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# Skills in England 2005 Volume 2: Research Report

July 2006

Of interest to everyone involved in  
improving skills and learning opportunities  
across England

*Skills in England 2005* is presented in three volumes. Volume 1 presents the key messages and an overview of the research findings contained in the other two volumes. Volume 2 is the main research report. It contains separate chapters on the demand for and supply of skills, as well as mismatches between demand and supply. Finally, Volume 3 provides evidence related to regional and local trends.

*Skills in England 2005* has been produced by the Learning and Skills Council in partnership with the Department for Education and Skills and the Sector Skills Development Agency.

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# Preface and Acknowledgements

*Key Messages* sets out the main findings and broad policy implications from the assessment by the Learning and Skills Council (LSC) of *Skills in England 2005*. It highlights the key issues facing the LSC and its partners, identifying the key priorities for skills and informing the public debate on future skill needs.

*Skills in England 2005* is presented in three volumes. *Key Messages* is Volume 1. The vast array of evidence from which this report has been distilled can be found in Volume 2, which is the *Research Report*. It contains separate sections on the demand for and supply of skills, as well as the main mismatches between demand and supply. Finally, Volume 3, *Regional and Local Evidence*, provides more detailed trends and perspectives within England.

*Skills in England 2005* was produced by the University of Warwick Institute for Employment Research (IER) and Cambridge Econometrics (CE). They were assisted by the steering group, which provided comments at various stages in the drafting process, for which the LSC is most grateful. The members of the steering group were:

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The authors of the report remain solely responsible for the opinions expressed, the detailed content of the report and any remaining errors.

Rob Wilson

Terence Hogarth

**Series editors**

# Foreword

I have great pleasure in introducing *Skills in England 2005*. This is the annual national skills assessment carried out by the LSC on behalf of ourselves and our key partners.

*Skills in England* draws together the most current and pertinent research and analysis of skills. It is a critical tool in developing a shared understanding of the supply of skills and the demand for those skills, both now and into the medium-term future. It seeks to inform government strategy and local provision, and to inform and complement the work of the Leitch Review.

The report is the result of a partnership approach between the key government agencies involved in the skills agenda and it brings together expert views. The findings of *Skills in England* are critical in steering the LSC to transform learning and skills and achieve our priorities:

- ensuring that all 14–19 year olds have access to high-quality, relevant learning opportunities
- making learning truly demand led so that it better meets the needs of employers, young people and adults
- transforming the learning and skills sector through *agenda for change*
- strengthening the role of the LSC in economic development so that we provide the skills needed to help all individuals into jobs
- improving the skills of the workers who are delivering public services
- strengthening the capacity of the LSC to lead change nationally, regionally and locally.

Much progress has been made in England, with unemployment rates at historically low levels, employment rates among the highest in Europe and the country's productivity having improved relative to that of our main competitors. The qualification and skills profile of the workforce has changed beyond recognition, with many more people acquiring higher level qualifications and the number without qualifications having fallen substantially. More people are engaged in further and higher education now than in the past.

The findings in the report emphasise the importance of skills to the economy, to the employer and to the individual. It reminds us that failure to pay sufficient attention to skills will result in flagging international competitiveness and increasing social division and exclusion. The pace of change is accelerating and brings with it an increased demand for skills. Skills must keep pace with this change or face becoming out of date.

England has been better at acquiring skills over the last decade but our competitors have not stood still. We must not rest on our laurels. We must continue to look at how to raise the demand for skills from employers, how to transform attitudes to education and training, increase access to learning opportunities for all and continue to improve the research and information that we have to drive our policy and strategy development.

Skills alone are not the only success criteria. We must continue to get the right mix of policy that is necessary for prosperity and social inclusion, to foster innovation and to develop entrepreneurship, exporting, and research and development capability.

In closing, I urge you to consider the information presented here and how it will inform your way forward in developing your contribution to personal success and that of the economy. The LSC looks forward to working with you to make England better skilled and more competitive.

A handwritten signature in black ink, appearing to read 'Chris Banks', written in a cursive style.

Christopher N Banks CBE  
**Chairman, Learning and Skills Council**

# Section 1: Introduction

## The Skills Challenge in 2005

- 1.1 Had *Skills in England* been written in 1970 it would have reflected a very different labour market from that of today. At the time, participation in post-compulsory education was low, entry to higher education (HE) was limited, and Britain's productivity performance compared with its main competitors was poor.
- 1.2 Thirty years on, and the country is still confronting many of the same issues: how to increase participation in further education (FE) and HE, and how to improve productivity in relation to that of the other leading industrial nations. But these questions are being addressed from a much stronger position than hitherto. Unemployment is relatively low; employment rates are amongst the highest in the world; and the UK economy ranks in the top 10 countries in terms of gross domestic product (GDP). Participation in post-compulsory education does not compare so badly with the Organisation for Economic Co-operation and Development (OECD) average, and productivity has improved. A point readily lost in the debate over how much remains to be done is the degree of recent improvement.
- 1.3 The Government continues to address the need to improve the country's skill base. Its objectives have been set out in the Skills Strategy, and are being reconsidered further by the Leitch Review. In particular the Government wants to:
  - raise productivity levels to match those of other developed economies
  - meet the challenges of increased global competition
  - stimulate the supply of skills
  - encourage increased demand for, and deployment of, skills in the workplace.
- 1.4 Given the challenges which the Skills Strategy is seeking to address, what are the key messages to emerge from 2005 in relation to skills policy? *Skills in England 2005* highlights the following.
  - Skills development has taken place in a weakening economy, although the rate of slowdown has been modest and has not adversely affected the demand for labour or skills.
  - The skills base of the country is increasingly recognised as not only a means to increase productivity and competitiveness, but an important means of achieving social cohesion through improving the employability of those at the margins of the labour market.
  - There is a continuing demand for higher-level skills. The positive rate of return to obtaining additional academic qualifications increases with the level of qualification. Whilst the earnings premium associated with being a graduate may have decreased a little over recent years, it is still substantial.
  - The supply side is undergoing a period of reform with the introduction of the National Employer Training Programme (branded Train to Gain), which will provide subsidised training to employees via their employers.
  - The supply side also faces the challenge of an ageing workforce which potentially limits supply.

- On the other hand, inward migration has recently boosted supply, although this brings with it new problems.
  - Evidence on the current mismatch between demand and supply shows that skill shortage vacancies have been steady at around 3 per cent of employment over recent years, but where they occur they can be damaging to organisational performance.
  - But the reported level of skill shortages and skill gaps reported by employers remain a source of concern. If companies were to increase their productivity and performance as set out in various government documents in order to meet the challenge posed by global competition, then this might well reveal higher levels of deficiencies in the skills base.
  - Management skills have been highlighted as one area where there is a particular need for improvement; and it is this group of employees who have the key role in establishing both their organisations' product market strategies and skill needs.
- 1.5 *Skills in England* explores the issues above in greater detail. The remainder of this section provides a summary of these and other key issues and challenges facing the economy in 2006, and how skills supply and demand are facing up to the challenges.
- 1.6 *Skills in England 2005* is in three volumes. Volume 1 is the *Key Messages* report. The vast array of evidence from which this report has been distilled can be found in Volume 2 which is the main research report. Volume 3 provides regional and local perspectives.

## Why Invest in Skills?

- 1.7 The first question that needs to be addressed is, why invest in skills? If the State, employers and individuals are to invest in skills there have to be good reasons for them to do so. For the State, it is the contribution that skills can make to national wealth and the contribution this can make to social welfare. For the employer, it is the input skills can make to improving value-added and, more importantly, the *bottom line* (i.e. profits). For the individual there is a joint impact upon both employability and wage levels. These points have been repeatedly made in previous *Skills in England* publications and the evidence in support of the benefits of investment in skills continues to grow.
- 1.8 In this context, it might be questioned whether it remains necessary to advocate further investment in this area. It is important to stress that the arguments in favour of continued investment are dynamic rather than static ones. Investment in skills needs to increase year upon year to keep pace with competition in the global economy. In this sense, it is never possible to complete the task of investment in skills and training. It is an ongoing process not a *discrete* exercise.
- 1.9 The continued existence of scepticism is of fundamental concern, as is the presence of many actors in the economy who remain reluctant to turn to investment in skills as a key element of strategy to cope with the problems outlined above. In part this may reflect the reality that skills are not a panacea. More worrying is the possibility that it may reflect a continuing weakness in the national system for the development of and effective deployment of skills. There is *prima facie* evidence that insufficient emphasis is still being placed on ensuring that the demand for skills will rise to meet future economic challenges.
- 1.10 Notwithstanding the comments about the amount of progress that has been made in the development of skills over the past few decades, this year's *Skills in England* is, arguably, being written from a slightly less strong economic vantage point than in 2004. The growth in the economy this year has been weaker than it has been for a while which suggests a number of challenges for the labour market. The potential for China and India, as well as a

number of other fast-industrialising countries, to capture a larger share of the world's wealth, becomes more apparent as each year passes. Given this challenging outlook, the need to increase the competence of the workforce becomes greater than ever.

- 1.11 A consensus has emerged in recent years that England cannot compete purely on labour cost. It has to compete on its ability to bring about the innovation of high-value products, produced efficiently. A highly skilled workforce is critical to successfully achieving this end, but there are two important qualifications. Firstly, improved skills are not the only requirement. Policies need to be in place that will foster innovation, research and development, export activity and entrepreneurship. Secondly, not everyone can be a rocket scientist or in a similarly highly qualified job. There will remain a substantial demand for relatively low skilled jobs, generating relatively low levels of value, over the medium term at least. These are typically service jobs meeting domestic demand. That is not to say that they cannot be improved through skills training. Rather, the point is that it is not just about that somewhat elusive concept, the *knowledge economy*.
- 1.12 While productivity and international competition remain key areas of concern, a number of other issues have emerged over the past 12 months. These include the effects of enlargement of the European Community and the related matter of migration.
- 1.13 Social polarisation, exclusion and division are other areas of key concern. Employment in good jobs is the key to addressing these problems and investment in skills is, in turn, crucial to achieving this aim.

## Developments in Skills Strategy

- 1.14 There have been significant developments in the Government's skills strategy during 2005, the two most important of which have been as follows.
- At the beginning of the year, the White Paper *Skills: Getting on in business, getting on at work* outlined significant changes to the supply side.
  - At the end of the year, the Pre-budget Statement amplified many of the issues in the earlier White Paper relating to the increasing importance of skills in meeting the productivity challenge. The Pre-budget Statement signals the Government's intention to stimulate labour supply more generally through modifications to the tax-benefit system.
- 1.15 The other significant development is publication of the Leitch Review's interim report: *Skills in the UK: The long-term challenge* (Leitch, 2005). Leitch will examine the future skill needs of the UK economy. Conclusions and recommendations on what skills profile the UK should aim to achieve by 2020 will be reported to the Government in 2006.
- 1.16 In addition, the Apprenticeships Task Force published its final report in 2005: *The Business Case for Apprenticeships* (Apprenticeships Task Force, 2005). The report illustrates the business benefits that employers gain by employing apprentices; in particular, how apprentices help to improve business performance by raising competitiveness, profitability, productivity and quality. The Apprenticeships Task Force makes a convincing case for employers to invest in intermediate level training.

- 1.17 A number of features are apparent in the current approach to developing skills in England.
- The skills of the workforce are recognised as being of critical importance to meeting the productivity challenge. That is not to say that skill is the only means of increasing productivity. The roles played by innovation, research and development, enterprise and good management are all recognised in various government policy statements. But skills are acknowledged to be at least an equal partner to these other drivers of competitiveness.
  - The policy levers to raise the skill levels in the workforce are principally supply-side ones. Hence, there is emphasis on targets for various qualification levels. But this raises an issue about whether or not there is an appropriately corresponding demand for skills from employers; and, in particular, whether employers are able to harness the full capability of their workforces through the effective deployment of skills.
  - Arguably the concerns about the demand side can be met through the employer – and employees’ representatives such as trade unions – engagement in those institutions charged with development of qualification frameworks and sector skills agreements. But whether this is sufficient to stimulate demand for higher-level skills from employers is a moot point. Increasingly, there is an emphasis on the need for demonstrating the business case, so that employers can see the benefits of investing in training and development.

## New Research and Data

- 1.18 In 2005 there are several new data sets that *Skills in England* is able to report, the most significant of which are:
- headline findings from the *National Employers Skills Survey 2005* (Shury et al, 2006)
  - detailed findings from the *National Employers Skills Survey 2004* (Shury et al, 2005)
  - employment projections from *Working Futures 2004–2014* (Dickerson and Wilson, 2005).

In addition, new research is available that has addressed the relationship between employers’ product market strategies, organisational performance and the deployment of skills. There is also some new evidence on the rates of return on graduation from HE.

- 1.19 In addition to these new sources of data and research *Skills in England 2005* is able to draw upon the regular series of surveys and statistical updates, including:
- *Labour Force Survey*
  - *OECD Education at a Glance*.

## The Economy in 2005

1.20 Investment in skills needs to be seen in the context of the national economy. The performance of the economy was rather mixed during 2004/05. The Treasury pointed out in its Pre-budget Statement that the economy has faced a number of challenges:

- sustained increases in oil prices
- weak growth in export markets
- weakness in domestic demand
- a subdued housing market.

Consequently growth has been lower than forecast and the economy is now expected to grow by just 1.5 per cent during 2005.

1.21 To date, the effect of the slowing of the UK economy has not had an impact upon the labour market. Employment grew by around 1.75 per cent in the third quarter in 2005, and much of this was in full-time jobs. At the same time, unemployment has remained at a historically low level – at just under 5 per cent (using the International Labour Organisation (ILO) definition). This is the lowest for 30 years, and the lowest in all the leading industrialised countries (the so-called G7).

1.22 Meanwhile, emerging markets and developing economies reveal strong growth. The Asian economies are expected to grow by around 7 per cent this year (down from 7.5 per cent last year), with the Chinese economy growing by 9.5 per cent, and much of its growth stemming from strong external demand. The Chinese economy currently shows a large and rising trade surplus.

1.23 What are the implications for the domestic economic slowdown on skills development? It may have some impact on employers' willingness to invest, especially so in workforce development and training. This needs to be seen in the light of the aim to improve labour productivity in Britain. The Government's five key drivers of productivity are:

- encouraging investment to increase the stock of physical capital through stronger, more efficient capital markets
- supporting science and innovation to promote the development of new technologies and more efficient ways of working
- promoting enterprise through measures aimed at removing barriers to entrepreneurship and developing an enterprise culture
- improving competition, which promotes flexible markets and increases business efficiency and consumer choice
- raising skill levels to create a more flexible and productive workforce.

It is clear that the first four will be directly affected by an economic slowdown, and this will have implications for the skills.

## Meeting the International Productivity Challenge

1.24 Much of the discussion in this year's Skills in England concerns the contribution skills can make to improving productivity. Important here is the relative standing of the UK to that of other industrialised nations. The latest evidence reported by the Conference Board in its Executive Action series suggests that UK productivity growth slowed in 2005, along with

most other older members of the European Union (EU). US productivity growth also slowed dramatically.

- 1.25 Table 1.1, based on OECD data, provides information relating to a single measure of productivity: GDP per hour worked. While the countries mentioned above were plodding along, many of the emerging economies in eastern Europe and the Far East have been showing signs of rapid acceleration.

**Table 1.1: International labour productivity comparisons.**

	GDP per hour worked (US\$)	GDP per hour worked (as % of US)	GDP per hour worked: annual average growth rates 1995–2004
Norway	56.6	122	2.2
Luxembourg	55.9	121	2.2
Belgium	50.8	110	1.4
France (1)	47.7	103	2.0
Ireland	47.1	102	4.5
United States	46.3	100	2.5
Netherlands	44.2	95	0.7
Germany	42.1	91	1.7
Denmark	40.9	88	1.3
Sweden	39.9	86	2.4
United Kingdom	39.6	86	2.2
Finland	39.2	85	2.3
Austria	38.4	83	1.7
Switzerland	36.7	79	1.3
Spain	36.5	79	0.9
Italy	36.3	78	0.5
Canada	35.2	76	1.7
Australia	34.7	75	2.4
Iceland	33.7	73	3.0
Japan	32.5	70	2.0
Greece	28.6	62	3.0
New Zealand	26.4	57	1.4
Portugal	23.9	52	1.7
Slovak Republic	21.6	47	5.3
Hungary	21.5	46	2.9
Czech Republic	20.7	45	3.8
Korea	18.6	40	4.4
Poland	17.7	38	
Mexico	13.5	29	1.3
Turkey (2)	12.7	28	
OECD	34.7	75	
G7	41.4	89	
North America	38.3	83	
Euro-zone (3)	40.2	87	1.4

**Notes:** (1) Includes overseas departments. (2) GDP for Turkey is based on the 1968 System of National Accounts. (3) Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain.

**Source:** OECD estimates, September 2005 ([www.oecd.org/dataoecd/30/40/29867116.xls](http://www.oecd.org/dataoecd/30/40/29867116.xls) and [www.oecd.org/dataoecd/30/14/29861140.xls](http://www.oecd.org/dataoecd/30/14/29861140.xls)).

- 1.26 The relative gap in growth rates between the UK and countries such as China and India is very large. Whilst growth rates in the latter countries are relatively high they are starting from a low base. It is notable that the highest growth rates in Table 1.1 are nearly all associated with countries whose absolute level of productivity is relatively low. The Slovak Republic, for instance, revealed productivity growth of 5.3 per cent a year between 1995 and 2004, but its GDP per hour worked is around half that of the UK's.
- 1.27 In many respects Britain has much more readily embraced the structural reform of its economy than many EU countries. In this respect it is relatively well placed, from a purely economic perspective, to come to terms with the challenges posed by emerging economies.
- 1.28 Overall, the evidence demonstrates that however productivity is measured, it has improved substantially in the UK over recent years. Between 1993 and 2003 output per worker increased by 23 per cent.<sup>1</sup> The most recent evidence from the ONS shows that in 2004 the UK had a higher productivity (GDP per worker) than Japan; was more or less equal with Germany but behind that of France and the USA and below the G7 average.<sup>2</sup>
- 1.29 If the comparison is made using GDP per hour worked, the UK is below the G7 average and lags behind Germany, France and the USA, although it is ahead of Japan. ONS data, however, reveal that output per hour worked has improved over recent years (1990 to 2004) and the UK is converging towards the average for the G7.<sup>3</sup> As is discussed elsewhere (see Section 2 in particular), the improvement in relative productivity performance is due, at least partly, to the improvement in skills supply.
- 1.30 Any discussion of comparative productivity needs to take account of its distribution within the UK. It varies by region and industry (see Section 2). In particular, London has the highest levels of productivity and the North West the lowest (measured by gross value-added per hour worked in 2003).

