQs at old NQF level 4*.	HNCs and HNDs; BTEC professional diplomas, certificates and awards.		I (intermediate): diplomas of higher education and further education, foundation degrees and higher national diplomas.
4	**NVQs at level 4**; Key Skills level 4.	BTEC professional diplomas, certificates and awards.		C (certificate): certificates of higher education.
3	AS/A levels; International Baccalaureate; NVQs at level 3.	BTEC awards, certificates and diplomas at level 3.	3*	-

Notes: This table shows the position of National Vocational Qualification-level qualifications within the Qualifications and Credit Framework (QCF), the National Qualifications Framework (NQF) and the Framework for Higher Education Qualifications (FHEQ). Equivalencies are shown only for qualifications at NQF level 3 and above. (1) An asterisk (*) next to a skill level indicates that it relates to the old NQF. This is our own addition: at the time of their use the old NQF levels were referred to '3', '4' and '5'. Source: Office of Qualifications and Examinations Regulation (2010)

1.19 To identify the 4-digit SOC 2000 occupations that are skilled to NVQ4+ or equivalent, we have categorised qualifications according to the old NQF. This is because, as we outline in Chapter 2, our top-down approach uses the Labour Force Survey (LFS) to analyse the qualifications held by the workforce under each 4-digit SOC 2000 occupation. The Office for National Statistics (ONS), which sponsors the LFS, uses the old NQF to classify the qualifications.

1.20 Nearly all vocational qualifications have been reformed by awarding organisations, accredited by the

Office of Qualifications and Examinations Regulation (Ofqual), and are now available to learners on the new Qualifications and Credit Framework (QCF). The QCF is a system for recognising and comparing qualifications in England, Wales and Northern Ireland that awards credits for completed qualifications and units, the latter being smaller steps of learning. For completeness, a comparison of NQF and QCF qualifications is also provided in Table 1.1.

1.21   As discussed above, in this report we have been asked to identify occupations skilled to NVQ4+ or equivalent. As shown in Table 1.1, NVQ level 4 qualifications sit within level 4 of the current NQF. In turn, level 4 of the current NQF is equivalent to level C (certificate) of the FHEQ, which includes qualifications such as certificates of higher education. Level 5 of the current NQF is equivalent to level I (intermediate) of the FHEQ, which includes qualifications such as diplomas of higher education and foundation degrees. Level 6 of the current NQF is equivalent to Level H (honours) of the FHEQ, which includes qualifications such as a bachelor's degree. Therefore, level 4 and above of the current NQF includes a range of qualifications, some of which are at, and others of which are below, the level of a bachelor's degree.

1.22   For the reasons set out above, our primary analysis in this report sets out to identify occupations skilled to at least NQF level 4, termed as NQF4+ in this report. An alternative, more restrictive, approach to raising the minimum skill requirement for occupations that qualify for Tier 2

would be to increase the skill threshold to the current NQF level 6. Table 1.1 shows that this would involve requiring a level of skill equivalent to at least a bachelor's degree, which can clearly be regarded as graduate-level. We have carried out some preliminary analysis to investigate the effect that this more restrictive skill threshold could have on the list of occupations that are considered skilled. This analysis is presented as Annex B to this report.

1.5   What we did

1.23   In Migration Advisory Committee (2008) we used top-down and bottom-up evidence to identify occupations skilled to NQF3+. In this report, to identify occupations skilled to NQF4+, we have used a revised version of our previous methodology. Revisions to our approach have been driven by both the raised skill level set out in our commission from the Government and our desire to ensure that our methodology for identifying skilled occupations is as robust as possible.

1.24   The revisions we have made follow on from the review of our methodology for compiling our recommended shortage occupation lists that we published in March 2010 (Migration Advisory Committee, 2010b). We have also considered the findings of a research project we commissioned on *Defining and measuring skill at the occupational and job level* (Frontier Economics, 2010), which was completed after the publication of our review of our methodology and published on our website in November 2010. This research

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project evaluated and recommended a number of improvements to our previous approach. In Chapter 2 we outline the specific changes we have made to our methodology.

1.25 Our list of 4-digit SOC 2000 occupations skilled to NQF4+ has been produced with reference to top-down analysis of national-level labour market data. Nevertheless, we have also carefully considered information we received in relation to occupations deemed to be skilled to NQF4+ or otherwise by our corporate partners (throughout this report where we refer to either 'corporate partners' or just 'partners' we mean all parties with an interest in our work or its outcomes, including private and public sector employers, trade unions, representative bodies and private individuals). In principle we were prepared to amend our top-down list on the basis of convincing bottom-up evidence.

1.26 The timescales for this report did not allow for a formal call for evidence, but we took steps to ensure that our partners were aware that we were undertaking this work and we considered any written submissions we received. We approached, in particular, partners who we believed were likely to have an interest in occupations that our preliminary top-down analysis suggested were at a level of skill close to, but below, the NQF level 4 (NQF4) threshold.

1.27 We wrote to over 1,000 corporate partners and received approximately 70 written responses. In the main, much of the information we received simply asserted that occupations were skilled to NQF4+. Where this did not match our top-down analysis, and where time permitted, we went

back to partners to ask for more specific information.

1.28 In addition to considering these written submissions, we also sought the views of our partners through discussions and events. We met with around 25 corporate partners at various events and meetings. We have considered the information we received during these discussions when forming the recommendations we make in this report.

1.6 Structure of the report

1.29 Chapter 2 presents the analysis that we have used to identify those 4-digit SOC occupations that are skilled to NQF4+. We discuss the methodology that we adopted when compiling our first recommended shortage occupation lists in 2008. We also outline changes that have been made to this methodology to enable us to identify occupations skilled to NQF4+. We discuss the implications of raising the skill threshold to NQF4 in terms of the number of occupations and the proportion of the labour market that are covered by the revised list of skilled occupations. The chapter also discusses the information we received from our partners and additional consideration that we gave to occupations that, according to our top-down analysis, fell just below the NQF4 benchmark.

1.30 Chapter 3 presents the list of 4-digit SOC 2000 occupations that, on the basis of the analysis in Chapter 2, we consider are skilled to NQF4+ for the purpose of Tier 2 of the Points Based System. We also make some concluding remarks and discuss next steps.

1.7   **Thank you**

1.31   We recognise that our corporate partners have had only limited time to provide us with input related to the issues discussed in this report. We would like to thank all individuals and organisations that engaged with us.

1.32   A list of those partners who corresponded with us on this issue and those who met with us (and who did not request anonymity) is supplied as Annex A to this report.

Chapter 2: Analysis of occupations

2.1 Introduction

2.1 In autumn 2008 we published our first recommended shortage occupation lists for the UK and Scotland (Migration Advisory Committee, 2008). To be included on the shortage occupation lists an occupation or job title needed to satisfy three criteria:

- the occupation or job title must be **skilled** to National Qualifications Framework level 3 or above (NQF3+);

- there must be an identified **shortage** of labour within the occupation or job title; and

- it must be **sensible** to address this shortage using immigration from outside the European Economic Area (EEA).

2.2 The methodology we adopted required that we first identify those occupations that were skilled to NQF3+. This present report identifies those occupations that are skilled to NQF4+. In some important ways, our approach to assessing skill is unchanged from that which we used in 2008. However, we have made some changes to our methodology, which are outlined in this chapter. We do not consider the issues of shortage or sensible in this report, but will do so in any future review of the shortage occupation lists.

2.3 This chapter describes how we identified those occupations that are skilled to NQF4+. First, we briefly outline our previous approach to measuring skill using top-down and bottom-up evidence, and discuss some issues for consideration in this report. Second, we discuss the changes that we have made to our autumn 2008 approach in order to identify occupations skilled to NQF4+. We then present the results of our top-down analysis of occupations. This is followed by a discussion of information provided by our partners. The list of occupations we have identified as being skilled to NQF4+ is presented in Chapter 3.

2.2 Our previous approach and other issues for consideration

2.4 In this section we briefly outline our previous approach to identifying occupations skilled to NQF3+. A more detailed discussion of this approach can be found in Migration Advisory Committee (2008). We also discuss here some issues with our methodology that we identified, both through external research we commissioned and through our own further examination of the method.

Our previous approach

2.5   We identified five indicators which we used to determine whether an occupation was skilled to NQF3+. Three of the five indicators were assessed using top-down analysis of national-level data, and the other two could only be assessed using bottom-up evidence we received from our partners.

2.6   For each of the three top-down indicators, we set a threshold value above which the indicator was deemed to have passed, and below which it was deemed to have failed. The three top-down indicators and their associated threshold values were:

- **Earnings:** We required median hourly earnings for all employees within an occupation to be £10 per hour or more. This was measured using the 2007 Annual Survey of Hours and Earnings (ASHE).

- Formal **qualifications:** We required that 50 per cent or more of the workforce within an occupation be qualified to NQF3+. This was measured using the Labour Force Survey (LFS) covering the eight quarters of 2006 and 2007.

- **SOC skill level:** We required an occupation to be classified at skill level 3 or level 4 (the highest two of the four skill levels) in the Standard Occupational Classification (SOC) 2000 hierarchy.

2.7   Occupations were defined as being skilled to NQF3+ if they passed the threshold for at least two out of the three indicators.

2.8   Broadly speaking, our process for identifying these thresholds began by calibrating our three indicators against a well researched pre-existing list of graduate occupations defined by Elias and Purcell (2004). We first assessed the ability of each of the indicators to correctly identify occupations defined as 'graduate' and 'non-graduate' by Elias and Purcell. For each indicator, we identified a threshold value that ensured that a relatively low number of Elias and Purcell's 'graduate' occupations were classified as non-graduate.