## ICT Take-up and Productivity Growth

- 1.31 Improving productivity is dependent in large measure upon the effective deployment of information and communications technology (ICT). There is a large amount of literature comparing ICT take-up and its impact on total factor productivity (TFP) (see, for example, Bart van Ark and Inklaar, 2005 and Inklaar et al, 2005).

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<sup>1</sup> See the Economic and Social Research Council (ESRC) website for a summary of productivity in the UK: ([www.esrcsocietytoday.ac.uk/ESRCInfoCentre/facts/index21.aspx?ComponentId=7061&SourcePageId=6970](http://www.esrcsocietytoday.ac.uk/ESRCInfoCentre/facts/index21.aspx?ComponentId=7061&SourcePageId=6970)).

<sup>2</sup> The ONS website provides further data on productivity trends in the UK and a comparison with other leading industrialised countries: ([www.statistics.gov.uk/CCI/nugget.asp?ID=132](http://www.statistics.gov.uk/CCI/nugget.asp?ID=132)).

<sup>3</sup> The ONS provides a statistical series on output per hour worked: ([www.statistics.gov.uk/downloads/theme\\_economy/2005\\_Sep\\_ICP\\_headline\\_tables.xls](http://www.statistics.gov.uk/downloads/theme_economy/2005_Sep_ICP_headline_tables.xls)).

- 1.32 These authors argue that Europe has failed to realise the full potential of ICT to improve productivity. Somewhat speculatively, the authors suggest a U-shaped relationship between ICT take-up and productivity growth. At first there is a productivity gain when ICT is first introduced (referred to as 'hard savings'); this is followed by a period of negative impact upon TFP as various investments need to be made to further exploit the technologies (e.g. investment in skills), followed by a positive impact as organisational change (e.g. to the supply chain) and complementary technologies and work practices are introduced to fully exploit the potential of ICT ('soft savings'). The evidence about whether Europe has invested as heavily in ICT as the USA is not conclusive, but the authors are more certain in suggesting that the more flexible, entrepreneurial, open and competitive US economy has reaped the soft savings more fully. The UK appears to have followed the US pattern more than the Continental EU one.

## **The Importance of Skills: Why Skills Matter**

- 1.33 In the face of substantial import penetration from the Asian economies, in a global economy that is becoming increasingly open, the only option for the national economy is to compete on the quality of the goods and services it is able to provide. Quality relates both to the specification of the product and the quality with which it is manufactured or delivered to the consumer. There are sections of the economy that can compete more on price, such as the range of products and services that rely almost wholly on domestic demand. But even parts of this market may be susceptible to import competition. It is not long ago that the idea of call centres for the UK market with their operators based in India would have been inconceivable.
- 1.34 In summary, the economy needs to ensure that the products it trades in the world market are of a sufficiently high specification that they are not reduced to commodity status. It also needs to ensure that they are produced using the latest technologies to ensure efficiency. The overwhelming case for that strategy is simply demonstrated by a consideration of the alternative: that is to compete on price with countries where average labour costs are well below the national minimum wage.
- 1.35 The importance of skill can be seen in two contexts; first, in the design, innovation and marketing of products, and secondly, in the production and delivery of those products and services. If this is to be achieved then it requires continued investment in human capital from the State, employers and individuals. To date the evidence suggests that:
- organisational performance is higher where there is a relatively high-level mix of skills
  - employers' investment in training and skills development is often linked to high-level work practices and high-performance workplaces
  - evidence on the rate of return to qualifications shows that there is still a premium associated with obtaining additional qualifications
  - in particular, recent evidence relating to graduates reveals that there is still a positive rate of return on obtaining a degree even if it has declined in real terms
  - another important benefit of skills to the individual relates to their employability. Evidence demonstrates that possession of skills provides advantage in entering employment, sustaining that status and achieving some form of progression through the labour market
  - improving employability can also reveal positive externalities, such as increased social cohesion, reduced crime and other social benefits.

## But What Skills are Needed?

- 1.36 Some of the literature and policy statements simply assert that skills are increasingly important and more are needed. But what is actually required? There is a need to be clear about the particular type, level or class of skills that are in demand. Having said that, it is also important to recognise that there are no simple answers here. Few, if any, believe that detailed, indicative planning of skill needs is a practical possibility. Regular and detailed monitoring can help to identify general trends and the implications that these have for particular skill requirements.
- 1.37 The kinds of skill gaps that education and training providers (and others) need to be aware of can be categorised in various ways:
- those measured by comparing expected future changes with the current position
  - indicators provided by market signals such as wages
  - various measures based on employers' perceptions.
- 1.38 The most common ways of measuring skills remain with reference to *occupation* and *qualification*. But the importance of various generic *as opposed to* technical skills, and transferable *as opposed to* non-transferable skills, are increasingly being emphasised.
- 1.39 The evidence relating to high-performance workplaces (HPWs) suggests some ways in which the concept of skill might need to be reviewed. To some extent the body of research highlights the role of management skills, but then this also tends to be a black box. There is a need to disentangle the different components in the concept. Whilst this is outside the scope of this year's *Skills in England* some indications can be provided.
- 1.40 There is clearly a need for people to be skilled in the technical aspects of their job as well as in the more generic skills that allow them to be effective within their role. But the evidence in relation to HPWs points to the need for a range of technical and practical skills in combination, relating to:
- innovation
  - expertise in research and development
  - bringing new products to market.
- 1.41 The softer skills relate to operating in a work environment where people feel able to generate ideas, share views with colleagues and create a workplace where people are empowered to act upon their ideas. This last point is exceedingly important because the future success of the economy will be dependent upon organisations to act flexibly in the market depending upon the challenges with which they are faced.
- 1.42 The key point of the above discussion is the importance of thinking of skills in a broader context than simply *qualification* and *occupation*.

## Skill Demand

- 1.43 The changing demand for skills in England is reviewed in Section 2. There are a number of factors creating a shifting pattern of demand for skills. These include:
- *technical change*, which has resulted in automation substituting for jobs and allowing some functions to be outsourced. Technical change also leads to a demand for different or additional skills, especially where employees are required to have knowledge of new and emerging technologies
  - *rising real incomes* which have resulted in people spending more of their income on leisure and entertainment, as well as on health care and education, and consequently giving rise to a demand for skills related to these activities
  - *the export of some jobs*, typically in manufacturing but increasingly in data processing and other service activities, to locations abroad with much lower labour costs
  - *organisational change* resulting in work being conducted differently from the past and creating demands for different types of skill resulting from, for instance, team work.
- 1.44 Previous editions of *Skills in England* have reported at length on the above issues. This year the emphasis is more on the relationship between the level of skill demand within the workplace and how this translates into improved organisational performance. There is now convincing evidence, reviewed in Section 2, which demonstrates that operating or shifting into higher value markets with increased profit margins requires relatively higher level skills amongst the workforce. But this is not a sufficient condition. Employers also need access to, for instance, capital. The major issue is how to persuade employers to move into higher value markets and increase their demand for higher level skills, when they are currently returning a reasonable profit. The economic analysis summarised above suggests that, for many organisations, if they do not begin to make that shift when they are profitable, they may find their markets beginning to disappear at a later date.

## Skill Supply and International Comparisons of the Skills Problems they Face

- 1.45 Section 3 addresses the changing pattern of skill supply in England. Evidence is provided relating to:
- changes in skill supply over time, including migration
  - current levels of participation in education and training, especially among young people
  - the future supply of skills
  - comparisons with major competitor economies.

Section 3 reports on a period of significant change on the supply side with the planned introduction of the National Employer Training Programme (NETP), now branded as Train to Gain, and various changes to the tax-benefit system in order to increase labour supply. Previous *Skills in England* reports have not commented upon migration. With the accession of 10 countries to the EU in 2005, some of which have strong vocational education and training (VET) systems, there is a potential new supply of skilled labour available.

## Skill Mismatches: Market Signals and Employers' Perceptions

- 1.46 In Section 4, evidence is assembled relating to current skill mismatches. This draws on new information relating to both relative wage levels, and the rates of return to obtaining an additional qualification. It is also able to provide information from the *Class of '99* (Purcell et al, 2005) longitudinal study to reveal the latest information on the labour market returns from gaining a degree-level qualification. The *National Employers Skills Survey 2005* (NESS05) provides an up-to-date picture of employers' perceptions of the skill problems that they face.

### The Future

- 1.47 Section 5 rounds off the analysis with an assessment of prospects for the future, drawing on a range of sources. In particular it focuses on *Working Futures*, the new comprehensive set of employment projections produced on behalf of the Sector Skills Development Agency (SSDA) and the LSC.
- 1.48 To some extent the overview provided in Section 4 is rather pessimistic, emphasising problems and difficulties. A sense of balance needs to be introduced into the analysis. The occupational employment projections provided in *Working Futures* are based upon a consistent and comprehensive view of the future, assuming a continuation of recent patterns of behaviour and performance ('business as usual'). This is done by using a macro-economic model of the national economy that takes into account trends in the world economy, including the increasing capacity of China, for example, to capture the world market in a range of commodities. This suggests that the prospects for the future are not too gloomy.
- 1.49 The results from *Working Futures* indicate that:
- employment is predicted to grow at around 0.5 per cent a year with about 1.3 million new jobs by 2014 Replacement demand is expected to exceed this growth by around eight times
  - unemployment is expected to stay at its current historically low level
  - significant growth is projected in the average working age
  - strong employment growth is forecast for higher level occupations such as management and professional occupations, as well as large increases in personal service occupations over the decade.
- 1.50 These results suggest that 'business as usual' will result in the continued growth in demand for skills. But there is no room for complacency. A key objective remains the development of the skills base in such a manner that it can maintain the competitiveness of the country and thereby generate improved incomes and wealth for all citizens.

## Conclusion

- 1.51 *Skills in England* is designed to provide both a statistical compendium and digest of the latest developments in the world of skills. Events in 2005 have underlined the need for investment in skills. The slowing of the economy, against the background of increasing competition from emerging economies such as China, makes the need for strong investments to boost productivity even more necessary just at the point at which the ability to invest becomes more constrained. But there is at least one school of thought which suggests that investment, or at least public investment, remains the best way of avoiding an economic slowdown. Moreover, investment in skills remains a key element in ensuring the continuation of improvements in competitiveness and productivity growth apparent in the positive trends of recent years.

# Section 2: The Demand for Skills

## Overview and Summary

- 2.1 This section describes the main drivers of the demand for skills. It also considers the need to act on those drivers to raise demand, which, it is argued, may be just as important a policy requirement as the need to tackle supply.
- 2.2 The demand for skills in England is derived from the demand for goods manufactured and services provided in the economy. This, in turn, has been influenced by a complex mix of:
  - competitive forces, including alternative sources of supply outside the country
  - innovation and changing methods of provision of products and services, including technological advance and sub-contracting
  - rising real incomes and changing tastes.
- 2.3 The section focuses upon developments in the economy and the labour market affecting the demand for skills. It begins by outlining the main trends for the different sectors of industry, followed by a review of changes in occupational employment.
- 2.4 The importance of considering replacement demand to offset losses from the existing workforce due to retirement and other factors is emphasised.
- 2.5 The prime focus in England is on developments at national level. Further details on implications at a more detailed spatial level are provided in Volume 3, Regional and Local Evidence. Many patterns are common to all regions, although there are significant differences linked to their underlying economic structure. For instance, there has been particularly strong growth in managerial, professional and associate professional and technical jobs in London.
- 2.6 Changes in the qualifications of the employed workforce are reviewed. Skill requirements within occupations are also increasing. The average level of formal qualifications held has risen sharply, with the largest increases at National Qualifications Framework (NQF) Levels 4 and 5 and a big reduction in the number of people with no formal qualifications.
- 2.7 These changes also reflect the considerable increase in the supply of qualifications as described in Section 3. Some commentators have expressed concern about over-qualification in some areas.
- 2.8 Other aspects of skill requirements are also changing, with employers setting great store on various key and generic skills. The increasing importance of such skills has been a recurrent finding from many surveys of employers in recent years.
- 2.9 The evidence suggests that there continue to be significant increases in the overall demand for skills. Although the links between skills, productivity and general economic performance are complex, the consensus remains that skills are an important part of the story. The demand for skills will continue to grow and they will remain a key factor in determining future economic performance.
- 2.10 The setting up of the Skills Alliance, Skills for Business Network and the establishment of many new sector skill councils (SSCs) has reinforced the emphasis on involving employers in the assessment of changing skill needs in their sectors. This offers a real opportunity for employers to voice their skill needs.

## Introduction

- 2.11 Central to the Government's economic policy is the aim of raising the rate of productivity

over the economic cycle and narrow the productivity gap with competitors such as the USA, France and Germany (HM Treasury/DTI, 2004). Achieving this aim requires action in a number of areas, but in relation to skills, the agenda over recent years appears to have been firmly directed towards increasing supply. This is discussed in detail in the Section 3. But it is also apparent that demand needs to be stimulated too. If employers, for instance, do not actively demand higher level skills, even if they are forced to recruit someone with higher level qualifications than hitherto, the benefit to the business may not be realised. Employers need to deploy the skills of their more highly skilled new recruits effectively. Hence when attention is drawn to the demand for skills, it encompasses the deployment of those skills too.

- 2.12 *Skills in the Global Economy* (HM Treasury/DfES/DWP/DTI, 2004) outlined why skills are becoming more important and lays out the Government's plans to improve the supply of training to assist competitiveness. The evidence suggests that, if the productivity gap is to be closed with France, Germany and the USA, employers will need to increase their demand for skills over the short- to medium term. Supply-side policies, whilst vitally important, are likely to take some time to take effect. And the big question is whether the economy has that time, given the immediate competitive threat posed by rapidly developing Asian economies. The 2005 pre-Budget Statement (HM Treasury, 2005) emphasises 'Meeting the Productivity Challenge' and the role of skills in doing so.
- 2.13 To assess the nature of the demand for skills in England, three features are addressed:
- the relationship between skill demand and productivity is considered; in summary, this looks at the need for many employers to raise their aspirations if they are to raise their performance
  - the evidence demonstrating the complex relationship between skills and more general measures of performance is considered
  - statistical information is presented on the changing patterns of qualifications and occupations of the employed workforce as an indication of employers' demand for skills.

## Drivers of Skill Demand

- 2.14 Understanding the nature of skill demand requires an investigation of those factors which give rise to the demand from the perspective of the individual, the employer and the State. Given that government policy is so sharply focused upon improving economic competitiveness, it is useful to concentrate upon skill demand in relation to this objective. But it is important to recognise that there are other elements on the skills agenda, not least of which is social inclusion.

2.15 The Department of Trade and Industry (DTI) outlines five drivers of productivity in the economy:

- investment
- innovation
- enterprise
- competition
- skills.

It is clear that all of these are interlinked and interdependent (HM Treasury/DTI 2004).

2.16 Whilst many government initiatives are supply-side oriented, there are a number of institutional arrangements to ensure that the employer voice is heard. Recent changes in government policy have placed an increasing emphasis on involving employers and individuals in the assessment of changing skill needs in their sectors. It is intended that the SSCs and the Skills for Business Network will provide an effective mechanism for employers to articulate their needs and concerns.

2.17 This more demand-orientated approach to skills represents a significant change from the supply-side dominated strategies of the past. The DTI and others have developed the notion of the five key drivers of productivity, set out in Section 1. HM Treasury and the DTI share a joint Public Service Agreement (PSA) target to improve productivity in the UK relative to leading foreign competitors. The evidence suggests that a key part of the explanation for the UK's poor productivity performance compared with its international competitors lies in its relatively poor level of workforce skills. While this has been long recognised, there is an increasing realisation that it is necessary to stimulate the demand for skills among employers, as well as the supply of skills, if the economy is to avoid or escape from the so called *low-skills equilibrium*.

2.18 The main emphasis in terms of practical policy intervention remains heavily focused on the supply side. This reflects the fact that the Government has much more leverage here than it does on influencing demand from employers.

## Skills and Performance

2.19 Analysis of the complex relationship between skills and general levels of performance concentrates on:

- the definition of productivity and its relationship to skills
- the effective deployment of skills
- high-performance workplaces.

2.20 The National Audit Office (NAO, 2005) study highlights four key messages from employers. Employers want:

- simple ways of getting advice on the best skills training for their staff
- training that meets their business needs
- incentives to train their staff more
- to influence skills training without getting weighed down by bureaucracy.

## Measures of productivity

- 2.21 Various measures of productivity are in use. All compare some measure of the outputs of goods and services with the inputs used to produce them. The most comprehensive measure is total factor productivity (TFP), which takes into account all the factors of production used to produce output, including capital as well as labour. This is difficult to measure, especially because of problems in estimating the contributions of capital services. GDP per capita and GDP per hour worked are more commonly used. The former is the easiest to measure, requiring just an estimate of employment (or sometimes population) as well as the output measure (GDP). Unlike the GDP per hour measure, this fails to take into account one aspect of the intensity of labour input. An economy achieving the same output but by using fewer hours of work is clearly more productive. Comparisons of measures using population as opposed to employment also provide further insights into the intensity of labour input. A country which obtains the same GDP per head, but by deploying fewer people in employment, is obviously more efficient and allows more time for leisure and other non-formal economic activities (assuming the same average hours per worker). But such an economy may also be associated with a more inequitable distribution of income than one in which a larger proportion of the population share the benefits by being in employment and earning a wage.
- 2.22 Previous *Skills In England* reports have highlighted the large volume of evidence linking education and skills with productivity performance. Historically, the *matched plant studies* of the National Institute of Economic and Social Research (NIESR), extending over two or more decades, have provided consistent evidence that UK producers tend to produce lower quality goods and to be less productive. In addition, they suggest that skills gaps are an important contributory factor to these differences in productivity performance, and account for as much as a fifth of the productivity gap between the UK and Germany. This section looks at the latest evidence on skills and on productivity.
- 2.23 Skills are one driver of productivity. Evidence presented in the Pre-budget Statement in 2002 suggested that raising the ratio of high-skilled to low-skilled employment was associated with a significant boost to productivity in a controlled sample of manufacturing plants.
- 2.24 Recent research by the Institute of Employment Studies (IES) has compared Britain's productivity and skill demand across industrial sectors and countries (Jagger et al, 2005). The results reveal that Britain has industries where productivity is amongst the highest in the world in these sectors, but many of these are relatively low productivity ones.
- 2.25 Explanations for the observed differences between British productivity in a given sector and that in competitor countries are complex. The results are not always the obvious and expected ones. But, from the detailed data and analysis, IES concludes that productivity depends upon:
- higher- and intermediate-level education, higher productivity being associated with more people being qualified to this level
  - more professionals in an industry, resulting in higher productivity
  - the presence of ICT occupations, which is related to higher productivity.

The results further suggest that sectoral differences are more important than national differences when looking at productivity. This suggests, given the relatively poor aggregate performance of national productivity over recent years, that there has been too much concentration in the economy as a whole on low productivity activities.

- 2.26 A further dimension to the above results demonstrates that there are also productivity differences by region within England. The East, South East and London perform better

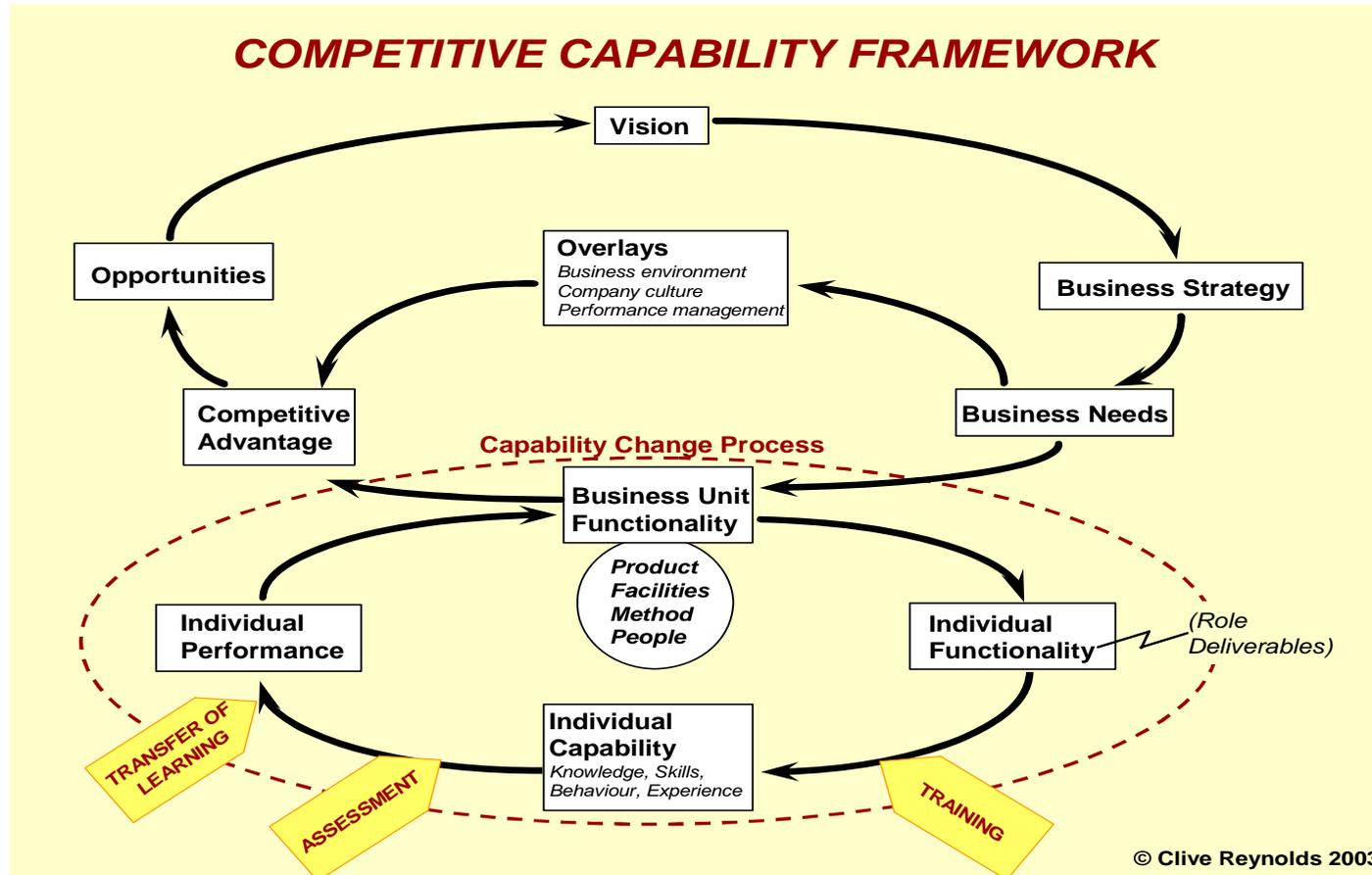
than anywhere else (Dickerson, 2005). The evidence demonstrates that sectoral differences are fairly constant across regions, suggesting that there is a regional productivity problem rather than a sectoral one. Essentially some regions have a stronger representation of high productivity sectors than others. Productivity in the East, South East and London is higher here because a greater proportion of their employment is in higher productivity sectors.

- 2.27 Evidence recently published from further analysis of the Employers Skill Survey 2001 (ESS2001) demonstrates that skill demand results from product market strategy (Mason, 2004). Workforce skill levels tend to be higher where the product market strategy is a high-value one. The study also demonstrates that higher value strategies are positively related to the extent of foreign competition. Companies with a high-value strategy were more likely to have experienced sales growth over the recent past.
- 2.28 An extension of this type of analysis has confirmed the relationship between skills and high-end, value-added product market strategies, but notes that it is difficult for companies to change direction from low- to high-end strategies (Mason, 2005). Product market strategy was reported to show a high degree of path dependence; the product market strategy tended to be shaped by past choices. It also reveals that capital as well as skill was often a constraint on the ability to move up-market. Access to high-level skills is a necessary condition for moving up-market but not a sufficient one.
- 2.29 Persuading employers to increase their demand for higher level skills is dependent upon demonstrating a business case for doing so. At an aggregate level, the evidence is compelling: better performing organisations have higher skilled staff. But the research conducted by Mason begins to demonstrate how complex the relationship is between skills and performance, and the difficulty in identifying the policy levers that will stimulate employer demand for skills.
- 2.30 Another finding suggests that greater competition stimulates the demand for skills. Companies that are dependent upon domestic demand are less likely to have adopted high-end, value-added product market strategies. But there remain large parts of the economy that will always be primarily dependent upon domestic demand. The evidence also supports a finding from the *Low Skills Equilibrium* study that revealed the difficulty of persuading companies pursuing a low-skill, low-value business strategy of the need to move up-market at a time when they were making a profit (Wilson and Hogarth, 2003).
- 2.31 To understand further how the demand for skills in the economy can be ratcheted up to a higher level, the next section looks at the links between skill demand and organisational performance in more general terms.

## **Human resource development and organisational performance**

- 2.32 The debate is not just about raising employer demand for more highly skilled workers; otherwise it would be possible to simply focus on the supply side. The need is to ensure that employers deploy skills optimally. Thus demonstrating the business case to employers, that improving the skills supply of the workforce will improve skills performance, requires not only that training and development initiatives are appropriate to the organisation's needs but also that the skills are deployed effectively.
- 2.33 Reynolds et al (2006) at Warwick Manufacturing Group has developed a capability framework to demonstrate how human resource investments are related to business performance (see Figure 2.1 below). The framework sets out to establish the causal relationship between training interventions and performance. Figure 2.1 reveals how organisational capability and individual employee capability are interlinked and feed off one another. Importantly it demonstrates the centrality of people (and skills) in the production process such that attempts to improve performance without improving the capabilities of the workforce (in appropriate skills) are likely to prove futile.

Figure 2.1: Employer demand and deployment of skills: Reynolds' capability framework.



Source: © Clive Reynolds, Warwick Manufacturing Group 2003.

2.34 The Department for Education and Skills (DfES), the SSDA and the Chartered Institute of Personnel and Development (CIPD) (Tamkin, 2005; see also Tamkin et al, 2003) have developed the '4A-Model' to help employers convert investments in training and development into improved organisational performance. The four As stand for:

- **access** – the effective resourcing of roles in an organisation (e.g. recruitment practices, levels of qualification sought for particular jobs, etc.)
- **ability** – the skills of the workforce (i.e. the competence of the workforce)
- **attitude** – the engagement, motivation and morale of the workforce (i.e. those factors associated with how people approach their jobs)
- **application** – the opportunities to ensure skills and motivation are effectively applied (i.e. whether the processes are in place to allow people to excel at their jobs).

The 4A-Model is a framework designed to help employers obtain suitable returns from the investments they make in training and development. An employer guide has been developed (Tamkin, 2005). At its core is a causal chain that converts human resource inputs into performance objectives.

2.35 The 4A-Model provides a framework for addressing the issue, but disentangling the complex relationship between company performance and investments in skills is difficult. This is because of the relationship between performance and what might be termed an organisation's vision with respect to its current markets and those it might enter in the future. Two organisations that share otherwise similar characteristics, at a particular point in time, might reveal differing levels of performance because one is planning more strategically for the future. For the company that has a strategic plan, this might well result in relatively substantial investments in human resource development, which may impair current performance, but with the promise of future gains. Clarifying such links requires, over the long term, a panel study and, in the shorter term, information to be collected about the organisation's medium-term plans.

2.36 Measuring these relationships is difficult. The starting point is how investments in human resource development are linked to organisational performance. Organisational vision and the capability of the workforce to realise that vision are both dependent upon skill. In the first instance, it is the ability to develop a plan for the organisation that will secure its position in its chosen markets; in the second, it is the ability of management and the workforce to make the plan operational and make it succeed.

2.37 In many respects the ultimate goal is to measure the impact of training investments on profitability or market value. To date, this has proved elusive because profitability can be a somewhat fluid concept and, second, because the relative size of training investments (compared with, say, the impact of exchange rate fluctuations) can be small. Previous research has measured performance in relation to the targets a company sets itself (or as set by head office), such as sales, and the extent to which these targets have been met, missed or exceeded. Research undertaken in relation to the Employers Skill Survey 1999 (ESS1999) demonstrated that the strongest link between measures of workforce quality and performance related to the measures companies had set themselves. In practice, many companies tend to have a series of key performance indicators (KPIs) that they use to manage and measure their businesses.

- 2.38 There is also some indirect evidence of the wider benefits of skills to the bottom line, including benefits to shareholders. This comes, for example, from research by KPMG who, in their 2002 Competitive Alternatives Report, suggest that the availability of skilled labour was a key factor in making inward investment decisions (along with labour costs, both cited as important by well over 90 per cent of respondents). Other research by Bassi Investments tracked the share performance of different companies, comparing groups who have made and reported high investments in employee skills with the norm. The results suggest a 50 per cent higher rate of return for the former.
- 2.39 The process of gaining a return from skills investment needs to be seen in the context of wider business and human resource practices. There are many studies that demonstrate that performance is enhanced when people are satisfied with their work, feel motivated and feel valued by their employer. To assess investment in skills, employers need to look at how this leads to changes in the quality of an individual's job and whether it is enhanced, enlarged or simply subject to a rotation of different tasks – and the consequent impact this has upon attitudes to work. Highlighting this, previous research has distinguished between so-called hygiene factors, such as pay and conditions which are needed to meet a certain standard to offset worker dissatisfaction, but which otherwise do not lead to positive motivation, and motivation factors such as achievement and recognition which are capable of raising worker productivity (Herzberg et al, 1959).

### High-performance workplaces

- 2.40 The last point made above emphasises the importance of a range of policies that needs to be in place to ensure that the capability of the workforce is turned into an organisational capability. The literature recognises that there is a range of human resource practices that needs to be in place to bring this state of affairs to fruition.
- 2.41 Last year's *Skills in England* highlighted the work of Bosworth, King and others, who have provided important insights into the benefits of employer-provided training. For example, King's High Performance Work Systems and Firm Performance (King, 1995; see also Bosworth, 2005) emphasises the effects of three specific working practices: training; compensation linked to worker or firm performance; and employee involvement in decision-making.
- 2.42 Whilst the evidence indicates a positive contribution of all three factors to company performance, the author concludes '... these positive effects appear to be mutually reinforcing ... the impact on productivity of systems of inter-related practices appears to be greater than the sum of independent impacts when each component is implemented in isolation' (p. 30).
- 2.43 There is now a considerable body of evidence that indicates a relationship between high-performance work practices and economic performance (Wood et al, 2001; Guest et al, 2003). But there are some problems of definition. The CIPD lists 18 activities associated with high-performance workplaces (HPWs), which include use of psychometric tests for recruitment, use of regular appraisal, work improvement teams, etc. There is always the danger that these work practices are confined to large businesses and are not readily adopted by smaller organisations with little human resource infrastructure, such as dedicated personnel specialists.
- 2.44 The most recent research on HPWs (Sung and Ashton, 2005) classifies them as using:
- high employee involvement practices to encourage trust and commitment within the organisation

- human resource management practices to foster investments in human capital and skill formation
- reward and commitment practices that increase an individual employee's stakeholding in the success of the enterprise.

2.45 The evidence demonstrates that skills are a necessary but not a sufficient condition to bring about improved organisational performance. In addition to developing the competence of the workforce, there is a need to put in place those practices that will allow workers to deploy their skills, so that the organisation obtains the benefits of training and development.

2.46 Results from the recently published Work and Enterprise Survey brings the debate full circle, in that it empirically demonstrates the relationship between skills, the wider set of human resource practices and innovation (Work Foundation, 2005).

2.47 The study uses the Strategic Management Index (SMI) to score a sample of 3,000 companies in the UK. The SMI is a measure based on five core areas:

- human resource practices
- creativity and innovative management
- customers and markets
- stakeholder relationships
- shareholder and governance systems.

The results show that companies scoring in the top third outperform those in the bottom two-thirds by £1,600 for each worker every year.

2.48 Critically, the study demonstrates that the best performers on the SMI were characterised by high wage, high-skill workforces. Related to this were workplace environments characterised by a high degree of informality, high trust relationships between members of the workforce and visible and accessible business leaders, all of which facilitated quick decision-making. In contrast, those that performed poorly on the SMI were characterised as having more bureaucratic decision-making processes.

2.49 The study is a fascinating one from the skills perspective because it helps broaden and provide more detail about the skills employers need if they are to become more competitive. At the beginning of this section, attention was drawn to the need for business in this country to become more competitive. There are a range of skill needs in relation to this, captured in surveys such as the National Employers Skill Surveys (NESS). But there are clearly a wider set of skills that are less readily picked by surveys such as NESS. These relate to human resource management to create a workplace of mutual trust between employees such that they share and generate creative ideas, that management processes do not become overly bureaucratic, etc. The evidence suggests that without such work environments being in place, the full potential capability of the workforce will not be captured.

## Employers' Perspectives

- 2.50 Recent government policy has placed an increasing emphasis on taking employers' views into account when assessing the need for skills. The setting up of the SSDA and the SSCs reflects this new focus.
- 2.51 Various attempts have been made to assess employers' views. These include the various Employer Skills Surveys (discussed in Section 4) as well as the work being undertaken by the SSCs and the SSDA. The NAO has also undertaken an interesting survey of employers, focusing on their views about improving skills for employment.
- 2.52 The NAO recommends that:
- the LSC should act to co-ordinate better the information and advice available to employers
  - brokers and training providers should focus on developing affordable training that employers need, in a format, time and place to suit both employers and employees
  - training should be better focused to meet specific sectoral and regional requirements
  - SSCs should be given sufficient time and space to develop into genuine employer-led bodies which reflect the needs of those they represent.

## Recent Trends in Employment and the Demand for Skills

### Key changes in the demand for skills

- 2.53 Strong economic growth has increased the overall level of employment considerably in the last few years. This has inevitably increased the total demand for skills.
- 2.54 England (along with the rest of the UK) has also experienced structural change. Table 2.1 and Figures 2.2 and 2.3 summarise the key features.
- 2.55 The structural changes reflect the influence of a number of interrelated factors including technological change, changes in the patterns of world trade (including globalisation), increasing specialisation and changing patterns of demand for goods and services manufactured and provided in this country.
- 2.56 Sectoral and other structural changes have favoured financial and business services, distribution, hotels and catering, and non-marketed services such as education and health. The manufacturing and primary sectors have continued to experience job losses. Business and miscellaneous services accounted for more than half of net employment growth in England between 1994 and 2004.
- 2.57 Even in sectors where employment has been declining, there is a need to replace the workers retiring from the labour force or leaving for other reasons. This 'replacement demand' is typically much greater than any sectoral shifts, and thus serves to heighten demand in the expanding sectors and moderate the impact of decreases in employment in the declining sectors. The number of people retiring will increase in the coming two decades, as people born in the post-war baby boom of the late 1940s reach retirement age. Numbers retiring will decline after 2030 (reflecting lower birth rates after 1970).

- 2.58 Because occupational structures differ significantly between sectors, these developments have also contributed to significant changes in the occupational structure of employment. This has involved a continued rapid growth in the absolute numbers and shares of managerial, professional and associate professional occupations. These occupations accounted for 42 per cent of employment in 2004, compared with 36 per cent in 1994. Employment in personal service and sales occupations has also grown, but to a lesser extent. Employment for skilled trades, operatives and elementary occupations fell from 36 per cent to 30 per cent of total employment over the same period.
- 2.59 Much of the growth in employment has occurred in the South of England. In total, employment increased by almost 3 million between 1994 and 2004, of which 678,000 was in London and a further 589,000 in the rest of the South East (see Table 2.1). In part, the overall increase reflects the recovery from the recession of the early 1990s but, even so, it represents an exceptional period of growth for many parts of the country.
- 2.60 Total employment levels are now at an all-time high. In contrast, unemployment levels are lower than at any time since 1973. Much of the employment increase has been for part-time jobs. Nevertheless, such large increases clearly represent a significant growth in the demand for labour, and hence for skills, over the period.