2.9   We then adjusted the threshold values for each of the indicators to reflect the fact that we were attempting to identify occupations skilled to NQF3+, rather than 'graduate' occupations identified by Elias and Purcell. To do this we took account of the fact that the proportion of the UK workforce of working age holding NQF3+ qualifications was found to be approximately 50 per cent. This meant that, using this national figure as a benchmark, we would expect an occupation to be 'skilled' if at least 50 per cent of employees in that occupation were qualified to NQF3+. Similarly, given that 50 per cent of the UK workforce held NQF3+ qualifications, it made sense to use the median hourly earnings of all employees as a reference point for the level of skilled wages. This was found to be close to £10 per hour in Migration Advisory Committee (2008).

2.10   For some occupations, the top-down data were not sufficiently reliable, due to small sample sizes, for us to say with any degree of certainty whether the indicator met

the threshold. We therefore included some additional checks to ensure occupations were not misclassified in terms of whether they were skilled to NQF3+ solely because data were missing or unreliable:

- For the **earnings** indicator, an occupation was deemed to have passed the indicator if the 4-digit ASHE data were missing or considered unreliable by ONS in their published tables.

- For the **qualifications** indicator, an occupation was deemed to have passed the indicator if the upper bound of the 95 per cent confidence interval of the estimate lay above the threshold value.

2.11   In addition to the three top-down indicators, we also identified two bottom-up indicators of skill. These were:

- **on-the-job training or experience** required to carry out the job to the appropriate level; and

- **innate ability** required to carry out the job to the appropriate level.

2.12   These indicators were assessed using evidence we received from our partners. In principle, it would have been possible for an entire 4-digit occupation to be considered skilled to NQF3+ on the basis of this evidence. In practice, we did not receive sufficient evidence from our partners to justify such a decision. However, the evidence we received did result in specific job titles being identified as skilled to NQF3+, despite the 4-digit occupation with which they were associated being skilled below NQF3.

2.13   The list of occupations, rather than job titles, that we identified as being skilled to NQF3+ was therefore ultimately determined by our top-down analysis, and comprised 192 of the 353 occupations at the 4-digit level of SOC. This list can be found in Migration Advisory Committee (2008). It has not been modified since 2008 and has been used since then as the starting point for the shortage occupation lists for the UK and Scotland.

Issues for consideration

2.14   In March 2010 we published a review of our methodology for identifying occupations for inclusion on the shortage occupation lists (Migration Advisory Committee, 2010b). Chapter 4 of that report discussed the issues around identifying occupations that are skilled to NQF3+. Although in this report we instead identify occupations skilled to NQF4+, the issues that were covered or discussed in the review of our methodology are still relevant here.

2.15   We also commissioned Frontier Economics to assess our top-down methodology for defining occupations skilled to NQF3+ and to help identify any improvements that could be made. This research was still ongoing at the time we published our methodological review but it has now been completed and published on our website in November 2010 (Frontier Economics, 2010).

2.16   The Frontier Economics research project comprised three parts: a review of the literature on definitions and concepts of skill; a review of indicators and

benchmarks of skill; and a quantitative analysis of our indicators and possible alternative indicators that could be incorporated into a future methodology for defining skill. The research concluded that our broad approach to identifying occupations skilled to NQF3+ was valid, given the data that are available. The research suggested some specific improvements that could be made to our methodology, discussed in the next section.

2.17 On the basis of the above we have decided not to radically overhaul our approach to assessing the skill level of occupations. Nevertheless, there are two areas of our previous methodology for identifying occupations skilled to NQF3+ that need to be considered prior to identifying occupations skilled to NQF4+. The two following issues are discussed in turn in section 2.3:

- **Our indicators and how to measure them:** Should we use precisely the same five indicators of skill as in our previous methodology and, if so, how should we measure them?

- **Identifying occupations skilled to NQF4+:** How should the indicators be combined into an overall assessment of skill? Should threshold values be set for the three top-down indicators and, if so, at what values should the thresholds be set?

2.18 A further issue for consideration is the introduction of the updated occupational classification, SOC 2010. We expect SOC 2010 to be incorporated in all of the national-level datasets that we use to identify occupations skilled to NQF4+ by

2012. Differences between SOC 2010 and SOC 2000, in terms of the composition of some 4-digit occupations and their location within the hierarchy, may have implications for whether they pass one or more of our three top-down indicators of skill, which may in turn have an impact on whether the occupation is identified as being skilled to NQF4+.

2.3 Our top-down approach

2.19 In this section we discuss the two issues identified above in relation to our top-down approach, incorporating input from partners, the research we have commissioned and our own analysis. We conclude the section by outlining the methodology we have used to identify occupations skilled to NQF4+ in this report.

Our indicators and how to measure them

2.20 Frontier Economics (2010) concluded that the three top-down indicators that we used to identify occupations skilled to NQF3+ should be retained. We remain of the view that these are the best indicators of skill available in national-level datasets and so have decided to retain these three indicators. We have identified some specific adjustments that should be made to the indicators to identify occupations skilled to NQF4+. Below we discuss each of the indicators in turn.

2.21 In our previous approach, the **earnings** indicator was estimated using ASHE 2007. For this report the indicator is estimated using the more recent ASHE 2010. Data for

15 occupations are either missing or considered unreliable by the ONS, due to sample sizes, and therefore are not published. These 15 occupations are listed in Table 2.1. We have used the associated 3-digit earnings data to estimate this indicator for those occupations for

which the 4-digit earnings data are missing or considered unreliable. This represents a change to our previous methodology where an occupation was deemed to have passed the indicator if the 4-digit earnings data were missing.

Table 2.1: 4-digit occupations with missing data in the Annual Survey of Hours and Earnings (ASHE) and their corresponding 3-digit categories, 2010	
4-digit SOC	**3-digit SOC**
1171 Officers in armed forces	117 Protective service officers
1233 Hairdressing and beauty salon managers and proprietors	123 Managers and proprietors In other service industries
2125 Chemical engineers	212 Engineering professionals
2215 Dental practitioners	221 Health professionals
3311 NCOs and other ranks	331 Protective service occupations
3413 Actors, entertainers	341 Artistic and literary occupations
3441 Sports players	344 Sports and fitness occupations
3449 Sports and fitness occupations n.e.c.	344 Sports and fitness occupations
3513 Ship and hovercraft officers	351 Transport associate professionals
5494 Musical instrument makers and tuners	549 Skilled trades n. e. c.
7121 Collector salespersons and credit agents	712 Sales related occupations
7124 Market and street traders and assistants	712 Sales related occupations
8122 Coal mine operatives	812 Plant and machine operatives
8136 Clothing cutters	813 Assemblers and routine operatives
9243 School crossing patrol attendants	924 Elementary security occupations
Note: This table lists the 4-digit occupations with missing data in the published Table 14.5a, part of the 2010 Annual Survey of Hours and Earnings, and their corresponding 3-digit occupation categories. Source: Annual Survey of Hours and Earnings (2010)	

2.22 To assess the validity of the approach of using 3-digit earnings data to replace the missing 4-digit earnings data for these 15 occupations, we undertook two strands of analysis. First, we examined the difference between hourly pay at the 4-digit and 3-digit SOC level measured in the LFS. The LFS has a smaller sample size than the ASHE, and despite pooling three years of data, the sample sizes for the 15 occupations were small. Nevertheless, based on the LFS, the differences between the median earnings at the 4-digit and 3-

digit level in most cases, where the sample size of the missing 15 occupations was suitable, were not statistically significant. This suggests that our approach is justified.

2.23 Second, we were able to view the actual ASHE estimates for these 15 occupations that are withheld in the published tables. These estimates are considered unreliable by the ONS and are not suitable for publication. We have therefore not used these data for the purposes of our analysis. We again examined the estimates to check whether

there was any indication of substantial differences between median earnings at the 4-digit and 3-digit level that may affect our main analysis and alter the final list of occupations skilled to NQF4+. We did not find a significant difference that would affect the analysis or alter the list of occupations.

2.24   In summary, our analysis of the LFS and ASHE suggests that the best method to overcome the problem of missing 4-digit occupation earnings data in ASHE is to replace the missing data with the corresponding 3-digit earnings data.

2.25   In our previous approach, the **qualifications** indicator was defined as the proportion of individuals in a 4-digit occupation qualified to NQF3+ using 8 pooled quarters of LFS data covering 2006 and 2007. To identify NQF4+ occupations it seems reasonable to change this indicator to the proportion of individuals qualified to NQF4+. In addition, as recommended by Frontier Economics (2010), we have increased the number of quarters of pooled LFS data to 12, covering 2007 Q4 to 2010 Q3, in order to boost the number of observations and improve the accuracy of our estimates. As in our previous approach, the indicator is defined as being passed if the upper bound of the 95 per cent confidence interval lies above the threshold value.

2.26   The **SOC skill level** indicator has not been changed from our previous approach. The SOC skill level categorisation is based on the time required to become fully competent, the time taken to gain the required formal or work-based training, and

the experience required in the occupation.

2.27   Therefore, the three top-down indicators of skill in any given 4-digit SOC occupation are:

- **Earnings:** Median gross hourly earnings of full-time employees (ASHE 2010).

- **Qualifications:** The proportion of working-age, full-time employees in an occupation that hold a NQF4+ qualification (LFS, 2007 Q4 to 2010 Q3).

- **SOC skill level:** The four-tier SOC 2000 skill level categorisation (ONS).

2.28   We also considered whether we should retain **on-the-job training or experience** and **innate ability** as bottom-up indicators of skill. The reasons for using these indicators, set out in Migration Advisory Committee (2008) still hold, and the review by Frontier Economics (2010) concluded that they were relevant indicators of skill. Therefore, we have decided to retain them.

Identifying occupations skilled to NQF4+

2.29   Neither economic theory nor the academic literature point to a definitive method for identifying occupations skilled to NQF4+ using our top-down indicators. Therefore, we considered a range of options for combining our indicators to identify such occupations.

2.30   We considered adopting, in substantial part or whole, or calibrating our indicators against the Elias and Purcell (2004) list of graduate occupations discussed

above. However, we identified several problems with this approach:

- First, the Elias and Purcell list is now seven years old and may be out of date for some occupations.

- Second, the analysis will eventually need to be repeated for SOC 2010, for which an equivalent Elias and Purcell list does not exist.

- Third, the Elias and Purcell list contains 'niche' graduate occupations, defined as those where the majority of incumbents are not graduates, but in which there are growing specialist niches that require higher education, skills and knowledge. It is not clear that it is appropriate for us to consider such occupations as skilled to NQF4+.

2.31 Therefore, the approach we use involves setting threshold values for the three indicators (earnings, qualifications and SOC skill level) and requiring that an occupation is above the threshold on at least two out of three indicators to be considered skilled to NQF4+.

2.32 Regarding the **SOC skill level**, in order to identify occupations skilled to NQF3+, in Migration Advisory Committee (2008), the threshold value for the SOC skill level indicator was set at level 3. In order to identify a higher level of skill, it seems reasonable to increase the threshold value for this indicator. As this indicator consists of four levels of skill, the only possible way in which the threshold could be increased is to set it to level 4. In addition, for an occupation to be classified at level 3, it must 'require a body of knowledge

associated with a period of post-compulsory education, but not to degree level', while occupations classified to level 4 normally 'require a degree or equivalent period of work experience'. Therefore, we believe that level 4 of the SOC skill level categorisation matches with NQF4+ most closely, albeit not perfectly.

2.33 As discussed in Box 2.1, we based our analysis on the important assumption that the proportion of jobs skilled to NQF4+ is equal to the proportion of working-age, full-time employees in jobs that are skilled to NQF4+. The latter value is estimated to be 38 per cent. We set threshold values for each of the **earnings** and **qualifications** indicators by setting each corresponding threshold such that the proportion of employment in occupations above it was approximately 38 per cent. Therefore, occupations accounting for 62 per cent of working-age, full-time employees are below the thresholds in each case.

Box 2.1: Estimating the proportion of UK jobs skilled to NQF4+

To estimate the proportion of jobs in the UK that are skilled to NQF4+, we made the preliminary assumption that this proportion is equal to the percentage of working-age, full-time employees in the UK workforce that are qualified to NQF4+. This is based on the premise that the supply of appropriately skilled workers should, in equilibrium, match the demand for such workers. Adjustments over time in factors including occupational earnings, the structure of product markets, methods of production and the provision of places in training and education could plausibly lead to such an equilibrium being reached.

The above assumption does not require that all individuals in the labour market with NQF4+ qualifications are working in NQF4+ jobs, or that all individuals without such qualifications are not in NQF4+ jobs. Such an assumption would clearly be unrealistic because there will be both over-qualified workers (with qualifications at a higher level than are required by their jobs) and under-qualified workers (with lower level qualifications than are required by their job) in the labour market. If these two factors broadly balance each other out, our assumption will be valid. Assessing, empirically, whether this is the case is not straightforward.

One way of considering this is by assessing whether the supply of qualified workers in the workforce is equal to demand. Felstead *et al.* (2007) considered the demand for and supply of qualified workers using the 2006 Skills Survey, which asked employees about the qualifications that would be necessary to access their jobs now. This report assessed the skill level of NVQ and equivalent qualifications held by respondents to this survey, which we present here in terms of their position within the old NQF (see Chapter 1). They found that in 39 per cent of cases, the individual was deemed to be over-qualified, while in 14 per cent, the individual was under-qualified.

However, the aggregate findings may overstate the mismatch between supply and demand for qualifications at old NQF level 4 (see Chapter 1) and above. The table below shows that supply was estimated to outstrip demand by around one million jobs or 4 per cent of the labour market at old NQF level 4 and above in 2006. Demand is measured by employees' perceptions of the qualification level required to access current job with the addition of vacancies. Supply is given by the stock of workers plus ILO unemployed at old NQF level 4 or above.

However, qualifications are not a perfect proxy for skill, and they may also be used by employers as a signal for other skills in the search process. There is evidence that although the supply of skilled labour has increased in recent decades, the demand has risen faster, contributing to increased income inequality over time. One possible explanation, as put forward in Machin (1996), is skill biased technological change that favours more skilled workers.

Furthermore, returns to qualifications have not fallen over time, suggesting that demand has kept pace with the rising supply of better qualified individuals. See Aston and Bekhradnia (2003), Dickerson (2005) and Powdthavee and Vignoles (2006).

Box 2.1: Estimating the proportion of UK jobs skilled to NQF4+ *(continued)*

Demand and supply of qualifications, 2006

"Old" NQF level (1)	Demand (highest qualification required) (2)		Supply (stock of economically active and ILO unemployed) (3)	
	(000s)	Per cent of total	(000s)	Per cent of total
Level 4 and above	7,676	29	8,770	33
Level 3	4,264	16	6,397	24
Level 2	3,957	15	5,774	21
Level 1	2,958	11	3,452	13
No qualifications	7,351	28	2,472	9
Total	26,204	100	26,865	100

Notes: (1) Felstead *et al.* (2007) assessed the skill level of NVQ and equivalent qualifications held by respondents to this survey, which we present here in terms of their position within the old NQF. See Chapter 1 for a discussion of NQF levels. (2) Demand is based on respondents' view of the qualifications that would be necessary to access their jobs now, grossed-up using Labour Force Survey estimates of jobs, with the addition of vacancies at different skill levels. (3) Supply is based on Labour Force Survey estimates of the stock of economically active and ILO unemployed at different skill levels. Estimates based on Labour Force Survey Q2, 2006, individuals aged 20-65.
Source: Felstead *et al.* (2007)

Finally, there may be differences between the average level of qualifications held by individuals currently employed in an occupation (the stock), and those of new recruits into that occupation (the inflow). If entry requirements for jobs have risen across the labour market, or in specific occupations, then the stock is likely to be less qualified than the current inflow. In this instance, the stock of workers qualified to a particular level may underestimate the skill requirements within an occupation.

On balance, having taken the above factors into account, we saw no strong reason to deviate from our preliminary assumption that the proportion of jobs skilled to NQF4+ is equal to the proportion of working-age, full-time employees in the UK workforce that are qualified to NQF4+. According to the LFS this latter figure is 38 per cent.

2.4 Analysis of occupations

2.34 Following the approach outlined above, in order to identify occupations that are skilled to NQF level 4 or above, the threshold values for the three top-down indicators of skill are set as follows:

- **Earnings:** We require median hourly earnings for full-time employees within an occupation to be £13.40 per hour or more. This is measured using the 2010 ASHE.

- Formal **qualifications:** We require that 41 per cent or more of the workforce within an occupation be qualified to NQF4+. This is measured using the LFS covering the twelve quarters of 2007 Q4 to 2010 Q3.

- **SOC skill level:** We require an occupation to be classified at skill level 4 (the highest of the four skill levels) in the SOC 2000 hierarchy.

2.35 As described previously, the first two threshold values were determined by the 62nd percentile of the distribution for each indicator, therefore each identifying 38 per cent of working-age, full-time employees in the UK.

2.36 Using these threshold values, and applying the requirement that an occupation must pass at least two of the three top-down indicators of skill, 121 of the 353 4-digit SOC occupations have been identified as skilled to NQF4+. These occupations are listed in Table 3.1 in Chapter 3. Each of these occupations appeared on the list of 192 occupations that we previously

identified as being skilled to NQF3+. Therefore, there are 71 occupations that we previously considered skilled to NQF3+ but do not consider skilled to NQF4+. These 71 occupations are listed in Table 3.2 in Chapter 3.

2.37 Of the 353 4-digit SOC occupations, 134 pass the earnings indicator (i.e. 38 per cent of 353 occupations). 142 occupations pass the qualifications indicator, slightly more than for the earnings indicator. 76 occupations pass the SOC skill level indicator.

2.38 Of the 121 occupations that we have identified as being skilled to NQF4+, 54 pass on two of our indicators, while 67 pass on all three. The 121 occupations cover 39 per cent of working-age, full-time employees in the UK labour market. This figure is very similar to the proportion of UK working-age, full-time employees qualified to NQF4+, found to be 38 per cent (see Box 2.1 above). The reason for the small difference between the two percentages is that although we calibrate each indicator to the appropriate share of the labour market, the proportion of the labour market that the final list covers will depend on the correlation between all three indicators. Nevertheless, we believe that if these two figures were substantially different it would raise potential questions about the validity of our approach. Conversely, we take the similarity of the two numbers as an indication that our approach is valid.

2.39 Nonetheless, although our approach is based on careful consideration and uses the best data available, any attempt to use a small number of simple data to categorise occupations into just two groups on the basis of their skill level will

inevitably lead to some results that are, through casual observation, surprising. For example, 'air traffic controllers' (SOC code 3511) would be viewed by many people as a relatively highly skilled occupation, yet it passes only on the earnings indicator. Earnings in this occupation are the sixth highest of the 338 occupations for which data are available, yet only 30 per cent of working-age, full-time employees hold an NQF4+ qualification.

2.40   For occupations such as this, it may be the case that the skill level of the occupation is not reflected in the qualifications of those employed. As described above, we have made allowance for such instances by requiring occupations to pass on two out of three indicators to be classed as skilled to NVQ4+. Therefore it is possible for an occupation to be considered skilled to NQF4+ by passing on earnings and SOC skill level, but not on qualifications. Nonetheless, we also considered any available bottom-up information to determine whether the occupation is sufficiently skilled to be placed on our NQF4+ occupation list, taking into account the skills and experience required in the occupation that were not measured in our top-down data as detailed later in this chapter.