**Table 2.1: Changing broad sectoral employment patterns by region.**

1984–2004

000s

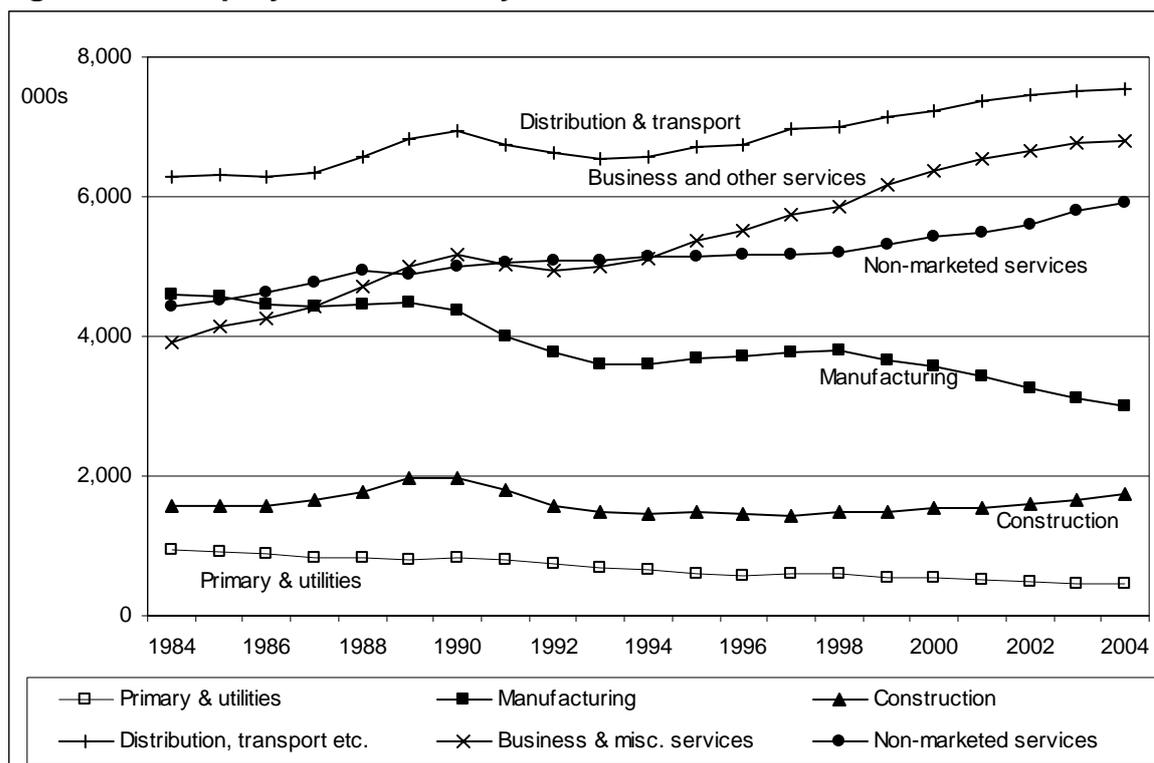
	Primary and utilities		Manufacturing		Construction		Distribution, transport etc.		Business and miscellaneous services		Non-marketed services		All industries	
	1984–1994	1994–2004	1984–1994	1994–2004	1984–1994	1994–2004	1984–1994	1994–2004	1984–1994	1994–2004	1984–1994	1994–2004	1984–1994	1994–2004
London	-21	-14	-256	-55	-38	67	-97	152	271	399	-105	130	-245	678
South East	-11	-28	-155	-52	-18	60	92	206	253	350	149	53	309	589
East of England	-17	-26	-117	-45	-16	57	52	142	150	207	85	63	137	397
South West	-8	-35	-54	-28	-8	29	70	128	125	139	144	79	269	312
West Midlands	-23	-24	-145	-103	-16	25	74	74	77	131	87	113	53	215
East Midlands	-64	-19	-54	-80	22	12	71	61	75	93	81	95	131	162
Yorks and the Humber	-72	-18	-45	-73	-2	26	22	70	112	125	111	72	127	203
North West	-52	-25	-129	-112	-23	16	-7	137	103	203	110	144	2	364
North East	-45	0	-34	-43	-4	0	11	5	37	41	47	46	12	48
England	-313	-189	-990	-591	-102	291	288	975	1,203	1,688	709	794	796	2,968

1994–2014

	Primary and utilities		Manufacturing		Construction		Distribution, transport etc.		Business and miscellaneous services		Non-marketed services		All industries	
	1994–2004	2004–2014	1994–2004	2004–2014	1994–2004	2004–2014	1994–2004	2004–2014	1994–2004	2004–2014	1994–2004	2004–2014	1994–2004	2004–2014
London	-14	-4	-55	-31	67	8	152	71	399	196	130	49	678	289
South East	-28	-6	-52	-28	60	4	206	112	350	135	53	70	589	287
East of England	-26	-13	-45	-31	57	-2	142	53	207	90	63	37	397	134
South West	-35	-11	-28	-40	29	3	128	39	139	66	79	45	312	101
West Midlands	-24	-12	-103	-58	25	-22	74	40	131	90	113	52	215	90
East Midlands	-19	-8	-80	-43	12	-8	61	27	93	49	95	34	162	52
Yorks and the Humber	-18	-11	-73	-29	26	-21	70	44	125	87	72	26	203	96
North West	-25	-4	-112	-50	16	-10	137	36	203	90	144	38	364	101
North East	0	-3	-43	-17	0	-2	5	22	41	22	46	5	48	27
England	-189	-71	-591	-328	291	-51	975	445	1,688	826	794	355	2,968	1,176

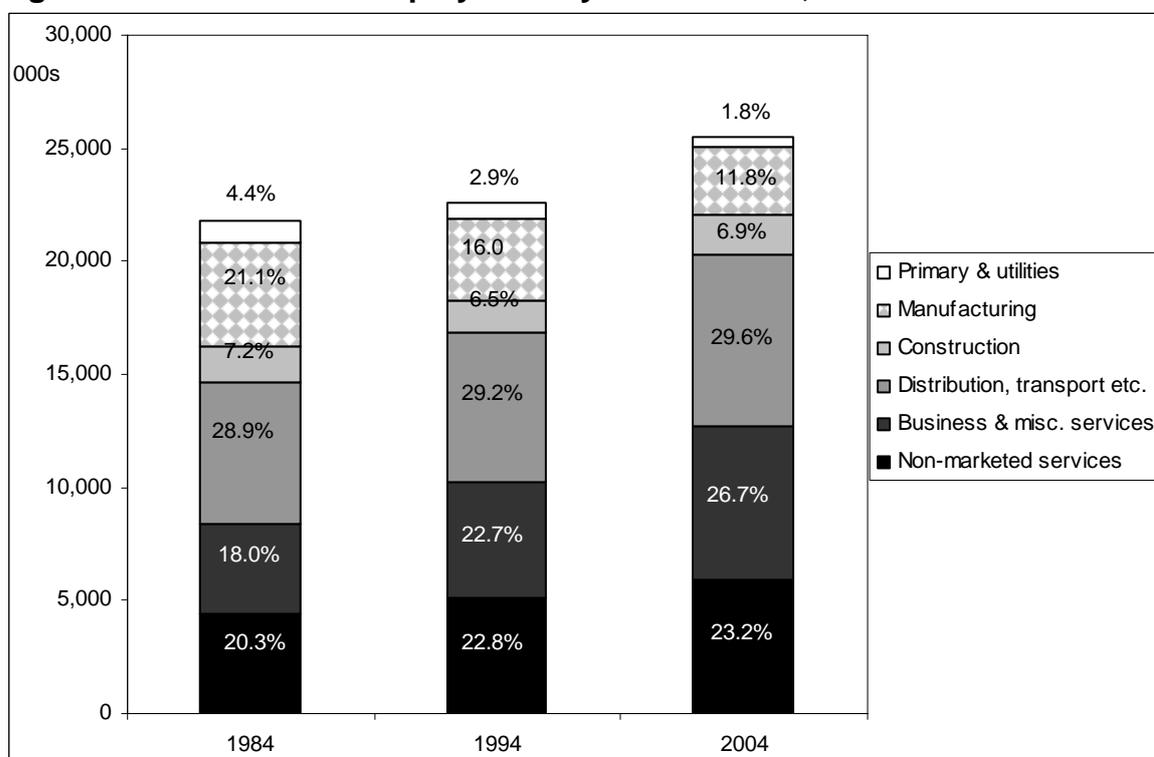
**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 2.2: Employment trends by broad sector, 1984–2004.**



Source: IER estimates, based on *Working Futures 2004-2014* (Wilson et al, 2006).

**Figure 2.3: Structure of employment by broad sector, 1984–2004.**



Source: IER estimates, based on *Working Futures 2004-2014* (Wilson et al, 2006).

## Detailed industry trends

- 2.61 Many traditional areas of employment have experienced dramatic job losses. This has had a direct impact on the demand for many skills. Large falls in employment have taken place in the primary and utilities sector (189,000 fewer jobs in 2004 than 1994). Agriculture and mining have borne the brunt of these changes although, more recently, the utilities have also seen sharp job losses, especially following privatisation. The decline in employment has been even greater in manufacturing (591,000 jobs lost over this period). A combination of pressures from international competition and the continuing process of specialisation and sub-contracting has resulted in severe contraction for many parts of the sector.
- 2.62 Job losses in the primary and manufacturing sectors have been more than offset by growth in other areas. A significant part of the growth has reflected the process of specialisation in manufacturing. Many functions previously undertaken within manufacturing companies are now done by specialist service companies. The functions include research, design and development, as well as finance, marketing, cleaning, security and catering. Rising real incomes have also resulted in people spending more of their income on leisure and entertainment, as well as on health care and education. This has all been facilitated by technological developments, especially in the areas of information technology, communications and transport, which have resulted in many new products and services, at the same time as revolutionising many processes.
- 2.63 As a consequence of these various factors, the sectoral pattern of job growth has seen large increases in employment over the period 1994 to 2004 for business services (1.345 million jobs), distribution and transport (975,000) and non-marketed services (794,000), including health and education. Table 2.2 and Figures 2.4 and 2.5 provide a more detailed analysis. The figures clearly illustrate the increasing importance of business and miscellaneous services as a growth area during the 1990s (including an increase of two-fifths in 'other business services' between 1994 and 2004). It also highlights the deceleration in the rate of job loss in most primary and manufacturing industries as compared with the 1980s (with the exceptions of agriculture and textiles and clothing).
- 2.64 With the setting up of the Skills for Business Network, comprising the SSSA and the various SSCs, the focus of attention is now moving away from industry categories based on the Standard Industrial Classification (SIC) towards a greater emphasis on the *footprints* of the new SSCs. The latest *Working Futures* projections presented in Section 5, as well as NESS, are now beginning to adopt these categories as standard. The analysis here focuses upon the SIC-based sectors adopted by the SSSA in its sector skills matrix.

**Table 2.2: Changing industrial employment patterns by region, 1994–2004.**

	London		South East		East of England		South West		West Midlands	
	000s	%	000s	%	000s	%	000s	%	000s	%
Agriculture	-2	-28.4	-14	-17.8	-17	-27.7	-28	-30.9	-18	-31.6
Mining and quarrying, utilities – of which:	-12	-56.3	-13	-33.2	-9	-41.0	-7	-29.0	-5	-26.0
Mining and quarrying	-3	-53.9	-2	-33.4	-2	-37.1	-1	-12.1	-1	-37.1
Electricity, gas and water	-9	-57.0	-12	-33.2	-8	-42.0	-6	-34.7	-4	-23.8
Food, drink and tobacco	-1	-4.0	-1	-2.5	-5	-11.2	-2	-4.9	-3	-8.6
Textiles and clothing	-15	-46.5	-9	-59.3	-8	-43.3	-13	-56.4	-22	-63.3
Wood, paper, printing and publishing – of which:	5	4.3	-11	-13.0	-11	-16.5	-5	-10.8	-7	-16.7
Wood and paper products	-6	-16.6	-8	-11.1	-6	-10.7	-4	-9.2	-4	-4.3
Publishing and printing	11	37.5	-3	-6.0	-5	-13.4	-1	-3.4	-3	-2.4
Chemicals and non-metallic mineral products	-11	-29.2	1	1.6	-4	-7.0	-5	-11.1	-26	-27.6
Metals and metal goods	-10	-36.0	-7	-13.5	-6	-14.4	-6	-16.6	-28	-21.5
Engineering	-18	-36.7	-12	-9.5	-22	-23.1	-7	-9.4	-21	-19.9
Transport equipment	-3	-21.7	-13	-31.6	7	23.2	7	17.1	4	5.7
Manufacturing not elsewhere specified (nes) and recycling	-2	-9.6	0	-0.1	4	23.9	3	19.8	0	1.4
Construction	67	33.4	60	24.1	57	31.8	29	19.5	25	16.4
Sale and maintenance of motor vehicles	-5	-7.6	-5	-4.7	-5	-7.4	2	3.6	-3	-4.7
Wholesale distribution	18	10.9	40	23.2	11	9.6	5	5.3	8	6.9
Other retail distribution	11	3.1	65	17.4	74	29.5	56	23.9	20	8.7
Hotels and catering	107	49.6	66	32.5	40	30.6	44	27.5	13	10.2
Transport	18	8.1	28	19.1	10	9.9	11	16.2	27	35.5
Communications	2	2.5	11	16.5	12	30.0	10	29.4	8	22.9
Banking and insurance	33	10.8	2	1.6	6	7.0	-2	-2.6	6	8.5
Professional services	41	38.4	26	25.4	22	35.9	20	41.2	12	26.9
Computing and related	54	98.3	71	110.4	27	92.8	21	119.2	22	124.4
Other business services	202	33.9	176	46.7	92	42.4	64	34.8	66	34.3
Public administration	-3	-1.3	-18	-9.5	14	13.9	10	8.1	5	4.6
Education	52	22.2	30	9.9	10	5.2	40	22.5	56	31.1
Health and social work	81	25.1	42	11.0	39	17.7	29	11.8	52	23.2
Miscellaneous services	68	25.2	76	38.9	60	53.0	37	32.3	24	20.7
Total	678	17.8	589	16.2	397	16.8	312	14.0	215	9.0

continued...

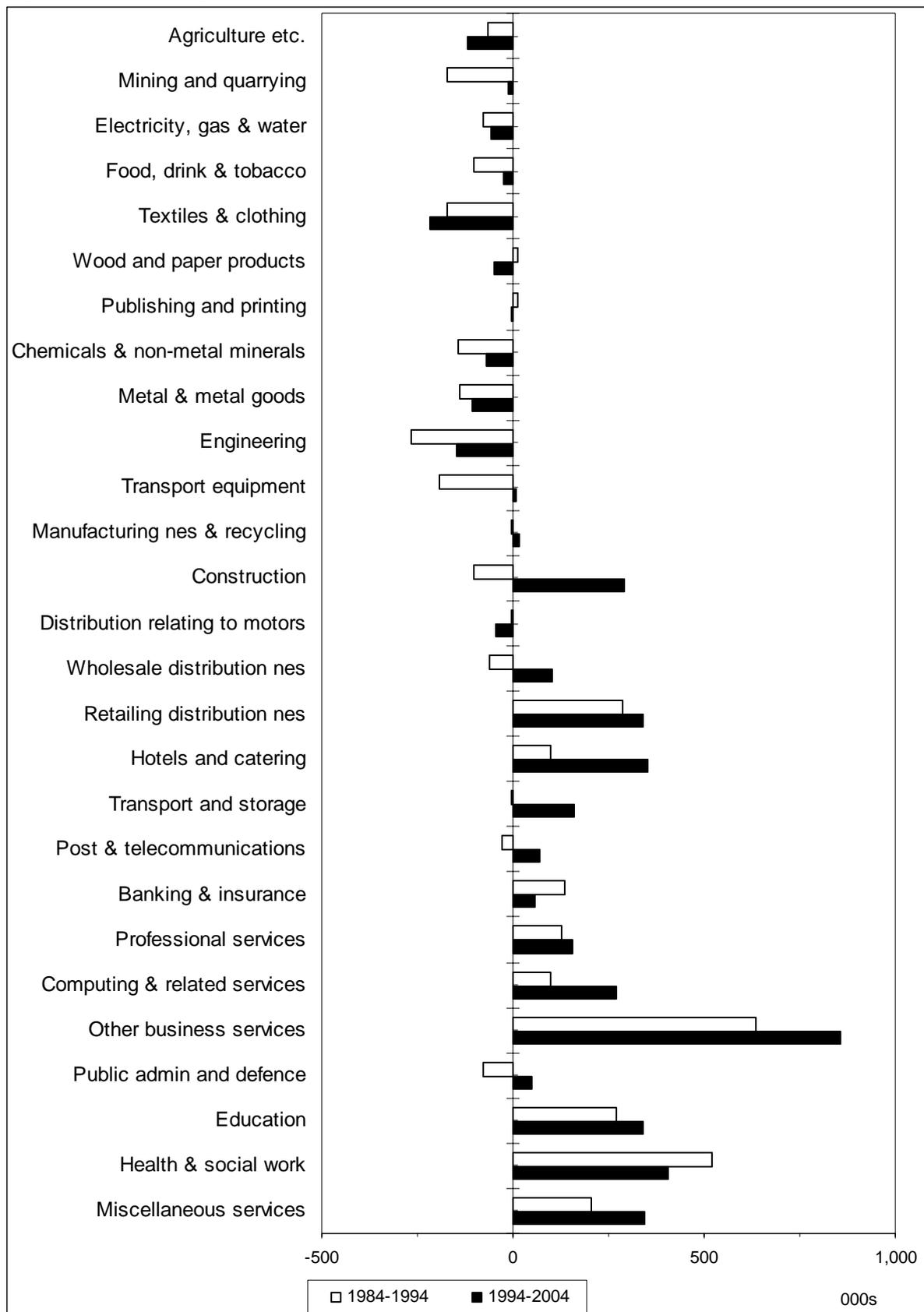
**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 2.2: Changing industrial employment patterns by region, 1994–2004 (continued).**

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	000s	%	000s	%	000s	%	000s	%	000s	%
Agriculture	-10	-23.3	-12	-24.9	-15	-36.2	-1	-7.9	-117	-26.6
Mining and quarrying, utilities – of which:	-9	-38.2	-6	-31.8	-10	-50.2	0	4.3	-72	-35.4
Mining and quarrying	-3	-40.8	-1	-18.1	0	19.3	-1	-16.3	-13	-28.4
Electricity, gas and water	-5	-36.7	-5	-40.2	-10	-57.6	1	19.7	-58	-37.5
Food, drink and tobacco	6	12.6	-4	-5.9	-8	-11.2	-5	-23.3	-23	-5.9
Textiles and clothing	-60	-64.2	-34	-59.6	-41	-54.3	-16	-73.0	-218	-58.6
Wood, paper, printing and publishing – of which:	-1	-2.6	-5	-8.4	-12	-17.5	-3	-12.5	-51	-9.3
Wood and paper products	0	0.7	-5	-8.2	-13	-11.0	-2	-5.4	-48	-8.2
Publishing and printing	-2	-3.1	1	0.7	1	1.5	0	-1.3	-2	-0.5
Chemicals and non-metallic mineral products	-2	-3.9	-5	-7.4	-12	-10.2	-8	-21.0	-71	-12.2
Metals and metal goods	-11	-21.6	-21	-25.2	-12	-20.4	-6	-20.6	-107	-21.0
Engineering	-19	-26.8	-10	-16.0	-28	-29.2	-9	-25.3	-146	-20.4
Transport equipment	4	12.3	1	4.9	-1	-2.1	3	22.4	8	2.5
Manufacturing (nes) and recycling	4	18.2	4	14.2	2	6.7	1	12.8	16	8.9
Construction	12	8.7	26	17.3	16	8.7	0	-0.2	291	19.8
Sale and maintenance of motor vehicles	-9	-16.9	-4	-6.6	-14	-16.9	-3	-11.0	-46	-7.8
Wholesale distribution	6	7.0	8	8.0	8	6.1	-4	-11.7	101	9.8
Other retail distribution	28	15.5	36	15.6	48	14.9	1	1.3	340	14.7
Hotels and catering	11	10.8	2	1.2	59	35.9	10	17.6	351	27.0
Transport	20	28.4	27	30.3	25	17.9	-7	-16.6	159	16.5
Communications	5	22.1	2	4.4	11	24.2	9	67.3	70	18.0
Banking and insurance	1	1.5	9	11.5	3	3.3	2	7.3	59	6.3
Professional services	6	15.1	15	41.7	14	23.1	0	-0.9	156	30.0
Computing and related	16	131.0	18	152.6	34	184.7	8	186.3	272	117.8
Other business services	53	41.1	64	36.9	117	47.3	24	33.1	858	39.2
Public administration	5	6.1	3	3.0	23	14.8	9	11.7	49	4.1
Education	45	33.4	30	17.2	63	28.3	14	16.2	340	19.9
Health and social work	45	25.0	39	16.8	57	17.6	22	19.2	406	18.1
Miscellaneous services	18	19.8	18	15.7	35	20.9	7	11.9	343	27.6
Total	162	8.8	203	9.0	364	12.1	48	4.6	2,968	13.2

**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

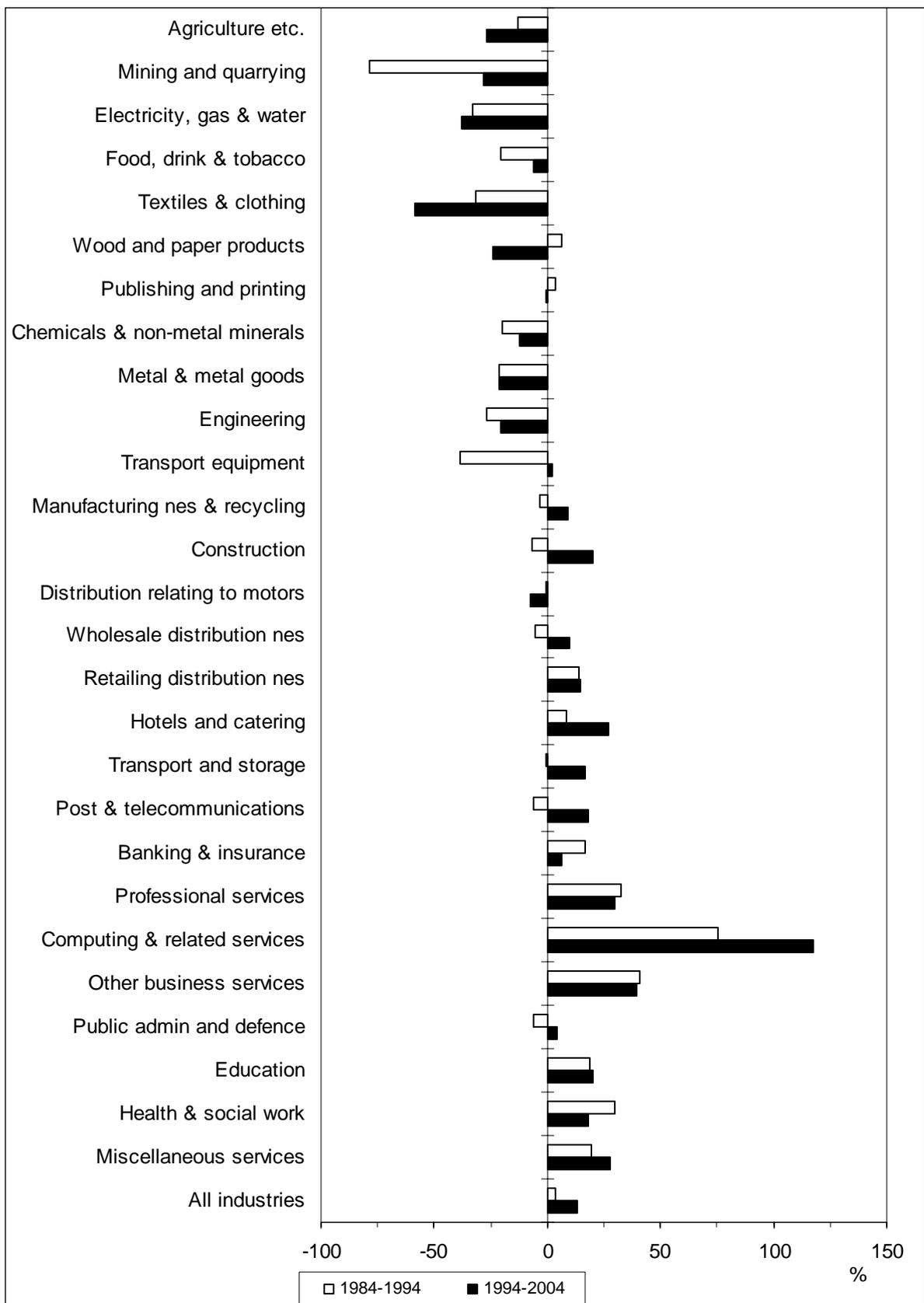
**Figure 2.4: Changes in employment by industry, 1984–2004.**



**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** This figure shows absolute changes in thousands between the years indicated.

**Figure 2.5: Rates of employment growth by industry, 1984–2004.**



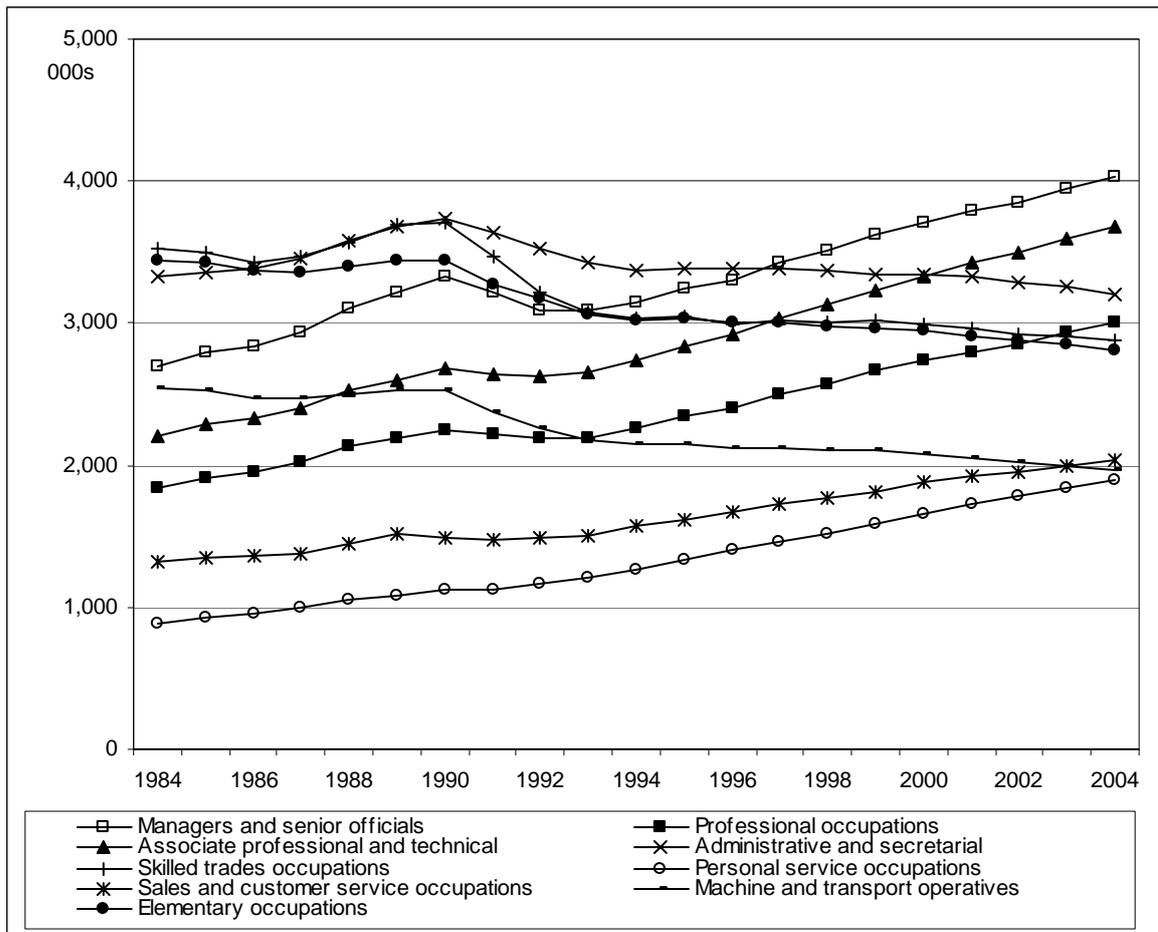
**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** This figure shows percentage changes between the years indicated.

## Occupational trends

- 2.65 The last 20 years have seen large increases in the share and number of people employed in managerial, professional and associate professional occupations as well as some sales and service occupations. These have been offset by declines in the share and number employed in many lower-level manual and non-manual occupations (see Figure 2.6). This trend has intensified since the recession of the early 1990s.
- 2.66 This reflects a combination of the effects of changing sectoral employment patterns, which have tended to favour service-orientated managerial and professional jobs at the expense of more traditional blue-collar industries, reinforced by shifts of occupational structure within industries, which have also favoured the same groups. In recent years, changes within industries have been the main factor, driven by technological change and related changes to the way that work is organised. The number of administrative and secretarial jobs has also declined slowly over the last decade.
- 2.67 The employment share of managerial, professional and associate professional occupations has increased substantially from 36 per cent to 42 per cent over the last decade, an increase of nearly 2.6 million jobs (this represents an increase of 32 per cent). In contrast, the share of skilled trades and process, plant and machine operative jobs fell from 23 per cent to 19 per cent, with the loss of around 331,000 jobs (see Figure 2.7).
- 2.68 A summary of recent employment change based on the 25 Standard Occupational Classification (SOC) sub-major occupational groups is presented in Figure 2.7. Of the 2.6 million additional managerial, professional, and associate professional jobs, over 800,000 have been for corporate managers.
- 2.69 Job numbers have declined dramatically amongst many manual occupations (both skilled and unskilled), although some job losses have also occurred for less skilled white-collar workers in administrative, secretarial and related occupations. In 1994, 36 per cent of all jobs were to be found amongst SOC categories 5, 8 and 9 (skilled trades; process, plant and machine operators; drivers; and elementary occupations). By 2004 the proportion of employment accounted for by these jobs had fallen to 30 per cent.

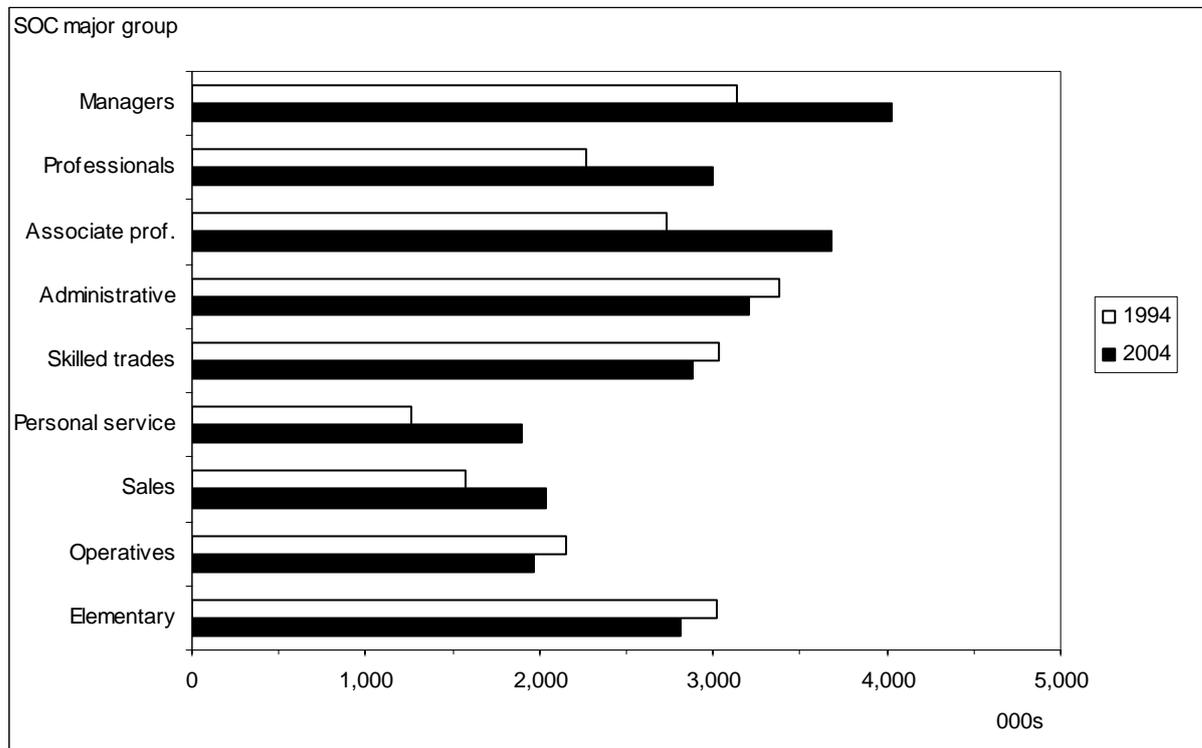
**Figure 2.6: Occupational profiles, 1984–2004.**



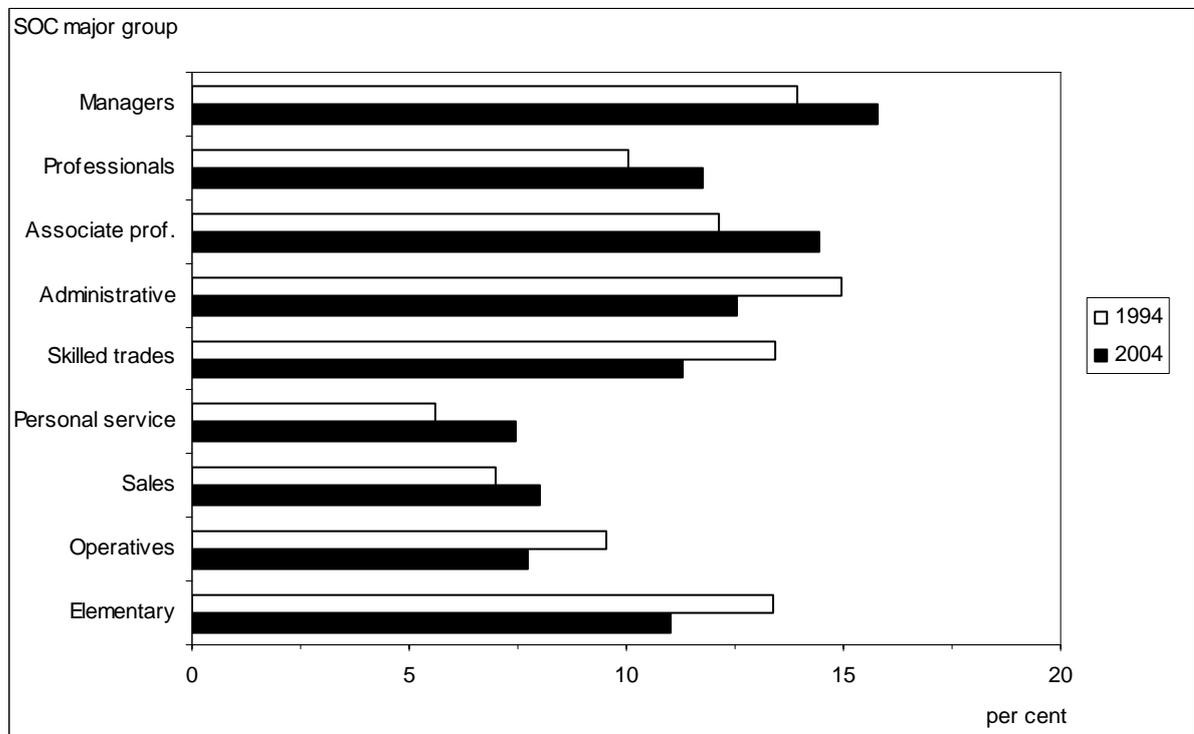
**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 2.7: Changing occupational structure, 1994–2004.**

**Numbers in employment:**

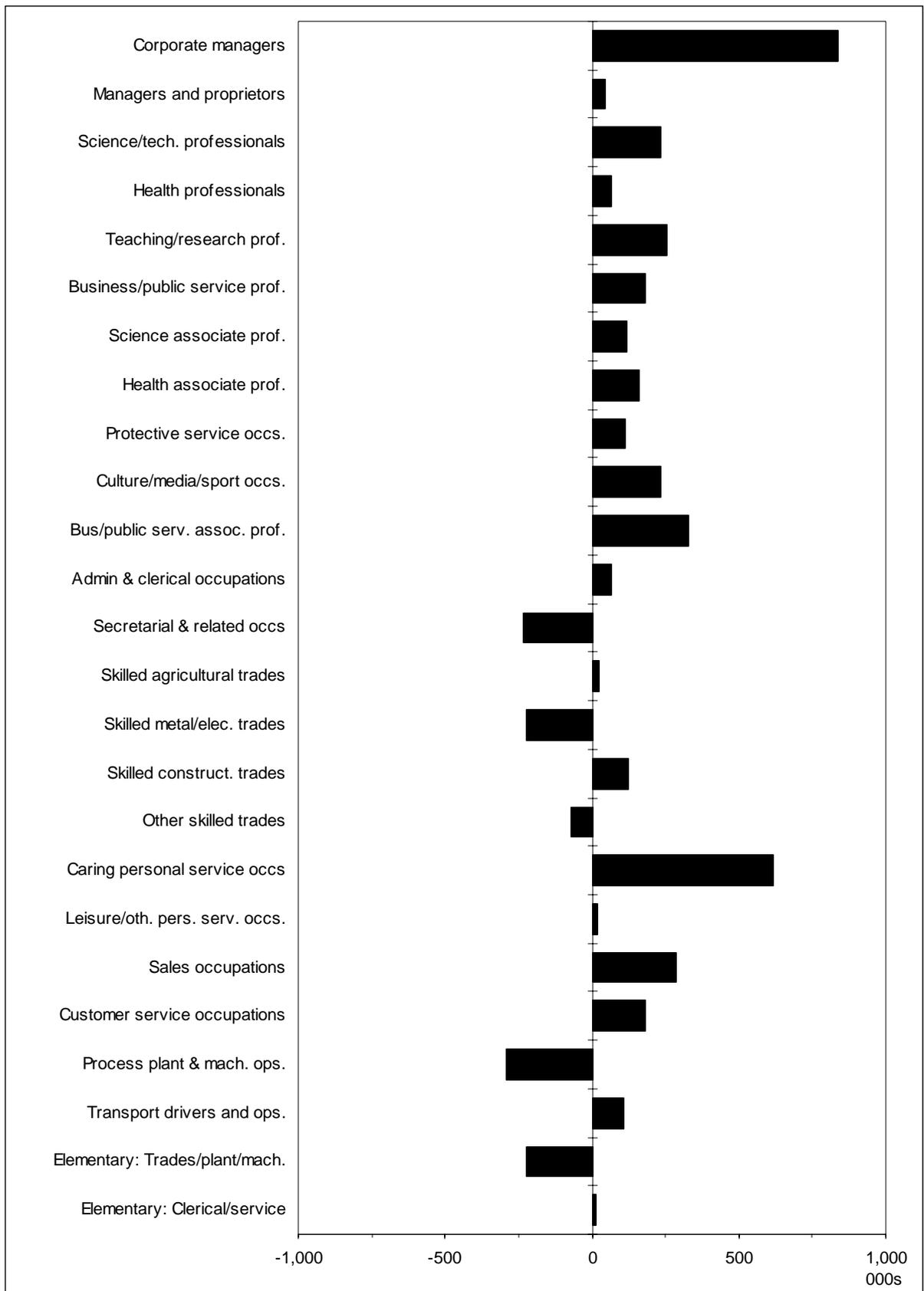


**Shares of total employment:**



**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 2.8: Occupational change by Standard Occupational Classification sub-major group, 1994–2004.**