Sensitivity analysis

2.41   We undertook a sensitivity analysis on the list of occupations skilled to NQF4+ identified from our top-down analysis by examining:

- **alternative approaches** to identifying occupations skilled to NQF4+;

- the impact of our choice of using **hourly earnings** rather than annual earnings as an indicator of skill; and

- the sensitivity of the list of NVQ4+ occupations to the precise value of the chosen **threshold values** for the earnings and qualifications indicators.

2.42   The above tests are discussed in more detail below. First, in addition to the approach described in the previous section, we also considered two **alternative approaches** for setting the thresholds for the top-down skill indicators.

2.43   One of the alternatives we considered involved ranking the occupations by each of the three indicators to generate a ranking score for each occupation and for each indicator. For example, the occupation with the highest earnings indicator was assigned a score of one for that indicator, while the occupation with the lowest earnings indicator was assigned a score of 353. This was repeated for the other two indicators. The three ranking scores (corresponding to each of the three indicators) were summed, to give an overall ranking score. Occupations were then selected by ascending order of overall ranking score until the proportion of working-age, full-time employees in those occupations matched the proportion of jobs in the UK that are skilled to NQF4+, found to be 38 per cent (see Box 2.1 above). In contrast to our preferred approach and previous methodology, this approach did not involve setting threshold values for the three indicators.

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2.44 The other alternative approach we considered did involve setting threshold values for the three indicators. As described previously, we believe that level 4 of the SOC skill level categorisation matches most closely with level 4 of the NQF. We used SOC level 4 as one of our indicators. Combinations of threshold values for the earnings and qualifications indicators were then identified such that the proportion of working-age, full-time employees covered by those combinations matched the proportion of jobs in the UK that are skilled to NQF4+ (again, 38 per cent). This approach generated multiple threshold values for these two indicators, and therefore multiple lists of occupations, but no definitive guide to which list was most suitable.

2.45 Overall, the lists of occupations identified as skilled to NQF4+ generated using the three approaches outlined above were very similar. This result is encouraging and implies that the final list of occupations produced from the top-down analysis is robust to deviations in the precise methodology used.

2.46 Furthermore, this highlights the advantage of the approach we used in that it not only requires an occupation to be relatively highly ranked on at least two of our skill indicators, but it also provides unique threshold values for each indicator. Therefore, it provides a comprehensive approach to identifying occupations skilled to NQF4+ and is preferable to the two alternatives considered above.

2.47 Second, we have chosen to use **hourly earnings** rather than annual earnings as our indicator of skill, as it is not clear that long hours in themselves, which will boost annual earnings at a given rate of hourly pay, make a job more skilled. Nonetheless, we have investigated what the impact would be on our list of occupations skilled to NQF4+ were we to use annual data instead of hourly data for this indicator.

2.48 Using annual earnings (as above, defined as gross earnings restricted to full-time employees only, estimated from ASHE 2010) instead of hourly earnings results in fewer occupations appearing on the list of occupations skilled to NQF4+ (115 instead of 121) and a slightly lower proportion of working-age, full-time employees in the workforce being covered by the list (38 per cent instead of 39 per cent). The similarity of these results reflects the fact that the correlation between the annual and hourly earnings variables is very high at 0.98. On balance, we believe that using hourly instead of annual earnings data is the best way to measure the indicator and we are also satisfied that this decision has not had a significant impact on our results.

2.49 Third, we have assessed the impact of allowing the **threshold values** for the earnings and qualifications indicators to vary by 5 per cent in either direction on the occupations that are identified as being skilled to NQF4+ according to our analysis.

2.50 Table 2.3 presents the results of this sensitivity analysis. We have referred to those occupations that would be added to our list were the threshold values of both indicators to be reduced by 5 per cent as 'borderline fails', while the occupations that would be removed from the list were the threshold values increased by 5 per cent are referred to as 'borderline passes'. The left side of Table 2.3 lists the eight borderline fail occupations, while the right side lists the nine borderline pass occupations.

2.51 These results do not affect the top-down list of occupations skilled to NQF level 4 or above, but the proximity of the indicators for these occupations to the required thresholds may be taken into account when considering bottom-up evidence in relation to specific job-titles.

2.52 As an additional check, we have examined whether the application of the new SOC 2010 classification would have any impact on whether occupations would pass the SOC skill level indicator, and so whether we would consider them skilled to NQF4+. Comparing the two classifications is not straightforward because the revisions involved reallocating some job-titles within 4-digit occupations in SOC 2000 to different occupations in SOC 2010 meaning a complete cross-comparison is not possible without further data. Nevertheless, where appropriate comparisons can be made, based on the closest matches under SOC 2010, changes between the SOC 2000 and SOC 2010 hierarchies do not appear to affect the NQF4+ list.

2.53 The analysis presented so far has focussed around the three top-down indicators of skill. As discussed in section 2.2, we also refer to two bottom-up indicators of skill: on-the-job training or experience and innate ability. These indicators are discussed further in the next section when we consider information provided by our corporate partners.

Table 2.3: Borderline fail and borderline pass SOC 2000 4-digit occupations	
Borderline fail	**Borderline pass**
1162 Storage and warehouse managers	1219 Managers in animal husbandry, forestry and fishing n.e.c
3114 Building and civil engineering technicians	1222 Conference and exhibition managers
3115 Quality assurance technicians	3121 Architectural technologists and town planning technicians
3122 Draughts persons	3218 Medical and dental technicians
3132 IT user support technicians	3319 Protective service associate professionals n.e.c
3442 Sports coaches, instructors and officials	3422 Product, clothing and related designers
3563 Vocational and industrial trainers and instructors	3433 Public relations officers
5245 Computer engineers, installation and maintenance	3564 Careers advisers and vocational guidance specialists
	3566 Statutory examiners

Note: (1) Occupations are referred to as borderline fails if they appear on the list of occupations skilled to NQF4+ when the threshold values for the earnings and qualifications indicators are reduced by 5 per cent.
(2) Occupations are referred to as borderline passes if they appear on the list of occupations skilled to NQF4+ when the threshold values for the earnings and qualifications indicators are increased by 5 per cent.
Source: MAC analysis

2.5 Information from corporate partners

2.54   The timescales for this report did not allow for a formal call for evidence, but we took steps to ensure that our partners were aware that we were undertaking this work and we considered any written submissions we received. In particular, we approached partners who we believed were likely to have an interest in occupations that our preliminary top-down analysis suggested were at a level of skill close to, but below, the NQF4+ threshold. The limited time we have had to complete this work means that, in considering bottom-up evidence, we decided to focus most of all on those occupations that we know have made significant use of Tier 2 of the Points Based System (PBS) in the past.

2.55   We wrote to over 1,000 corporate partners and received approximately 70 written responses, which we have considered alongside our top-down analysis. We also sought the views of our partners through discussions and events. We met with around 25 corporate partners at various events and meetings. Organisations that wrote to us and those that we met with are listed in Annex A.

General themes

2.56   Some partners raised general concerns about the Government's decision to raise the skill level of Tier 2 from NQF3+ to NQF4+. It was pointed out that a number of occupations previously classed as 'skilled' will no longer be eligible for entry under Tier 2 of the PBS and employers will find it more difficult to fill shortages in what were until recently regarded as 'skilled'

occupations. Some partners expressed discontent at the timescale over which the change was being made which left some sectors with little time in which to react.

2.57 A number of partners commented that employees in some occupations did not always need formal NQF4+ qualifications, nor indeed any formal qualifications at all, but that on-the-job training, experience and innate ability were equally important. Our methodology, as described in this report, is sufficiently flexible to incorporate sufficiently strong evidence of this nature, and we did consider such evidence where it was put to us.

2.58 We received differing views on wages as an indicator of skill level. Many partners were supportive of this approach, whereas others felt wages often did not reflect accurately the skill level at which a worker was required to operate.

Occupational themes

2.59 Much of the information we received simply asserted that occupations were at NQF4+. Very little correspondence was received for the opposite argument. Where assertions did not match our top-down analysis, and where time permitted, we went back to partners to ask for more specific information, focusing in particular on those occupations known to have made significant use of Tier 2 of the PBS in the past.

2.60 Many of our partners are concerned with one, or a small number of, specific job titles. 4-digit SOC occupations include within them a wide range of job titles. Although we

considered information received on such job titles, it often proved difficult to satisfactorily assess the skill level of the majority of occupations using bottom-up information at the job title level only.

2.61 In the case of more narrowly defined occupations, it is more plausible that individual partners could make the case that an occupation is skilled. However, even in such cases, arguments from the viewpoint of their own business functions do not necessarily reflect the skill level of that occupation across other sectors. For example, a graphic designer (3421) working for one employer may be required to work to a very different skill level than a graphic designer working in another business area.

2.62 Our top-down analysis takes the average level of qualification across the whole occupation. We accept that there will be instances where employees are working at NQF4+ level in an occupation which does not overall pass as NQF4+. In these cases there may be a rationale for job titles, or subsets of job titles, to be added to the shortage occupation list, subject to those job titles satisfying the further shortage and sensible criteria.

Specific occupations

2.63 In most cases partners provided information to us which supported the findings of our top-down analysis. For example, for the occupations social workers (2442), nurses (3211) and midwives (3212) a formal NQF4+ qualification is now a requirement. We received other evidence from the healthcare sector, but there was general agreement

that the move to NQF4+ would not, in the main, affect many healthcare occupations.

2.64   In some cases we received information asserting that occupations were at NQF4+ when our top-down analysis indicated that those occupations were not at that level. For example, in the agriculture and horticulture sector we were told that farmers (5111), gardeners and groundsmen / groundswomen (5113), and horticultural trades (5112) should be considered NQF4+. None of these occupations passed any of our top-down indicators.