Source: IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

- 2.70 The occupations most seriously affected have been:
- process, plant and machine operators (a loss of over 0.25 million jobs)
  - secretarial and related occupations
  - skilled metal and electrical trades
  - elementary occupations.
- 2.71 Despite these job losses, many of these occupations still account for a substantial proportion of the workforce. Replacement demand, as a result of labour turnover in these occupations, continues to be a key element of overall labour demand. This poses a problem for many employers, as recruitment of new workers into such jobs is often difficult. The past history of job losses tends to discourage many potential new entrants. This is often reinforced by relatively poor pay and working conditions, in a context of rising aspirations among many young people, following their participation in HE.
- 2.72 The overall changes in the occupational structure of employment suggest that the skill intensity of much work is increasing. There is a strong tendency towards polarisation of demand for skills, with the strongest growth for jobs requiring either very high or rather low skill requirements. Employment is rising in many high-level occupations but it is also growing amongst a number of lower skilled occupations. This is tending to create an 'hour-glass' shaped occupational structure, with more jobs at both the high and low skill ends but relatively few in the middle. This is being driven by the structural changes affecting the sectoral mix of employment and also by technology, which has been more biased towards replacing unskilled jobs by machines than skilled ones.
- 2.73 This tendency, however, can be exaggerated, and there will still be a large number of jobs at middle level (typically requiring National Qualifications Framework (NQF) qualifications at Level 3), with strong replacement requirements as the present workforce ages.
- 2.74 There have been substantial shifts in occupational structure within most sectors as shown in Table 2.3. The shaded cells highlight those occupations for which the proportion of employment in the sector has declined. All sectors, except primary and utilities, have seen an increase in the proportion of those employed in managerial, professional and associate professional occupations between 1994 and 2004 (see Figure 2.9). The increase in the share of managers was fastest in manufacturing, while the share of associate professionals increased most rapidly in business services. The share of professionals increased fastest in non-marketed services.
- 2.75 In contrast, all sectors witnessed a fall in the share employed in administrative and related occupations; skilled trades; and transport and machine operatives between 1994 and 2004 (see Table 2.3). The loss of administrative and secretarial jobs has been fastest in business services and non-marketed services. The decline in the employment share of skilled trades and operatives was fastest in manufacturing and slowest in business services and non-marketed services.
- 2.76 The rising share of managerial, professional and associate professional jobs between 1994 and 2004 is apparent in almost every industry, as illustrated in Figure 2.10. A more detailed analysis of changes in the occupational structure of employment within industries is shown in Table 2.4. This reveals that in some service sector industries, the percentage of managers and senior officials fell (e.g. in distribution related to motors and in wholesale distribution not elsewhere specified (nes)). The share of professionals grew across nearly all industries (most rapidly in education), but declined in computing and related services. Growth in associate professionals was fastest in manufacturing and other business services.

2.77 The share of skilled trades occupations increased in agriculture, while the growth in professional service occupations was fastest in health and social work, and professional services. The percentage in sales and customer service occupations declined in retailing, but increased in wholesaling, and banking and insurance. The decline in the share of process, plant and machine operatives was greatest in textiles and clothing, and the decline in employment share for elementary occupations was greatest in education, hotels and catering, and health and social work.

**Table 2.3: Occupational structure within broad sectors, 1994–2004.**

	% employed in each occupation													
	Primary sector and utilities		Manufacturing		Construction		Distribution and transport		Business and other services		Non-marketed services		All industries	
	1994	2004	1994	2004	1994	2004	1994	2004	1994	2004	1994	2004	1994	2004
1. Managers and senior officials	10.6	9.7	11.4	14.5	10.4	13.2	18.0	19.4	17.0	18.3	8.8	10.2	13.9	15.8
2. Professional occupations	3.9	3.8	5.5	6.6	4.7	5.5	2.5	2.8	12.0	13.9	23.3	25.8	10.0	11.8
3. Associate professional and technical	4.1	4.4	8.9	11.5	4.5	5.7	6.5	7.8	16.6	19.7	20.3	21.7	12.1	14.4
4. Administrative and secretarial	7.8	6.1	9.5	8.6	8.3	6.7	10.8	9.8	25.9	20.0	16.1	11.8	15.0	12.6
5. Skilled trades occupations	34.6	36.7	23.9	21.7	50.0	47.8	12.8	10.8	4.9	4.4	2.4	1.9	13.4	11.3
6. Personal service occupations	4.1	6.2	1.3	1.6	0.4	0.4	2.9	3.5	6.0	7.7	13.4	17.3	5.6	7.4
7. Sales and customer service occupations	1.8	2.3	2.4	3.1	1.0	1.3	18.3	20.1	3.6	4.4	1.4	1.6	7.0	8.0
8. Machine and transport operatives	10.3	8.9	24.9	21.6	11.2	10.8	10.2	9.3	4.2	3.8	2.6	2.0	9.5	7.7
9. Elementary occupations	22.7	21.8	12.1	10.8	9.4	8.6	18.1	16.5	9.7	7.7	11.9	7.7	13.4	11.0
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	100.0	100.0	100
Managerial, professional and associate professional	18.6	18.0	25.9	32.6	19.7	24.3	27.0	30.0	45.6	52.0	52.4	57.7	36.1	42.0

**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** Shaded cells indicate occupations where the proportion of employment in the sector has declined between 1993 and 2003.

**Table 2.4: Occupational structure within industries, 1994–2004.**

	Percentage of occupation in each industry									
	Managers and senior officials		Professional occupations		Associate professional and technical		Administrative and secretarial		Skilled trades occupations	
	1994	2004	1994	2004	1994	2004	1994	2004	1994	2004
Agriculture etc.	10.9	8.7	1.0	0.9	1.9	2.0	3.3	2.7	38.8	42.0
Mining, quarrying and utilities – of which:	9.9	12.1	10.1	10.8	8.8	10.4	17.6	14.5	25.6	23.5
Mining and quarrying	11.8	13.0	8.2	7.4	9.0	10.0	9.3	9.8	24.7	24.5
Electricity, gas and water	9.4	11.8	10.6	12.0	8.7	10.5	20.1	16.1	25.9	23.2
Food, drink and tobacco	9.3	13.4	3.1	4.1	6.9	8.8	10.9	8.6	16.2	14.8
Textiles and clothing	9.7	16.8	1.9	3.2	5.6	9.1	8.2	6.9	13.9	14.5
Wood, paper and publishing – of which:	12.5	16.7	3.2	4.1	13.1	18.5	14.1	10.7	23.0	18.8
Wood and paper products	12.8	15.5	3.0	3.4	9.7	11.7	9.7	9.4	32.4	28.9
Publishing and printing	12.0	16.7	3.3	4.3	14.6	20.9	16.9	11.9	18.0	14.5
Chemicals and non-metal minerals	11.9	13.9	6.7	7.5	9.6	11.3	9.4	9.1	17.2	15.2
Metal and metal goods	11.5	13.9	5.3	6.1	6.6	8.1	5.5	6.6	34.3	30.0
Engineering	13.4	16.2	9.3	10.7	10.9	13.0	10.5	9.3	25.5	22.5
Transport equipment	8.6	10.0	8.1	8.8	7.9	9.2	5.6	7.1	34.6	29.4
Manufacturing (nes) and recycling	11.1	14.3	2.7	3.3	6.1	7.5	9.6	8.1	31.4	32.8
Construction	10.4	13.2	4.7	5.5	4.5	5.7	8.3	6.7	50.0	47.8
Distribution relating to motors	26.4	21.5	3.1	2.9	8.4	8.1	4.6	5.4	18.9	13.8
Wholesale distribution nes	25.0	21.2	3.0	2.9	8.4	8.6	6.3	6.6	17.3	12.8
Retailing distribution nes	13.9	17.1	1.9	2.6	6.5	8.5	13.9	10.1	7.8	8.1
Hotels and catering	25.5	29.3	1.0	1.3	3.7	5.4	7.0	6.1	11.1	10.7
Transport and storage	9.6	11.9	4.2	4.6	7.6	9.0	13.7	15.6	14.2	10.8
Post and telecommunications	6.7	7.9	4.4	4.6	5.8	6.8	18.5	20.4	22.8	17.9
Banking and insurance	14.0	14.9	6.9	8.1	11.6	12.8	49.2	44.3	3.1	2.8
Professional services	20.1	20.3	16.4	16.4	19.0	20.9	19.6	15.9	5.7	4.5
Computing and related services	20.7	19.6	21.4	19.5	19.6	20.3	17.2	19.9	6.6	5.1
Other business services	17.1	19.2	13.6	15.8	17.2	20.5	26.7	18.6	5.0	4.6
Public admin and defence	11.4	13.5	9.7	10.5	18.5	21.9	32.6	27.3	4.3	3.3
Education	4.5	5.7	48.9	51.9	11.8	13.2	8.5	6.3	1.5	1.2
Health and social work	10.7	12.1	10.9	12.8	27.7	28.1	13.1	8.8	2.0	1.7
Miscellaneous services	17.2	17.5	9.4	11.1	17.7	22.0	11.3	9.1	5.4	4.6
All industries	13.9	15.8	10.0	11.8	12.1	14.4	15.0	12.6	13.4	11.3
000s	3,140	4,025	2,265	3,002	2,733	3,685	3,376	3,207	3,030	2,882

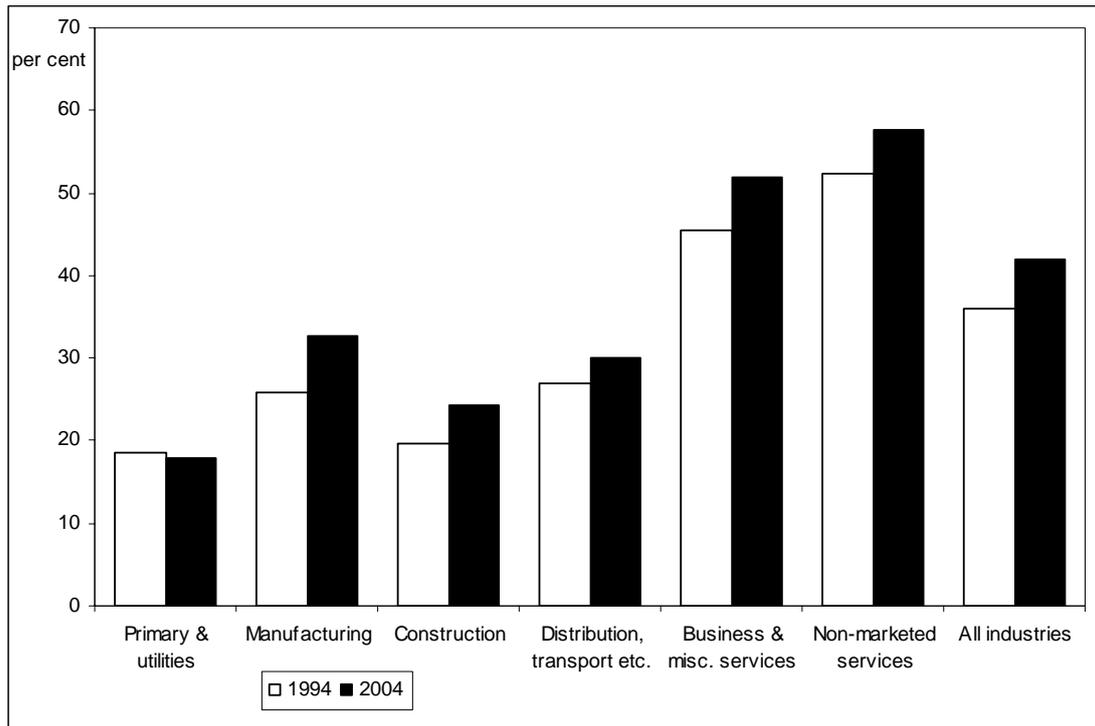
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**Table 2.4: Occupational structure within industries, 1994–2004 (continued).**

	Percentage of occupation in each industry									
	Personal service occupations		Sales and customer service occupations		Process, plant and machine operatives		Elementary occupations		All occupations (100%) 000s	
	1994	2004	1994	2004	1994	2004	1994	2004	1994	2004
Agriculture etc	5.3	8.0	0.8	0.9	9.0	7.3	29.0	27.3	441	323
Mining, quarrying and utilities - of which:	1.6	1.8	4.0	5.7	13.2	12.8	9.2	8.3	203	131
Mining and quarrying	1.4	1.8	1.3	1.9	21.5	19.6	12.9	11.9	47	33
Electricity, gas and water	1.6	1.9	4.9	7.0	10.6	10.4	8.1	7.1	156	97
Food, drink and tobacco	0.8	0.7	7.2	7.6	26.9	26.2	18.8	15.8	387	364
Textiles and clothing	2.2	2.4	1.8	2.3	44.3	32.6	12.5	12.2	371	154
Wood, paper and publishing - of which:	2.0	2.5	3.2	3.7	18.2	16.4	10.6	8.7	546	496
Wood and paper products	1.3	1.7	2.1	2.8	19.5	18.3	9.6	8.3	202	154
Publishing and printing	2.4	2.9	3.7	4.1	17.7	15.7	11.4	9.0	336	351
Chemicals and non-metal minerals	1.5	2.1	1.9	2.6	27.1	25.3	14.6	13.0	584	513
Metal and metal goods	0.9	1.1	1.1	1.7	23.2	21.8	11.6	10.7	510	403
Engineering	1.1	1.4	1.7	2.4	18.9	16.8	8.8	7.7	715	570
Transport equipment	0.8	1.1	0.9	1.5	22.6	21.7	11.0	11.2	305	313
Manufacturing (nes) and recycling	0.8	1.0	1.8	2.2	25.9	21.6	10.6	9.1	185	201
Construction	0.4	0.4	1.0	1.3	11.2	10.8	9.4	8.6	1,466	1,757
Distribution relating to motors	2.7	3.4	14.5	26.1	10.9	8.6	10.6	10.2	590	545
Wholesale distribution (nes)	3.0	4.3	16.5	25.8	10.0	8.0	10.5	9.9	1,033	1,134
Retailing distribution (nes)	2.3	2.7	37.3	35.5	5.2	5.6	11.2	9.8	2,309	2,649
Hotels and catering	3.8	4.1	4.4	5.1	1.6	1.9	41.9	36.0	1,299	1,650
Transport and storage	3.1	4.1	1.8	3.2	29.5	26.8	16.2	14.1	959	1,117
Post and telecommunications	2.0	2.9	3.4	5.6	21.0	19.1	15.5	14.9	390	460
Banking and insurance	1.3	1.4	6.5	8.4	2.0	1.8	5.5	5.5	944	1,003
Professional services	5.3	8.8	2.6	3.5	4.1	3.4	7.2	6.2	522	679
Computing and related services	1.7	2.5	2.5	4.2	4.5	3.6	5.7	5.3	231	503
Other business services	5.1	6.8	3.3	4.1	3.8	3.6	8.3	6.8	2,187	3,045
Public admin and defence	3.5	5.0	1.7	2.4	4.2	3.3	14.0	12.8	1,183	1,232
Education	8.5	10.8	0.9	1.1	2.3	2.0	13.1	7.9	1,704	2,044
Health and social work	22.4	28.1	1.5	1.6	1.9	1.5	9.8	5.3	2,244	2,649
Miscellaneous services	12.2	14.6	2.8	3.0	6.8	5.7	17.2	12.4	1,241	1,584
All industries	5.6	7.4	7.0	8.0	9.5	7.7	13.4	11.0	100.0	100.0
000s	1,263	1,900	1,573	2,040	2,151	1,968	3,018	2,808	22,550	25,517

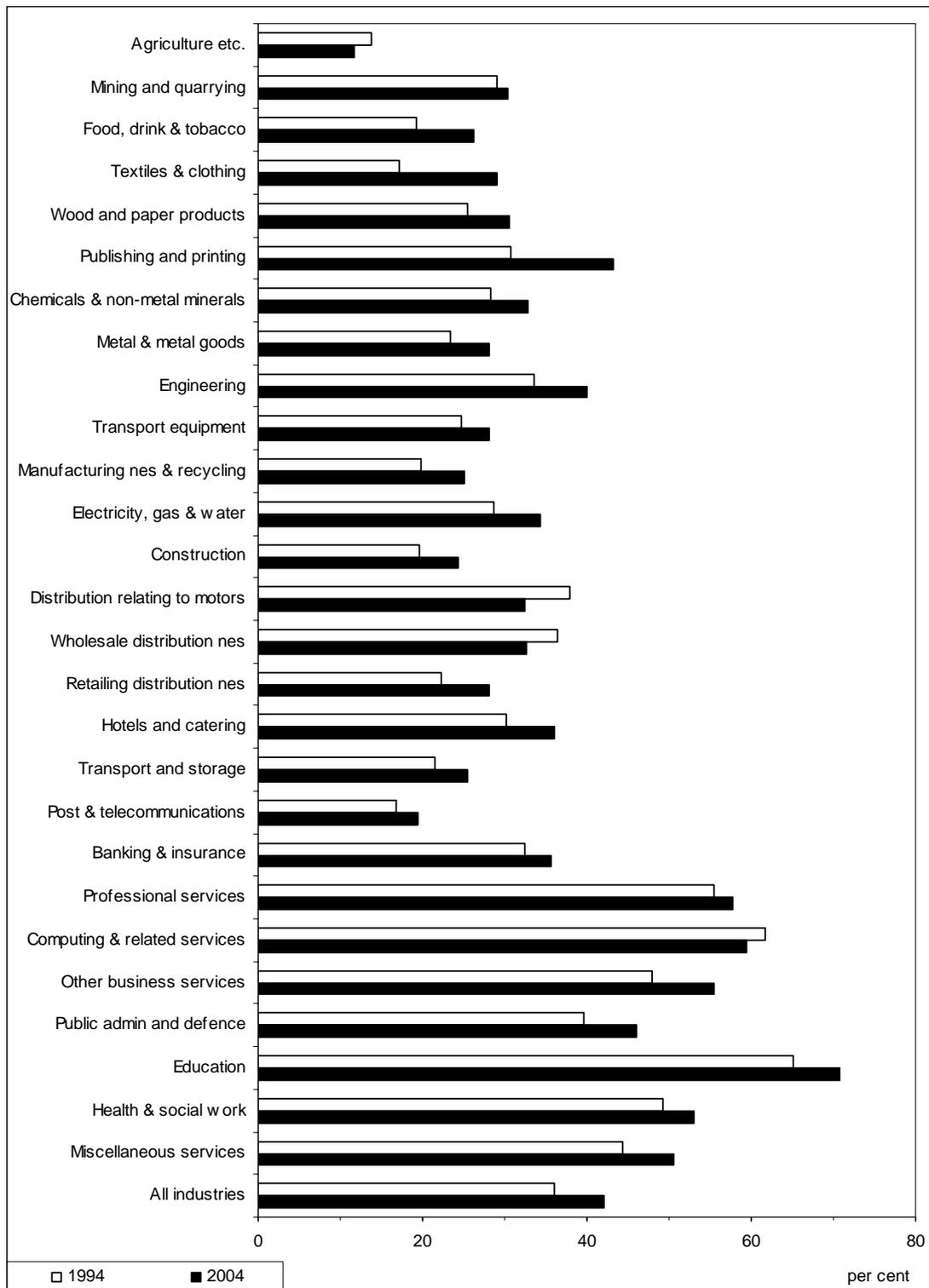
**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 2.9: Proportion of employment of managerial, professional and associate professionals by sector, 1994 and 2004.**



**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 2.10: Proportion of employment of managerial, professional and associate professionals by industry, 1994 and 2004.**



Source: IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

## Regional and local trends

- 2.78 The patterns of sectoral change described above have been common across most regions of England, as shown in Tables 2.1 and 2.2. It is clear that some regions have suffered more because of their specialisation in both the primary and manufacturing sectors. The Midlands and the Northern regions, together accounted for 70 per cent of the manufacturing job loss, and the West Midlands and North West each lost over 100,000 manufacturing jobs between 1994 and 2004. All regions lost manufacturing jobs, but the extent of job loss was least in the southern regions, which specialise in service sector industries to a greater extent. The increase in the number of business and miscellaneous services jobs over this period was greatest in London, the South East, the East of England and the North West. The growth in non-marketed services was fastest in the North West and West Midlands.
- 2.79 Total employment growth has been much stronger in Southern and Eastern regions of England, followed by the North West. This is reflected in Table 2.5, which shows the main changes in occupational employment by region. The shaded cells indicate those occupations where total employment has fallen over the decade since 1994. All regions experienced net employment gains between 1994 and 2004, but two-thirds of the growth in employment occurred in the four southern regions (London, South East, South West and East of England).
- 2.80 To an extent, these changes reflect the regional variations in sectoral employment trends illustrated in Table 2.1. These have had significant implications for occupational trends at the regional level. Recognising that there are important differences in terms of sectoral structure, similar patterns emerge for all regions in terms of the patterns of growth and decline for particular occupations.
- 2.81 Further information on regional and local patterns is presented in Volume 3, as well as in the *Working Futures 2004–2014: Spatial Report* (Green et al, 2006).

**Table 2.5: Occupational change within the regions, 1994–2004.**

	London	South East	East of England	South West	West Midlands	East Midlands	Yorks and the Humber	North West	North East	England
Managers	221	184	118	75	59	56	59	92	22	885
Professionals	195	106	63	70	63	54	55	108	23	737
Associate prof.	268	159	101	76	85	59	64	111	30	951
Administrative	-100	-40	0	-20	3	-5	0	2	-8	-169
Skilled trades	2	1	0	-1	-37	-41	-22	-36	-13	-148
Personal service	79	106	70	69	76	64	58	91	24	637
Sales	53	88	55	62	38	41	53	64	14	467
Operatives	-30	-11	-7	-6	-26	-33	-15	-37	-18	-183
Elementary	-10	-2	-3	-13	-44	-32	-49	-32	-25	-210
All	678	589	397	312	215	162	203	364	48	2,968

**Source:** IER estimates, based on *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** Shaded cells indicate occupations where the number in employment has declined.

## Qualifications of the employed workforce

- 2.82 The numbers and proportions in the employed workforce with formal qualifications have risen sharply in recent years, reflecting the influences of both supply and demand.
- 2.83 Shifts in the patterns of the occupational employment structure in favour of those (higher level) occupations such as managers, professionals and associate professionals, which tend to employ large proportions of qualified people, has been one important driver. Between 1994 and 2004, total employment in these higher level occupational categories grew by around 2.6 million.
- 2.84 At the same time, increased participation in higher education has been encouraged by successive governments, resulting in a sharp increase in the number of those acquiring NQF qualifications at Levels 4 and 5.
- 2.85 The numbers qualified at intermediate and lower levels have also risen, but a substantial (albeit declining) proportion still has no formal qualifications. Tables 2.6 and 2.7 and Figure 2.11 illustrate, using data from the *Labour Force Survey* (LFS), that while in 1995 over 84 per cent of the employed workforce had formal qualifications of some kind, by 2005 this had risen to almost 90 per cent. By then almost 60 per cent of the employed workforce was qualified to at least NQF Level 3. But some 10 per cent of the workforce still has no formal qualifications and, despite the fall in this proportion in recent times, almost 30 per cent of those in employment with a qualification are qualified at below NQF Level 2 (see Figure 2.11).
- 2.86 There has also been a significant improvement in the number of vocational qualifications held by those in employment. Many new qualifications have been introduced and the flow of those obtaining A-levels and other NQF Level 3 qualifications has risen steadily. The impact, however, on the stocks of people holding these as their highest qualification has been modest, since many have gone on to acquire even higher qualifications.
- 2.87 Table 2.6 and Figure 2.11 illustrate that the overall proportion of the employed workforce with NQF Level 2 as their *highest*-level qualification actually fell slightly between 1995 and 2005, while the corresponding figure for those with NQF Level 3 as their highest qualification only rose modestly.

**Table 2.6: Qualifications held by those in employment, 1995 and 2005.**

Qualifications	000s		%	
	1995	2005	1995	2005
<b>No qualification</b>	3,568	2,378	16.7	10.1
NQF 1, GCSE (below grade C)	3,761	3,586	17.6	15.3
NQF 1, GNVQ foundation		9	0.0	0.0
NQF 1, BTEC 1st certificate etc.	895	847	4.2	3.6
<b>NQF 1 total</b>	<b>4,656</b>	<b>4,442</b>	<b>21.8</b>	<b>18.9</b>
NQF 2, GCSE(grades A–C)	2,573	2,780	12.1	11.8
NQF 2, GNVQ intermediate		109	0.0	0.5
NQF 2, BTEC 1st diploma etc.	2,076	2,118	9.7	9.0
<b>NQF 2 total</b>	<b>4,648</b>	<b>5,006</b>	<b>21.8</b>	<b>21.3</b>
NQF 3, A-level and equivalent	1,040	1,564	4.9	6.7
NQF 3, GNVQ advanced		173	0.0	0.7
NQF 3, ONC BTEC national etc.	2,421	2,858	11.4	12.2
<b>NQF 3 total</b>	<b>3,461</b>	<b>4,594</b>	<b>16.2</b>	<b>19.6</b>
NQF 4, First degree and equivalent	2,462	3,376	11.5	14.4
NQF 4, HE below degree level	267	487	1.3	2.1
NQF 4, HNC BTEC and RSA higher etc.	906	1,054	4.2	4.5
NQF 4, Nursing and teaching	793	631	3.7	2.7
<b>NQF 4 total</b>	<b>4,428</b>	<b>5,547</b>	<b>20.8</b>	<b>23.6</b>
<b>NQF 5, Higher degree</b>	<b>567</b>	<b>1,507</b>	<b>2.7</b>	<b>6.4</b>
<b>Total</b>	<b>21,328</b>	<b>23,474</b>	<b>100.0</b>	<b>100.0</b>

**Source:** IER estimates based on the *Labour Force Survey*, Spring 1995 and 2005.

**Notes:** Highest NQF qualification held for all those in employment. The figures are sensitive to the treatment of certain responses to LFS questions. 'Don't knows' are included here with those reporting no qualifications. Some low-level qualifications that do not attain NQF 1 status are also included in the 'no qualification' category. In total these differences boost the 'no qualifications' category by almost 1 percentage point.

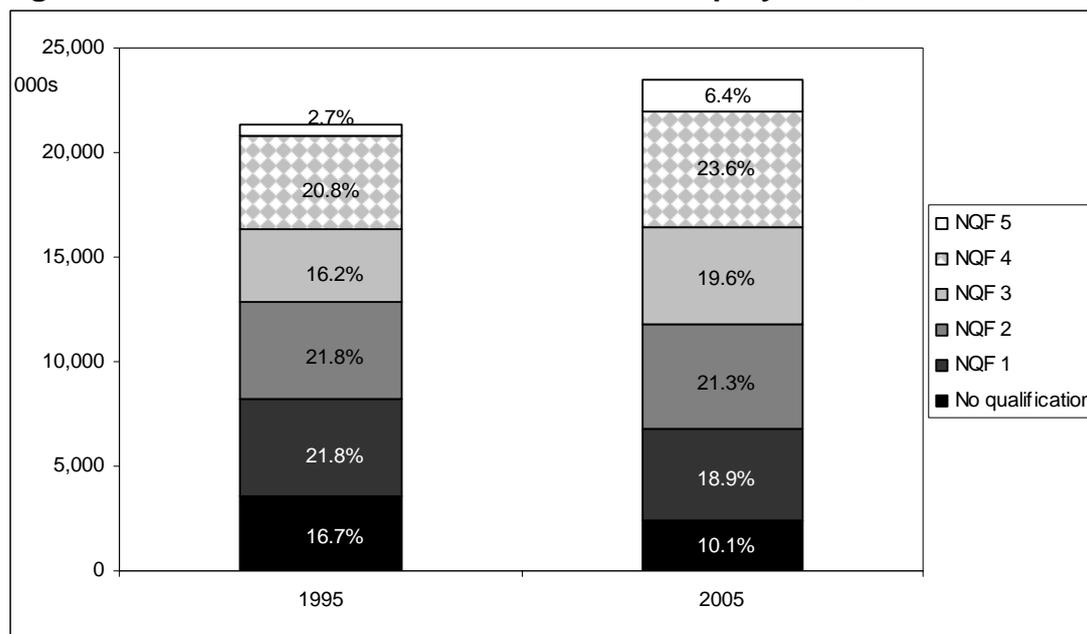
**Table 2.7: Qualification level by occupation, 1995 and 2005.**

		NQF 5		NQF 4		NQF 3		NQF 2		NQF 1		No qualification		Total	
		1995	2005	1995	2005	1995	2005	1995	2005	1995	2005	1995	2005	1995	2005
Managers & senior officials	000s %	112 3.8	285 7.9	837 28.6	1,177 32.7	501 17.1	730 20.3	632 21.6	693 19.2	513 17.6	509 14.1	328 11.2	207 5.7	2,923 100.0	3,601 100.0
Professional occupations	000s %	310 13.6	853 28.3	1,441 63.1	1,562 51.9	170 7.5	250 8.3	182 8.0	189 6.3	132 5.8	130 4.3	47 2.0	26 0.9	2,283 100.0	3,010 100.0
Associate professional & technical	000s %	82 3.2	227 6.9	1,017 39.5	1,450 44.4	399 15.5	584 17.9	477 18.5	542 16.6	388 15.1	369 11.3	212 8.2	94 2.9	2,575 100.0	3,266 100.0
Administrative, clerical & secretarial occupations	000s %	21 0.7	59 2.0	383 12.4	504 16.9	459 14.8	572 19.2	865 27.9	814 27.3	999 32.3	803 26.9	368 11.9	233 7.8	3,094 100.0	2,985 100.0
Skilled trades occupations	000s %	15 0.5	22 0.8	251 8.6	218 8.2	844 28.8	920 34.8	760 25.9	670 25.4	518 17.7	494 18.7	545 18.6	319 12.1	2,933 100.0	2,642 100.0
Personal service occupations	000s %	12 1.0	26 1.4	160 12.7	283 15.5	201 15.9	449 24.7	303 24.0	519 28.5	333 26.3	388 21.3	256 20.2	154 8.5	1,266 100.0	1,819 100.0
Sales & customer service occupations	000s %	7 0.2	13 0.7	183 6.5	178 9.7	444 15.8	394 21.4	692 24.6	530 28.8	816 29.0	457 24.8	672 23.9	270 14.7	2,813 100.0	1,842 100.0
Transport & machine operatives	000s %	2 0.3	6 0.4	37 5.5	72 4.1	102 15.1	322 18.4	151 22.3	454 26.0	209 31.0	551 31.6	175 25.9	340 19.5	676 100.0	1,746 100.0
Elementary occupations	000s %	4 0.1	19 0.7	133 4.5	122 4.5	359 12.0	393 14.6	637 21.3	629 23.4	848 28.3	775 28.9	1,011 33.8	748 27.8	2,993 100.0	2,685 100.0
All occupations	000s %	565 2.6	1,510 6.4	4,442 20.6	5,565 23.6	3,479 16.1	4,615 19.6	4,699 21.8	5,041 21.4	4,758 22.1	4,476 19.0	3,613 16.8	2,392 10.1	21,555 100.0	23,597 100.0

Source: *Labour Force Survey*, Spring 1995 and 2005.

Note: See Table 2.6. Those with no known occupation are excluded here.

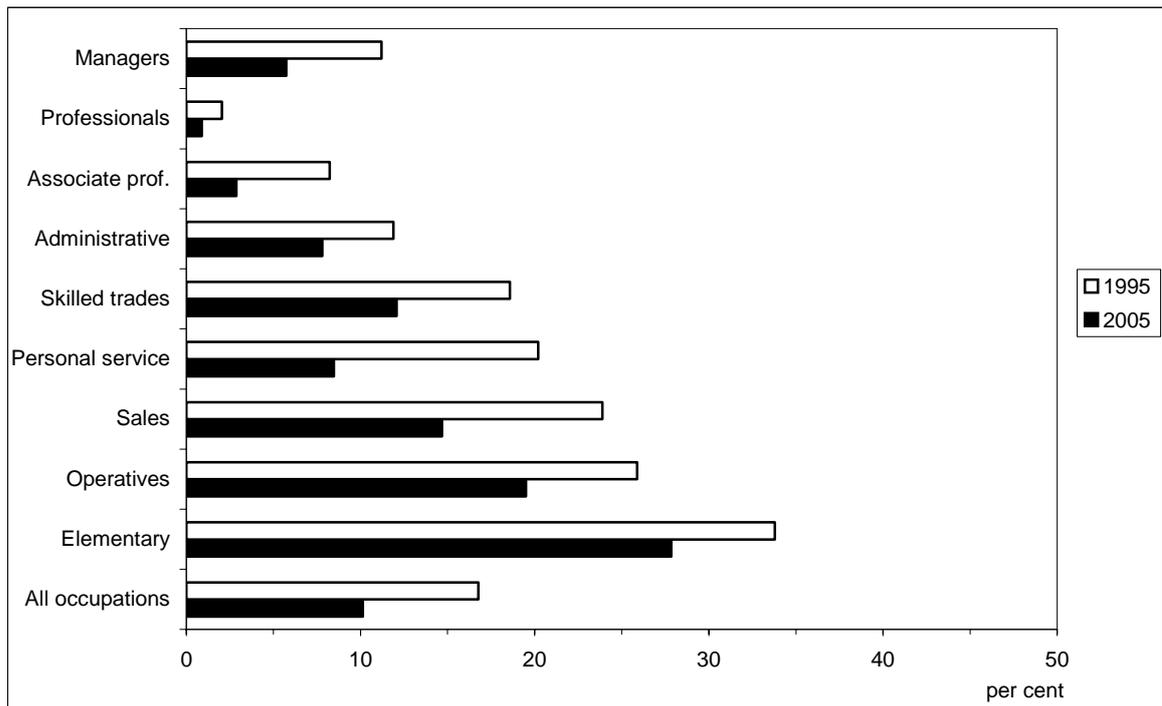
**Figure 2.11: Qualifications of individuals in employment, 1995 and 2005.**



Source: *Labour Force Survey*, Spring 1995 and 2005.

Note: See Table 2.6.