2.65   We received representations from the finance sector on a number of occupations which were in the main skilled to NQF4+ according to our top-down analysis. However, there were a few exceptions such as insurance underwriters (3533), which were mentioned by more than one partner. This occupation only passed the pay indicator from our top-down analysis and we did not receive sufficient depth of evidence to persuade us that the occupation as a whole was at NQF4+.

2.66   We also had representations from the legal sector which again, in the main, was arguing the case for occupations which were also found to be skilled to NQF4+ according to our top-down analysis. The occupation legal associate professionals (3520) was an exception. This occupation passed our qualifications indicator, but not the other two, and we did not receive sufficient evidence to persuade us that the occupation was skilled to NQF4+.

2.67   The engineering sector raised concerns about occupations within the 3111 to 3119 range of SOC codes, particularly engineering technicians (3113) and science engineering technicians n.e.c. (3119). Partners thought these occupations were likely to be below NQF4+ as a whole, but there may be a number of specialised roles skilled to NQF4+. It was argued that some NQF4+ engineering professionals (e.g. chemical and process engineers, and also some roles within the nuclear sector) would be excluded. We were told that some of the workers in these occupations will have attained their skills by a vocational route followed by extensive on-the-job training rather than formal qualifications. On balance, we cannot conclude that any one of the 311 SOC codes is skilled in its entirety. Nonetheless, if there is evidence of labour shortages in relation to specific job titles within such occupations it may be that the sector can make a case for some such job titles being at NQF4+ at the time of the next review of the shortage occupation lists.

2.68   We received information, particularly from Japanese employers, that argued that the whole of the chefs and cooks occupation (5434) was skilled to NQF4+. We do not accept this argument as the occupation passes none of our top-down indicators and in previous reviews of the shortage occupation list we have found that only a subset of the occupation was skilled to the lower level of NQF3+. However, we will return to the skilled subset of chefs, currently on the UK shortage occupation list, in our report due in February 2011. That report will identify job titles on the present

shortage occupation list that meet the NQF4+ requirement. Some chefs may pass the NVQ4+ threshold, but they will account for a smaller proportion of the occupation than the 30 per cent that we previously judged to pass the NVQ3+ threshold (Migration Advisory Committee, 2009b).

2.69   We were told that some antique restorers should be considered to be working at NQF4+. For this we considered a number of relevant occupations (e.g. 5492 – furniture makers, other craft woodworkers, 5224 – precision instrument makers and repairers, and 5499 – hand craft occupations not elsewhere classified). In no instance did the occupation as a whole pass our top-down analysis. We accept that it is possible that particularly specialist restorers might be working at a higher level than the skill level for the occupation as a whole, although it is not clear to us whether this is at NQF4+. This is something relevant employers may wish to revisit with us if and when we are next commissioned by the Government to review the shortage occupation lists.

2.70   On the basis of the bottom-up information received, we see insufficient basis for altering the list of 4-digit occupations found to be skilled to NQF4+ in our top-down analysis. As discussed above, much of the information received from our partners related to specific job titles within 4-digit occupations.

2.71   In cases where job titles are currently on the UK shortage occupation list and the whole occupation is not skilled to NQF4+ according to our analysis, we will consider whether these job titles are

skilled to NQF4+ when we report on the second question asked by the Government, *"How should the current Shortage Occupation Lists for the UK and Scotland be revised to remove jobs below graduate level?"* in February 2011. In that report we will recommend revised shortage occupation lists that contain only NVQ4+ occupations and job titles.

2.72   The only job title currently on the Scotland shortage occupation list is consultant radiologist, within the SOC medical practitioners (2211). Because the occupation is skilled to NQF4+ according to our analysis, the Scotland shortage occupation list will not change as a result of our February 2011 review of NVQ4+ job titles.

2.6   Implications for different routes under Tier 2

2.73   We have used historical data to examine the proportion of Tier 2 applications for occupations skilled to NQF4+ in the past. We consider the intra-company transfer, Resident Labour Market Test and shortage occupation routes. These calculations are not forecasts of future flows. Restricting Tier 2 routes to NQF4+ jobs and occupations is only one of a range of policies, including the introduction of the first annual limit on Tier 2, which will influence flows through this tier. Additionally, our own future work on the skill level of job titles on the shortage occupation lists will also have an impact. As will a range of economic and social factors that influence the size and composition of future migrant flows to the UK.

2.74 We looked at the volumes of Certificates of Sponsorship (CoS) that were used under Tier 2 in 2010 in relation to occupations skilled to NQF4+. These data are management information from the UK Border Agency's sponsor management system and do not equal migrant applications, as it is not possible to tell from the data whether the corresponding migrant's application is approved or refused. Table 2.4 shows that 84 per cent of Tier 2 CoS (both in-country and out-of-country) were for NVQ4+ occupations. The shortage occupation route had the lowest proportion of such CoS. This is because many of the highest volume users of the shortage occupation route, such as skilled chefs and senior care workers, are in occupations which are not deemed to be at NQF4+. However, these estimates do not account for the fact that job-titles may be skilled to NQF4+ within 4-digit occupations not skilled to that level. Such job titles may be identified using bottom-up evidence and are the subject of our forthcoming February 2011 report.

Table 2.4: Certificates of Sponsorship used (in-country and out-of-country applications) and estimated proportion skilled to NQF level 4+, 2010		
	Certificates of sponsorship used	**Percentage in occupations skilled to NQF level 4+ (lower bound)**
Intra-company transfers	36,000	96
Resident Labour Market Test	18,000	87
Shortage occupation list	8,400	31
Tier 2 Total	**62,400**	**84**

Notes: Estimates of proportions represent a lower bound because no account has been made for the potential inclusion of job-titles skilled to NQF level 4 or above (NQF4+) within 4-digit occupations that are not skilled to NQF4+. Certificates of Sponsorship used relate to circumstances where a migrant application that corresponds to the certificate has been submitted but not necessarily approved. Figures are rounded to the nearest 100; the small number of applications where an occupation is not stated are excluded from the calculated reduction. These data are Management Information (MI) collected by the UK Border Agency but not routinely published. These data have been made available to the MAC to support the analysis for this report and are neither National Statistics nor quality assured to National Statistics standards, and are, therefore, presented for research purposes only.
Source: UK Border Agency Management Information Data, 2010

2.7   Conclusions

2.75   In this chapter we discussed our approach to identifying occupations skilled to NQF4+. We have reviewed all aspects of our methodology to measure skill at the occupational level and made appropriate adjustments and improvements in order to identify occupations skilled to NQF4+. We considered the top-down list in the light of bottom-up information received. Much of the bottom-up information supported our top-down analysis, and, following consideration of particular occupations, we decided not to amend the top-down list on the basis of the bottom-up information we received. In Chapter 3 we present the list of occupations that we have identified as being skilled to NQF4+.

Chapter 3: Conclusions and next steps

3.1 Introduction

3.1 Based on the analysis described in Chapter 2, we present in this chapter the list of occupations at Standard Occupation Classification (SOC) 2000 4-digit level that we consider are skilled to at least National Qualifications Framework (NQF) level 4 (NQF4+) for the purposes of Tier 2 of the Points Based System (PBS). Those occupations which were previously deemed skilled to at least NQF level 3 (NQF3+) but which are not on the NQF4+ list are listed separately. We then explain the importance of subjecting the list to periodic review, and we briefly illustrate the implications of using an alternative, more restrictive, definition of a 'graduate-level' occupation, which better matches the level of qualification associated with a bachelor's degree.

3.2 Concurrent with the work outlined in this report, we have also been considering those job titles on the current shortage occupation list that are a sub-set of an occupation below NQF level 4. We will report on this work by February 2011.

3.2 4-digit occupations at NQF level 4 and above for Tier 2 of the Points Based System

3.3 In Chapter 2 we described our preferred methodology for identifying those occupations we consider skilled to at least NQF level 4. Out of the 192 occupations we identified as skilled to at least NQF level 3 (NQF3+) in Migration Advisory Committee (2008), 121 can be considered skilled to NQF4+. These occupations are listed in Table 3.1. Overall, these occupations cover 39 per cent of working-age, full-time employees in the UK labour market. This compares to our original NQF3+ list set out in Migration Advisory Committee (2008) which covered 56 per cent of working-age, full-time employees (in the three years to Q3 2010).

3.4 The list of occupations that we consider skilled to NQF4+ in Table 3.1 is identical to that which emerged from our top-down analysis. We have considered information received from our partners in relation to 4-digit SOC occupations but, as reported in Chapter 2, we received insufficient evidence to corroborate assertions that some occupations should be considered skilled to NQF4+. In relation to the borderline

occupations listed in section 2.4, it is likely that some jobs included in these occupations are skilled to NQF4+. We would be happy to consider relevant evidence in relation to shortages of labour in such jobs and occupations that would sensibly be filled using labour from outside the European Economic Area when we are next asked to review the shortage occupation lists for the UK and Scotland.

3.5   Table 3.2 lists the occupations that we previously assessed as skilled to NQF3+ but which we do not consider skilled to NQF4+.

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF4+	SOC skill level	Indicators passed
Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011)						
1111	Senior officials in national government	9	32.28	70.1	4	3
1112	Directors and chief executives of major organisations	48	49.13	69.6	4	3
1113	Senior officials in local government	22	25.61	81.6	4	3
1114	Senior officials of special interest organisations	23	18.81	82.9	4	3
1121	Production, works and maintenance managers	325	19.70	48.2	4	3
1122	Managers in construction	185	19.11	45.0	4	3
1123	Managers in mining and energy	15	23.30	61.9	4	3
1131	Financial managers and chartered secretaries	191	28.28	63.3	4	3
1132	Marketing and sales managers	459	22.16	54.5	4	3
1133	Purchasing managers	41	21.79	61.7	4	3
1134	Advertising and public relations managers	45	21.27	69.9	4	3
1135	Personnel, training and industrial relations managers	126	21.90	68.2	4	3
1136	Information and communication technology managers	271	23.55	66.4	4	3
1137	Research and development managers	57	23.94	80.6	4	3
1141	Quality assurance managers	44	18.96	60.1	4	3
1142	Customer care managers	82	17.37	35.9	4	2
1151	Financial institution managers	140	21.48	42.0	4	3
1152	Office managers	204	15.97	38.1	4	2
1161	Transport and distribution managers	71	16.59	25.3	4	2
1171	Officers in armed forces	24	22.12‡	64.2	4	3
1172	Police officers (inspectors and above)	15	26.46	49.1	4	3
1173	Senior officers in fire, ambulance, prison and related services	15	18.57	40.3*	4	3

	Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011) *(continued)*					
SOC code	**Occupation**	**Employ-ment (000s)**	**Median earnings (£/hr)**	**Per cent qualified to NQF4+**	**SOC skill level**	**Indicators passed**
1174	Security managers	16	17.08	34.5	4	2
1181	Hospital and health service managers	64	23.02	89.1	4	3
1182	Pharmacy managers	7	19.22	77.1	4	3
1183	Healthcare practice managers	16	15.03	49.2	4	3
1184	Social services managers	43	19.82	80.5	4	3
1185	Residential and day care managers	45	15.26	62.4	4	3
1212	Natural environment and conservation managers	6	18.64	69.9	3	2
1219	Managers in animal husbandry, forestry and fishing n.e.c.	5	13.54	41.2*	3	2
1222	Conference and exhibition managers	15	13.72	44.3	3	2
1231	Property, housing and land managers	71	17.68	49.9	3	2
1235	Recycling and refuse disposal managers	6	15.38	49.9	3	2
1239	Managers and proprietors in other services n.e.c.	131	16.51	47.6	3	2
2111	Chemists	21	16.43	89.8	4	3
2112	Biological scientists and biochemists	77	18.62	89.6	4	3
2113	Physicists, geologists and meteorologists	20	21.41	95.9	4	3
2121	Civil engineers	67	16.84	76.2	4	3
2122	Mechanical engineers	68	19.60	59.7	4	3
2123	Electrical engineers	48	21.04	51.9	4	3
2124	Electronics engineers	31	21.47	67.3	4	3
2125	Chemical engineers	8	17.66‡	80.1	4	3
2126	Design and development engineers	51	17.37	79.0	4	3
2127	Production and process engineers	30	16.33	47.1	4	3
2128	Planning and quality control engineers	27	15.99	45.0	4	3

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF4+	SOC skill level	Indicators passed
	Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011) *(continued)*					
2129	Engineering professionals n.e.c.	72	17.81	59.9	4	3
2131	IT strategy and planning professionals	106	23.41	69.2	4	3
2132	Software professionals	283	18.54	70.6	4	3
2211	Medical practitioners	143	32.03	92.8	4	3
2212	Psychologists	18	19.87	94.7	4	3
2213	Pharmacists/pharmacologists	22	19.70	92.6	4	3
2214	Ophthalmic opticians	8	20.37	88.9	4	3
2215	Dental practitioners	6	26.83‡	94.0	4	3
2216	Veterinarians	8	15.77	83.0	4	3
2311	Higher education teaching professionals	92	24.09	96.5	4	3
2312	Further education teaching professionals	78	18.21	94.2	4	3
2313	Education officers, school inspectors	17	20.79	89.9	4	3
2314	Secondary education teaching professionals	346	21.90	97.8	4	3
2315	Primary and nursery education teaching professionals	291	20.86	97.5	4	3
2316	Special needs education teaching professionals	41	21.24	89.2	4	3
2317	Registrars and senior administrators of educational establishments	29	17.78	64.5	4	3
2319	Teaching professionals n.e.c.	43	15.32	87.4	4	3
2321	Scientific researchers	14	17.41	89.0	4	3
2322	Social science researchers	12	12.30	85.7	4	2
2329	Researchers n.e.c.	40	16.35	80.8	4	3
2411	Solicitors and lawyers, judges and coroners	93	24.77	96.3	4	3
2419	Legal professionals n.e.c.	13	19.35	77.4	4	3
2421	Chartered and certified accountants	106	19.42	73.0	4	3

Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011) *(continued)*						
SOC code	**Occupation**	**Employ-ment (000s)**	**Median Earnings (£/hr)**	**Per cent qualified to NQF4+**	**SOC skill level**	**Indicators passed**
2422	Management accountants	67	19.85	71.3	4	3
2423	Management consultants, actuaries, economists and statisticians	120	20.72	77.4	4	3
2431	Architects	29	18.98	91.6	4	3
2432	Town planners	20	18.08	96.0	4	3
2433	Quantity surveyors	37	18.12	67.0	4	3
2434	Chartered surveyors (not quantity surveyors)	50	18.53	80.9	4	3
2441	Public service administrative professionals	25	23.72	62.3	4	3
2442	Social workers	81	16.78	80.6	4	3
2443	Probation officers	12	15.53	80.7	4	3
2444	Clergy	30	11.35	81.5	4	2
2451	Librarians	21	14.39	81.8	4	3
2452	Archivists and curators	7	12.88	76.4	4	2
3121	Architectural technologists and town planning technicians	18	13.52	80.0	3	2
3123	Building inspectors	3	15.23	80.6	3	2
3131	IT operations technicians	105	15.23	53.1	3	2
3211	Nurses	343	15.81	89.0	3	2
3212	Midwives	22	18.41	94.5	3	2
3213	Paramedics	18	17.63	52.7	3	2
3214	Medical radiographers	19	18.64	91.0	3	2
3215	Chiropodists	3	16.99	86.7	3	2
3218	Medical and dental technicians	23	14.05	52.0	3	2
3221	Physiotherapists	20	15.60	92.8	3	2
3222	Occupational therapists	19	16.07	92.1	3	2
3223	Speech and language therapists	7	16.21	94.2	3	2
3229	Therapists n.e.c.	15	16.32	79.7	3	2
3319	Protective service associate professionals n.e.c.	28	14.10	38.6*	3	2
3411	Artists	5	14.73	58.5	3	2
3412	Authors, writers	19	14.70	81.3	3	2
3413	Actors, entertainers	3	15.19‡	46.7	3	2

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF4+	SOC skill level	Indicators passed
	Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011) *(continued)*					
3414	Dancers and choreographers	2	15.66	33.0*	3	2
3415	Musicians	4	17.03	54.7	3	2
3416	Arts officers, producers and directors	18	16.47	71.2	3	2
3422	Product, clothing and related designers	27	13.76	65.0	3	2
3431	Journalists, newspaper and periodical editors	37	15.66	79.5	3	2
3432	Broadcasting associate professionals	30	21.14	79.8	3	2
3433	Public relations officers	21	14.01	79.3	3	2
3512	Aircraft pilots and flight engineers	18	36.85	56.6	3	2
3513	Ship and hovercraft officers	15	22.30‡	43.9	3	2
3531	Estimators, valuers and assessors	52	14.24	42.8	3	2
3532	Brokers	41	24.90	49.8	3	2
3534	Finance and investment analysts/advisers	117	18.70	58.1	3	2
3535	Taxation experts	19	16.26	50.2	3	2
3537	Financial and accounting technicians	21	17.62	45.6	3	2
3539	Business and related associate professionals n.e.c.	106	14.39	60.5	3	2
3541	Buyers and purchasing officers	56	14.80	45.6	3	2
3543	Marketing associate professionals	91	14.07	63.0	3	2
3551	Conservation and environmental protection officers	20	14.58	84.8	3	2
3561	Public service associate professionals	60	15.92	54.5	3	2
3564	Careers advisers and vocational guidance specialists	22	13.91	75.3	3	2
3565	Inspectors of factories, utilities and trading standards	13	16.98	59.2	3	2

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF4+	SOC skill level	Indicators passed
3566	Statutory examiners	14	13.47	42.5	3	2
3567	Occupational hygienists and safety officers (health and safety)	31	16.70	51.3	3	2
3568	Environmental health officers	10	16.46	76.6	3	2

Table 3.1: List of 4-digit SOC 2000 occupations skilled to NQF4+ (February, 2011) *(continued)*

Notes: For each of the three top-down indicators of skill, the indicator value is coloured green if the indicator passes and red if it does not. ‡ Indicates occupations where ASHE earnings data is deemed unreliable at the SOC 4-digit level and the 3-digit value is used instead. For the qualifications indicator, the mid-point of the estimate is displayed, although the upper bound of the 95 per cent confidence interval is assessed against the threshold value to determine whether the indicator passes or fails. Occupations passing only on the upper bound of the qualifications indicator are identified with an asterisk. Employment figures refer to working-age, full-time employees only and are rounded to the nearest thousand.
Source: Employment and qualifications data: LFS 2007Q4 to 2010Q3. Earnings data: ASHE 2010, Table 14.5a (restricted to full-time employees only). SOC skill level data: ONS SOC 2000.

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent Qualified to NQF4+	SOC skill level	Indicators passed
	Table 3.2: List of 4-digit SOC 2000 occupations skilled to NQF3+ in Migration Advisory Committee (2008) but not to NQF4+ (February, 2011)					
1162	Storage and warehouse managers	72	13.10	19.9	4	1
1163	Retail and wholesale managers	317	11.04	23.6	4	1
1211	Farm managers	9	12.47	23.3	3	0
1221	Hotel and accommodation managers	27	10.92	36.4	3	0
1225	Leisure and sports managers	37	12.17	44.6	3	1
1226	Travel agency managers	6	12.34	20.3	3	0
1232	Garage managers and proprietors	19	12.82	5.0	3	0
1233	Hairdressing and beauty salon managers and proprietors	5	16.46‡	11.4	3	1
1234	Shopkeepers and wholesale/retail dealers	24	12.50	30.0	3	0
3111	Laboratory technicians	51	11.13	47.7	3	1
3112	Electrical/electronics technicians	25	14.43	32.9	3	1
3113	Engineering technicians	64	15.34	35.5	3	1
3114	Building and civil engineering technicians	21	13.21	56.9	3	1
3115	Quality assurance technicians	14	12.80	43.6	3	1
3119	Science and engineering technicians n.e.c.	33	11.61	40.9*	3	1
3122	Draughtspersons	34	13.10	53.3	3	1
3132	IT user support technicians	56	13.18	47.3	3	1
3216	Dispensing opticians	3	12.39	35.5*	3	1
3217	Pharmaceutical dispensers	21	8.67	21.1	3	0
3231	Youth and community workers	72	12.49	53.8	3	1
3232	Housing and welfare officers	123	12.69	53.4	3	1
3311	NCOs and other ranks	61	16.26‡	20.4	3	1
3312	Police officers (sergeant and below)	169	17.88	32.9	3	1
3313	Fire service officers (leading fire officer and below)	41	13.82	20.6	3	1
3314	Prison service officers (below principal officer)	44	13.38	17.4	3	0

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent Qualified to NQF4+	SOC skill level	Indicators passed
3421	Graphic designers	54	12.20	66.4	3	1
3434	Photographers and audio-visual equipment operators	24	11.60	46.6	3	1
3441	Sports players	8	10.99‡	19.8	3	0
3442	Sports coaches, instructors and officials	21	12.87	48.9	3	1
3443	Fitness instructors	14	7.94	32.0	3	0
3449	Sports and fitness occupations n.e.c.	6	10.99‡	57.4	3	1
3511	Air traffic controllers	6	26.79	29.9	3	1
3514	Train drivers	18	21.91	10.0	3	1
3520	Legal associate professionals	43	12.68	48.3	3	1
3533	Insurance underwriters	26	16.50	33.8	3	1
3536	Importers, exporters	5	10.94	31.0	3	0
3542	Sales representatives	159	13.03	31.3	3	0
3544	Estate agents, auctioneers	20	11.57	33.4	3	0
3552	Countryside and park rangers	6	11.15	55.2	3	1
3562	Personnel and industrial relations officers	112	12.41	51.7	3	1
3563	Vocational and industrial trainers and instructors	99	12.74	49.8	3	1
4111	Civil Service executive officers	65	12.80	35.4	2	0
4114	Officers of non-governmental organisations	28	12.50	51.0	2	1
4142	Communication operators	25	13.28	27.3	2	0
5211	Smiths and forge workers	2	11.64	3.0	3	0
5212	Moulders, core makers, die casters	4	10.01	5.6	3	0
5214	Metal plate workers, shipwrights, riveters	9	11.50	4.2	3	0
5215	Welding trades	69	10.58	2.8	3	0
5216	Pipe fitters	11	13.54	6.6	3	1
5221	Metal machining setters and setter-operators	53	11.47	8.1	3	0

Table 3.2: List of 4-digit SOC 2000 occupations skilled to NQF3+ in Migration Advisory Committee (2008) but not to NQF4+ (February, 2011) *(continued)*

SOC code	Occupation	Employment (000s)	Median earnings (£/hr)	Per cent Qualified to NQF4+	SOC skill level	Indicators passed
5222	Tool makers, tool fitters and markers-out	13	11.65	9.9	3	0
5223	Metal working production and maintenance fitters	187	12.79	14.8	3	0
5224	Precision instrument makers and repairers	18	12.28	26.2	3	0
5233	Auto electricians	6	10.81	15.3	3	0
5241	Electricians, electrical fitters	168	13.63	12.9	3	1
5242	Telecommunications engineers	42	13.46	20.8	3	1
5243	Lines repairers and cable jointers	12	14.93	4.2	3	1
5245	Computer engineers, installation and maintenance	36	13.14	45.0	3	1
5249	Electrical/electronics engineers n.e.c.	74	12.31	24.9	3	0
5311	Steel erectors	10	10.92	3.6	3	0
5312	Bricklayers, masons	39	11.05	3.5	3	0
5314	Plumbers, heating and ventilating engineers	109	13.23	6.3	3	0
5315	Carpenters and joiners	123	11.05	4.6	3	0
5319	Construction trades n.e.c.	63	11.16	14.4	3	0
5414	Tailors and dressmakers	3	9.15	7.4	3	0
5421	Originators, compositors and print preparers	3	10.23	11.2	3	0
5422	Printers	30	12.89	5.5	3	0
5493	Pattern makers (moulds)	2	13.46	19.3	3	1
5495	Goldsmiths, silversmiths, precious stone workers	2	9.73	5.9	3	0
5496	Floral arrangers, florists	5	6.75	9.8	3	0
8124	Energy plant operatives	5	14.27	10.9	2	1

Notes: Occupations listed in this table are those deemed in Migration Advisory Committee (2008) to be skilled to at least National Qualifications Framework (NQF) level 3 minus those occupations identified in this report as skilled to at least NQF level 4. For each of the three top-down indicators of skill, the indicator value is coloured green if the indicator passes and red if it does not. ‡ Indicates occupations where ASHE earnings data is deemed unreliable at the SOC 4-digit level and the 3-digit value is used instead. For the qualifications indicator, the mid-point of the estimate is displayed, although the upper bound of the 95 per cent confidence interval is assessed against the threshold value to determine whether the indicator passes or fails. Occupations passing only on the upper bound of the qualifications indicator are identified with an asterisk. Employment figures refer to working-age, full-time employees only and are rounded to the nearest thousand.
Source: Employment and qualifications data: LFS 2007Q4 to 2010Q3. Earnings data: ASHE 2010, Table 14.5a (restricted to full-time employees only). SOC skill level data: ONS SOC 2000.

3.3   Concluding remarks

3.6   It is for the Government to decide whether and when to accept our recommendations, and the timescale for incorporating these into the rules of Tier 2 of the PBS. Our current expectation is that the revised list of occupations for Tier 2 will come into operation alongside the introduction of the first annual limit on Tier 2 in April 2011.

3.7   In contrast to changing patterns of labour shortage, we do not believe that the required skill level for occupations changes rapidly over time. For that reason, we did not fully review our original 2008 list of NQF3+ occupations (Migration Advisory Committee, 2008) in our subsequent shortage occupation reviews in Migration Advisory Committee (2009a, 2009b and 2010c). Nevertheless, over the longer term, the skill requirements for occupations can change, new evidence may come to light, and we may identify ways of refining our methodology. Therefore, the full list of NQF4+ occupations should be subject to periodic review in addition to reviews of individual job titles that can be carried out as part of more regular reviews of the shortage occupation lists for the UK and Scotland.

3.8   There are also specific reasons why, in this instance, a future review of the list of skilled occupations is important. One such reason is that this is the first time the minimum skill level has been altered under Tier 2 of the PBS. The impact of this change needs to be kept under review. For some occupations, in particular, those identified as borderline, more bottom-up evidence could become available supporting the case for additions to, or subtractions from, the list of occupations skilled to NQF4+.

3.9   Additionally, as explained in Chapter 2, our analysis used SOC 2000 instead of the more updated version SOC 2010 published by the Office for National Statistics in June 2010. This is because the datasets used for our work are not yet available in SOC 2010 format. We understand that all the national datasets we used for this analysis will be available in SOC 2010 format by 2012. Therefore, we recommend that the list of occupations skilled to NQF4+ is revised at that point to take into account changes to occupations and their compositions resulting from the revisions to this classification.

3.10   Furthermore, our task was to identify those occupations that we consider to be skilled to NQF4+. As discussed in Chapter 1, there are alternative ways to define 'graduate-level' occupations. In the future, the Government could decide to define 'graduate level' in a different way and, at that point, the list will need to be revised accordingly. For the purposes of comparison, Box 3.1 presents some indicative results of analysis to identify occupations skilled to at least NQF level 6.

Box 3.1 An illustrative list of occupations skilled to NQF level 6 and above

As explained in Chapter 1, a stricter definition of 'graduate level' than NQF4+ is NQF level 6 and above (NQF6+). NQF level 6 includes qualifications such as bachelor's degree, as shown in Table 1.1.

To produce an illustrative list of NQF6+ occupations we repeated the methodology outlined in Chapter 2, with two amendments:

- replace the qualifications indicator with the proportion qualified to NQF6+; and

- set threshold values for the earnings and qualifications indicators according to the share of working-age, full-time employees holding NQF6+ qualifications.

It is, however, less straightforward to identify NQF6+ qualifications in the LFS than those at NQF4+, because of the classification used in the relevant variables. For the purposes of this illustrative analysis, we assume NQF6+ includes higher and first degrees and NVQs at level 5 but not foundation and other degrees or HNC/HND/BTECs.

According to our definition, 26 per cent of working-age, full-time employees in the labour market hold NQF6+ qualifications. The threshold values for the earnings and qualifications indicators are therefore set at the 74th percentile of the distribution. The resulting threshold values are:

- earnings of £15.98 per hour or more;

- at least 38 per cent of working-age, full-time employees in the occupation are qualified to NQF6+; and

- SOC skill level 4.

These thresholds result in 87 occupations being identified as skilled to NQF6+, covering approximately 30 per cent of working-age, full-time employees in the labour market. In total, 34 occupations that are included on the NQF4+ list would be excluded from the NQF6+ list, as detailed in **Annex B**. These occupations include residential and day care managers, nurses, dancers and choreographers, and ship and hovercraft officers. The following table summarises the differences between our NQF4+ and NQF6+ occupation lists.

Comparing our NQF4+ and illustrative NQF6+ occupation lists		
	NQF level 4 and above	**NQF level 6 and above**
Number of occupations included	121	87
Share of employment	39%	30%
Source: MAC analysis based on employment and qualifications data: LFS 2007Q4 to 2010Q3; earnings data: ASHE 2010, Table 14.5a (restricted to full-time employees only). SOC skill level data: ONS SOC 2000.		

3.4   Next steps

3.11   We are currently considering the information received from our partners in relation to the second question the Government asked us to report on, in relation to job titles currently in the shortage occupation list that are within occupations which are not skilled to NQF4+. These job titles are listed in Table 3.3.

3.12   The report containing the revised shortage occupation list which will exclude occupations and job titles not considered skilled to NQF4+ will be submitted to the Government in February 2011. It is important to highlight the fact that for the purpose of this task we are considering only the skill level of jobs. We are not examining whether there is still a shortage in the UK labour market within jobs currently on the shortage occupation list or whether it is still sensible to employ non-EEA migrants in these jobs through the shortage occupation list route of Tier 2.

Table 3.3: Job titles on the current shortage occupation list that are under review to assess equivalence of skill level to NQF4+		
SOC	**Occupation**	**Job title(s)**
3113	Engineering technicians	Commissioning engineer
3119	Science and engineering technicians n.e.c.	Production controller in the electricity generation industry
3434	Photographer and audio-visual equipment operators	Roles within visual effects and 2D/3D computer animation for film, television or video games: animation supervisor; animator; computer graphics supervisor; technical director; CG supervisor; modeller; rigging supervisor; rigger; matte painter; texture artist; compositing artist; producer; production manager; editor; R&D tools; R&D software; software engineer; system engineer
5215	Welding trades	High integrity pipe welder
5223	Metal working production and maintenance fitters	Licensed and military certifying engineer/inspector technician; airframe fitter
5243	Line repairers and cable jointers	Overhead linesworker within the electricity transmission and distribution industry
5249	Electrical/electronic engineers n.e.c.	Site supervisor within the electricity transmission and distribution industry
5431	Butchers, meat cutters	Skilled meat boner; skilled meat trimmer
5434	Chefs, cooks	Skilled chef
6115	Care assistants and home carers	Skilled senior care worker
6139	Animal care occupations n.e.c.	Skilled work rider
9119	Fishing and agriculture-related occupations n.e.c.	Skilled sheep shearer

Note: The full list of occupations and job titles on the current shortage occupation list is available at: www.ukba.homeoffice.gov.uk/sitecontent/documents/workingintheuk/shortageoccupationlist.pdf

Annex A: Consultation

A.1 List of organisations that wrote to us

Alliance of Sector Skills Council Scotland

Anglo-European College of Chiropractic

Arup

Association of British Dispensing Opticians

Automat Limited

Banff & Buchan College

Brooklands Nursing Homes

Chartered Institute of Personnel and Development

Cogent

Company Chemists' Association

Confederation of British Industry

Construction Skills

Continental Travelnurse Ltd

Cwm Taf Local Health Board

Dearson Winyard International on behalf of Airbus Operations

Deloitte

Department of Health

Deutsche Bank

e2e Linkers

Embassy of Japan

Engineering Construction Industry Training Board

Engineering Council

Enterprise Rent-A-Car

e-skills UK

Evangelical Lutheran Church of England

Field Fisher Waterhouse LLP

General Healthcare Group

Gloucestershire Hospitals NHS Foundation Trust

GoSkills

Ground Forum

ICAP

Immigration Law Practitioners' Association

Imperial College London

Institution of Chemical Engineers

JETRO London

Kingsley Napley LLP

Lantra

London Borough of Hackney Council

London Borough of Redbridge

London School of Economics

Marketing Standard Limited

Microsoft

MonClef Ltd

M W Kellogg Limited

NASUWT

National Campaign for the Arts endorsed by The Society of London Theatre & the Theatrical Management Association

National Farmers Union

National Recruitment Scheme for NHS Pre-Registration Trainee Pharmacists (England & Wales)

North Tees and Hartlepool NHS Foundation Trust

Nursing & Midwifery Council

Oil & Gas UK

Peter Horada & Co Solicitors on behalf of Kiku Restaurant Limited

PricewaterhouseCoopers Legal LLP

Rolls-Royce

Royal Bank of Canada

Royal College of Nursing

Royal College of Veterinary Surgeons

Saki Bar & Food Emporium

Semta

School of Pharmacy and Life Sciences, Robert Gordon University

Scottish Social Services Council

Skills for Care and Development

Skills for Justice

Southwark Council

TIGA

The University of Nottingham

The University of Sheffield

The University of Warwick

Unilever UK Limited

University of Oxford

University of Portsmouth

Westinghouse UK

West Sussex County Council

A.2 List of organisations that we met with

ADS Group Limited

Balfour Beatty

Bangladesh Caterer's Association

British Hospitality Association

BT

Department of Business, Innovation and Skills

Department of Health

Embassy of Japan

Energy & Utility Skills Limited

English Community Care Association

Fernandes Vaz

Fragomen

General Electric

Marshall Aerospace

People 1st

Recruitment and Employment Confederation

Registered Nursing Home Association

Scottish Social Services Council

Semta

Skills for Care

Skills for Care and Development

Unilever

Visalogic

Annex B: Occupations skilled to at least NQF level 6

B.1 This annex supplements the illustrative analysis to identify occupations skilled to National Qualifications Framework (NQF) level 6 or above (NQF6+) rather than NQF4+, outlined in Box 3.1. The analysis reduced the list of 121 occupations to 87; the 34 occupations excluded are shown in Table B.1 below.

Table B.1: List of 4-digit occupations skilled to NQF4+ but NOT skilled to NQF6+ (February, 2011)						
SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF6+	SOC skill level	Indicators passed
1152	Office managers	204	15.97	23.0	4	1
1183	Healthcare practice managers	16	15.03	24.6	4	1
1185	Residential and day care managers	45	15.26	20.9	4	1
1219	Managers in animal husbandry, forestry and fishing n.e.c.	5	13.54	18.1	3	0
1222	Conference and exhibition managers	15	13.72	35.8*	3	1
1231	Property, housing and land managers	71	17.68	30.9	3	1
1235	Recycling and refuse disposal managers	6	15.38	27.5	3	0
1239	Managers and proprietors in other services n.e.c.	131	16.51	31.1	3	1
3121	Architectural technologists and town planning technicians	18	13.52	50.2	3	1
3123	Building inspectors	3	15.23	27.4	3	0
3131	IT operations technicians	105	15.23	37.9*	3	1
3211	Nurses	343	15.81	31.4	3	0
3213	Paramedics	18	17.63	14.5	3	1
3218	Medical and dental technicians	23	14.05	23.4	3	0
3221	Physiotherapists	20	15.60	79.1	3	1
3319	Protective service associate professionals n.e.c.	28	14.10	26.8	3	0
3411	Artists	5	14.73	50.3	3	1

SOC code	Occupation	Employ-ment (000s)	Median earnings (£/hr)	Per cent qualified to NQF6+	SOC skill level	Indicators passed
	Table B.1: List of 4-digit occupations skilled to NQF4+ but NOT skilled to NQF6+ (February, 2011) *(continued)*					
3412	Authors, writers	19	14.70	70.7	3	1
3413	Actors, entertainers	3	15.19‡	32.6*	3	1
3414	Dancers and choreographers	2	15.66	33.0*	3	1
3422	Product, clothing and related designers	27	13.76	53.4	3	1
3431	Journalists, newspaper and periodical editors	37	15.66	71.0	3	1
3433	Public relations officers	21	14.01	69.7	3	1
3513	Ship and hovercraft officers	15	22.30‡	12.2	3	1
3531	Estimators, valuers and assessors	52	14.24	24.9	3	0
3537	Financial and accounting technicians	21	17.62	30.0	3	1
3539	Business and related associate professionals n.e.c.	106	14.39	50.5	3	1
3541	Buyers and purchasing officers	56	14.80	29.6	3	0
3543	Marketing associate professionals	91	14.07	55.1	3	1
3551	Conservation and environmental protection officers	20	14.58	78.0	3	1
3561	Public service associate professionals	60	15.92	41.8	3	1
3564	Careers advisers and vocational guidance specialists	22	13.91	49.7	3	1
3566	Statutory examiners	14	13.47	30.1	3	0
3567	Occupational hygienists and safety officers (health and safety)	31	16.70	25.3	3	1
	Thresholds		15.98	38.4	4	

Notes: For each of the three top-down indicators of skill, the indicator value is coloured green if the indicator passes and red if it does not. ‡ Indicates occupations where ASHE earnings data is deemed unreliable at the SOC 4-digit level and the 3-digit value is used instead. For the qualifications indicator, the mid-point of the estimate is displayed, although the upper bound of the 95 per cent confidence interval is assessed against the threshold value to determine whether the indicator passes or fails. Occupations passing only the upper bound of the qualifications indicator are identified with an asterisk. Employment figures refer to working-age, full-time employees only and are rounded to the nearest thousand.
Source: Employment and qualifications data: LFS 2007Q4 to 2010Q3. Earnings data: ASHE 2010, Table 14.5a (restricted to full-time employees only). SOC skill level data: ONS SOC 2000.

Abbreviations

ASHE	Annual Survey of Hours and Earnings
CoS	Certificates of Sponsorship
EEA	European Economic Area
EU	European Union
FHEQ	Framework for Higher Education Qualifications
ILO	International Labour Organisation
LFS	Labour Force Survey
MAC	Migration Advisory Committee
NQF	National Qualifications Framework
NVQ	National Vocational Qualifications
ONS	Office for National Statistics
Ofqual	Office of Qualifications and Examinations Regulation
PBS	Points Based System
QCF	Qualifications and Credit Framework
R&D	Research and Development
RLMT	Resident Labour Market Test
SOC	Standard Occupational Classification
UK	United Kingdom
UKBA	UK Border Agency

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