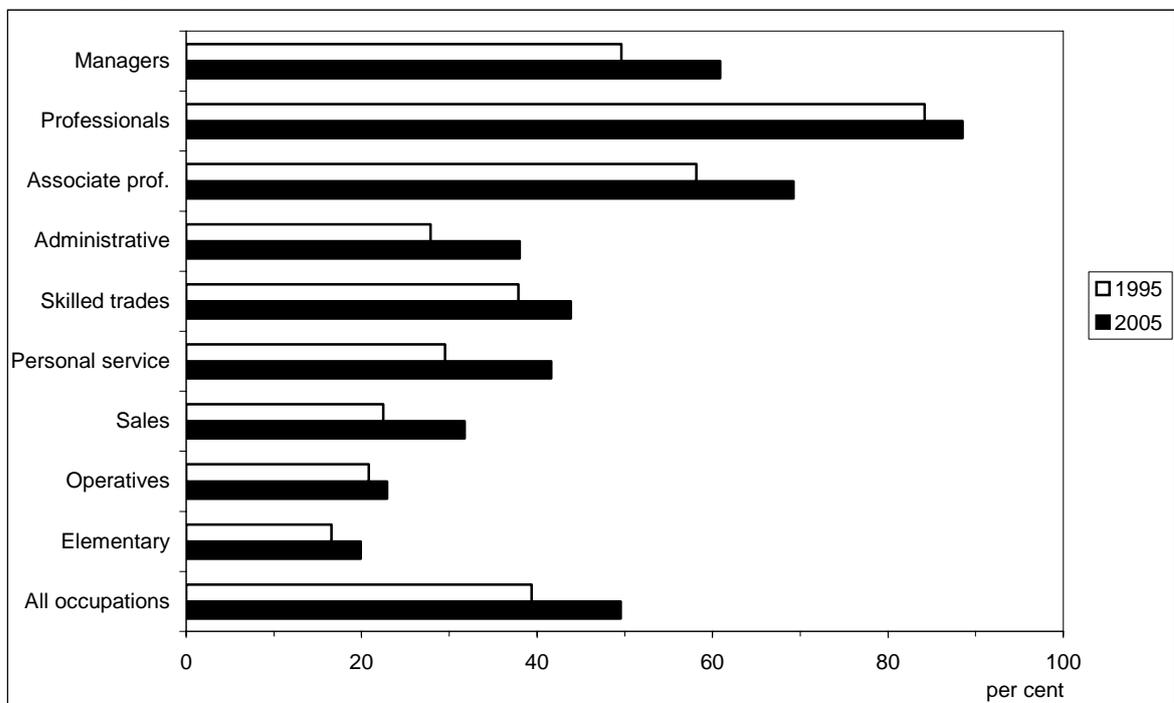
**Figure 2.12: Percentage of employees with no qualifications by occupation, 1995 and 2005.**



**Source:** Labour Force Survey, Spring 1995 and 2005.

**Note:** See Table 2.6.

**Figure 2.13: Percentage of employees qualified to NQF Level 3 and above by occupation, 1995 and 2005.**



**Source:** Labour Force Survey, Spring 1995 and 2005.

**Note:** See Table 2.6.

- 2.88 At NQF Level 1, the pattern is similar. The proportion of those with GCSE below grade C as their highest qualification, for example, has fallen slightly over the last decade.
- 2.89 All occupational groups are becoming better qualified as measured, for example, by the proportion of employees with no formal qualifications or the proportion qualified to NQF Level 3 or equivalent and above (see Table 2.7 and Figures 2.12 and 2.13). The increases are greatest among managers and administrative and secretarial occupations, with large increases also among those employed in sales occupations.
- 2.90 For higher level qualifications, the fastest increases have been amongst professional occupations (NQF Level 5), managers (NQF Levels 4 and 5) and amongst associate professionals (NQF Level 4). There has also been a general increase for NQF Levels 3 and 4 across many occupations, including administrative and secretarial and sales occupations.
- 2.91 Higher level qualifications (NQF Levels 4 and 5) are heavily concentrated amongst particular occupational categories (most notably professional occupations). The proportions qualified at this level have also risen in other occupations (especially amongst associate professional groups). For example teachers, and more recently nurses, have seen moves towards an all-graduate profession. Some have argued that this represents qualifications inflation. The more general consensus is that it reflects real changes in the requirements of the jobs.
- 2.92 Qualifications at NQF Level 3 remain significant amongst managers, administrative and secretarial, skilled trades and personal, sales and customer service occupations. In all of these, around 20 per cent or more of the employed workforce are currently qualified at that level. For skilled trades it is higher at around 35 per cent.
- 2.93 Lower-level qualifications are spread much more evenly across all occupations than are higher level qualifications. The proportions holding no formal qualifications have fallen sharply in all occupations as shown in Figure 2.11. It is notable, however, that there are still significant numbers of people in high-level occupations who hold few formal qualifications. For example, almost 40 per cent of managers are still only qualified to NQF Level 2 or below.

## Conclusion

- 2.94 The statistical evidence reveals a workforce where the level of skill is increasing as revealed in the data on occupation and qualification trends. In this respect all the signs are positive. Whilst this evidence is most revealing and provides the best means possible of demonstrating how the skill profile of the workforce is changing in relation to a number of factors, it gives little indication of whether skills are improving quickly enough.
- 2.95 The research evidence demonstrates that for employers to move up-market to improve profitability, or to increase the efficiency with which they produce their existing range of products or services, they need to improve the skills of their workforce.
- 2.96 The message becomes a little uncomfortable when it comes to bringing about improved efficiency or moves into higher value markets amongst the wider population of employers. Whilst upskilling the workforce may be a necessary requirement, it is not a sufficient one. Employers also need to find the capital to make such changes. And where they are currently operating in relatively low-value markets, they are often reluctant to take the risks involved in investing in physical or human capital. This is especially the case, when they are currently returning, in their view, a reasonable level of profitability.
- 2.97 It was a conscious strategy to start this year's *Skills in England* with a review of the demand side because it signals how difficult it is to change employer behaviour through supply-side policies alone. So long as employers have not set themselves high performance aspirations they are unlikely to deploy skills in a way that will meet the Government's productivity challenge. Section 3 looks at the supply side in greater detail.

# Section 3: The Supply of Skills

## Overview and Summary

- 3.1 There is much new to report on the supply of skills. The current emphasis in government policy to stimulate labour supply from among those who are either economically inactive or are caught by the benefits trap, and skill supply through the National Employer Training Programme (NETP), branded Train to Gain, are new elements. Demographic and migration trends are also in a state of flux. The key points made in this year's report are as follows.
- 3.2 The key **policy developments** relating to labour and skill supply are:
- the introduction of the Train to Gain programme (previously the NETP) that will subsidise employers, especially small- and medium-sized enterprises, to provide training for their employees
  - aiding entry to the labour market for certain groups through the use of active labour market policies such as New Deal
  - modifying the tax and benefits systems to further aid people to access the labour market without financial loss.
- 3.3 Demographic trends indicate that the indigenous population is an ageing and declining one. But in an economy still experiencing growth, and with unemployment standing at an historically low level, there is an economic necessity to boost **labour supply**. The Government is using active labour market policy to achieve this end. The potential for a further boost to skills supply was given by the accession of 10 countries to the EU from 2004. This and other factors have had implications for inward migration. Many of these countries are ones with well developed vocational education and training (VET) systems.
- 3.4 The evidence shows improvements in **skills supply** over time. The percentage of the workforce that has achieved qualifications at various levels based on the National Qualifications Framework (NQF) has improved. The data clearly show the improvement in skills supply over time, with substantial increases at NQF qualifications at Levels 3, 4 and 5. In many respects it is improved supply at these levels that is expected to drive the high-value economy of the future.
- 3.5 From a competitiveness perspective, it is important to consider the national skills profile compared with that of its principal competitors. **International comparisons** reveal a mixed picture. On average, people spend a relatively long period in the formal education system compared with the OECD average, and many people go on to gain a first degree. But there is some evidence that the duration of time spent in education is a result of people returning to education. The post-16 participation rate for those immediately continuing their secondary education is lower than the OECD average.
- 3.6 The incidence of non-formal, job-related education and training is relatively high compared with the OECD average, but the intensity is much lower. The duration of this activity at 28 hours is less than half that of the OECD average of 62 hours.

## Introduction

- 3.7 The emphasis of VET policy over the past 20 years has alternated between being supply- and then demand driven. Of course the aim has always been to obtain a balance between the two, but over the 1980s and early 1990s policy was, on balance, more firmly directed at improving the supply of skills, with the expectation that this would, eventually, lead to better national economic performance. Employers would be recruiting more highly skilled people than hitherto and, consequently, this would raise workplace performance.
- 3.8 Whether employers have fully taken advantage of improved skills supply is a moot point. The whole area of skills deployment within the workplace is something of a black box. Evidence collected from the ESRC, DfES and SKOPE Skills Surveys suggests that many employees do not fully deploy their capabilities in their current jobs (Felstead, Gallie and Green, 2002). Why they do not do so is not immediately clear: whether it is because their skills are not relevant to their current job, or because management fails to capture the full potential of its workforce. Essentially this is a form of mismatch that is addressed more fully in Section 4. But it does point to the inherent weaknesses of relying too heavily upon the supply side; hence the emphasis the Government has placed more recently upon increasing the demand for skills.
- 3.9 Arguably, to increase the demand for skills effectively, the supply side needs to be tackled first, if substantial skill mismatches are to be avoided. This section looks at the supply of skills in England. Significant changes in education policy in England over recent years, notably the massive increase in post-compulsory participation in education, have resulted in a strong cohort effect. Younger people tend to have a different qualification or skill profile to their older counterparts, since they have had the benefit of the recent educational reforms. Older people are more likely to have uncertificated skills. But, given demographic trends, concerns about the provision of pensions and the need for people to work longer into their old age, as recommended in the recent Pensions Commission report (Turner, Drake and Hills, 2006), older people are likely to remain an important supply of labour, and thereby of the total stock of skills, over the longer term as well as the short term.
- 3.10 This section begins by looking at recent changes in supply-side policy and then examines the supply of skills in the workforce. It summarises the current stock of skills in the workforce measured by qualification level. It goes on to look at the supply of skills resulting from post-compulsory participation in education, especially the supply of intermediate-level skills (via Apprenticeships) and graduate-level skills. Information on the incidence of work-based training is presented. In part, national competitiveness is dependent upon the supply of skills relative to that elsewhere in the world. To this end, data are presented showing how the supply of skills compares across the OECD area. Finally, a conclusion is provided.

## Recent Changes in Policy

- 3.11 The past year has seen considerable emphasis given to the supply side. This was initially trailed in the Skills Strategy White Paper (DfES, 2005) in early 2005 and amplified further in the Pre-budget Statement at the end of the year. A number of features are apparent:
- the introduction of Train to Gain
  - aiding entry to the labour market for certain groups through the use of active labour market policies such as New Deal

- modifying the tax and benefits systems to encourage people to take jobs without financial loss.

3.12 The Skills Strategy White Paper outlined how the Government's skills strategy would be developed over the medium term:

*to create a society in which young people and adults expect to keep learning and developing new skills, because everyone takes it for granted that you need skills to get a good job and a fulfilling life. Qualifications should not be seen as a minority pursuit for the academic, but as a way in which everyone can get recognition for what they have achieved and what they can contribute. No one should feel that they are being held back from achieving their aspirations, whatever their background. Those who do not succeed first time round should be confident of a second chance, and as many further chances as they need. People should know where to go for good information and guidance on the opportunities available to link training, skills and jobs (DfES, 2005 part 1, p. 7).*

3.13 The document also sets out the Government's measures of success:

- substantially increase the proportion of 14- to 19-year-olds achieving full Level 2 qualifications
- educational participation at age 17 to increase from 75 per cent to 90 per cent over the next 10 years
- the proportion of 18- to 30-year-olds benefiting from HE to rise towards 50 per cent
- to increase by 75 per cent, between 2002/03 and 2007/08, the numbers successfully completing Apprenticeships; and by July 2005, to increase to 28 per cent the proportion of young people who enter an Apprenticeship before the age of 22 (i.e. 175,000 young people)
- to help low-skilled adults to improve their literacy, language and numeracy, and achieve the platform of employability skills. The aim is for 2.25 million adults to achieve functional competence in literacy, language and numeracy, and over 3 million adults to achieve their first full Level 2 qualification by 2010
- the Skills Alliance to provide a framework of shared priorities which link skills and qualifications to improved business performance and labour market capacity.

Writ large throughout the document is a commitment to provide employers with a strong voice in determining skills supply. The document also emphasises:

- the role of trade unions as a source of training supply
- the role of equal opportunities, especially in helping minority groups in society to gain access to training.

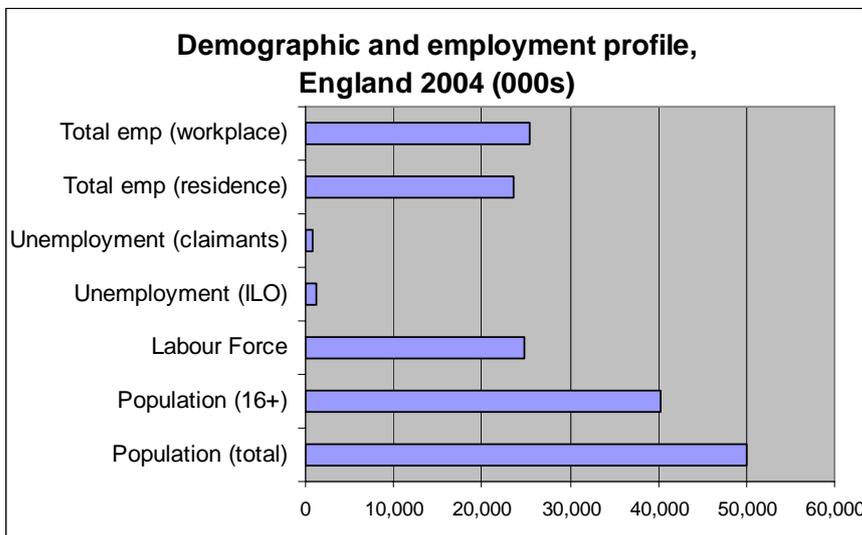
3.14 The Employer Training Pilots set up as part of the new Train to Gain programme (previously the NETP), provided financial assistance to employers to train their workforce principally to Level 2. Initial evidence suggests that the pilots have been successful in obtaining employee and employer participation (Hillage and Mitchell, 2004). Around 26,000 employers and 213,000 employees have benefited, although there is no indication to date of the extent of deadweight attached to the programme. The pilots will now be rolled out as Train to Gain during 2006. This scheme will provide heavily subsidised or free training to employers (including the cost of their employees' wages whilst training) where there has been a market failure to provide training.

- 3.15 Modifications will also be made to New Deal for Skills to help move people from welfare to work. In addition, funding for New Deal Plus for Lone Parents (NDLP+) in the five pilot areas will be extended to 2008. NDLP+ offers an integrated package of assistance to help lone parents enter the labour market.
- 3.16 The Government is also looking at a range of measures which will help people assisted into work to remain in work. In-work Credits, a weekly payment to lone parents who have been on Income Support for 12 months for the first 12 months of employment, is aimed at achieving this.
- 3.17 The objective is also to make work pay. The National Minimum Wage and the Working Family Tax Credits are two important policies in this respect. The Government is also looking at tackling the unemployment trap through a Minimum Income Guarantee.

## Labour and Skills Supply

- 3.18 Demographic trends indicate that the indigenous population is an ageing and declining one. There are clearly issues of social justice and equality in helping previously excluded groups to enter the labour market. But in an economy still experiencing growth, and with unemployment standing at an historically low level, there is an economic necessity to boost labour supply. Active labour market policy (see *Skills in England 2003* for a detailed overview of active labour market policy) over recent years has sought to achieve this end and, as described above, there have been further changes this year to these policies. In addition, the impending age discrimination legislation, together with modifications to the pensions system in the light of the Pension Commission's (Turner, Drake and Hills, 2006) recommendations, might help retain older workers in the labour market. A further stimulus to labour supply has been migration. The potential for this to supply sought-after skills was given a boost by the accession of 10 countries to the EU from 2004.

**Figure 3.1: England's demographic and employment profile 2004.**



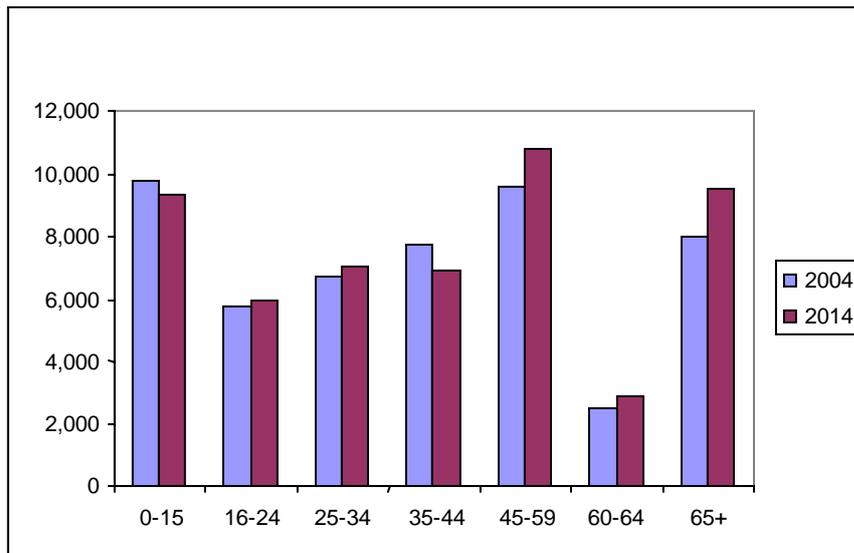
**Source:** CE/IER estimates, Green *et al* (2005).

**Notes:** Employment is measured here by the total number of workplace jobs and in terms of the total number of residents employed (heads). Unemployment is also measured here in two ways: the number of claimants for unemployment benefits and the total number of people actively searching for work based on standard ILO definitions.

## Labour supply

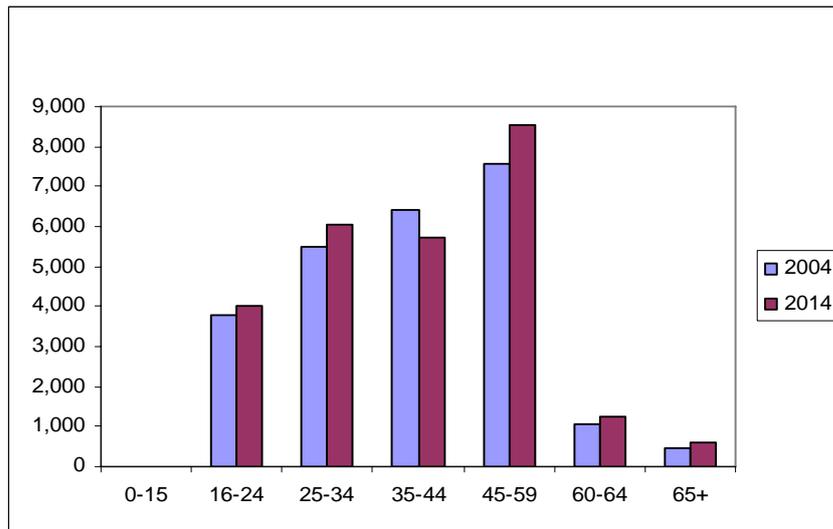
- 3.19 The labour force in England is now around 25 million, roughly half the total population (see Figure 3.1). The total number of jobs actually exceeds this, as a number of people have more than one job. Unemployment remains low by historical standards, measuring around a million using ILO definitions.
- 3.20 The future supply of skills depends upon a number of key factors:
- demographic trends (including birth and mortality rates)
  - the ageing of the population
  - new sources of labour supply
  - decisions about labour market participation including retirement.
- 3.21 Figures 3.1 to 3.4 present some new results on overall labour supply based on research conducted on behalf of the LSC (Green, Owen and Wilson, 2005). This work covers the whole of England, as well as its constituent regions. The results presented here for England as a whole illustrate the way the population is ageing and the impact this is having on the workforce. These demographic trends will have an important impact on the supply of skills, as a large proportion of the current workforce reaches retirement age. The ageing of the population and the looming pensions crisis will both have an impact on numbers available, possibly operating in offsetting directions (the former resulting in an increasing outflow due to retirement, the latter resulting in a tendency to retire later).
- 3.22 Over the past year the working-age population has increased by 270,000, with much of this due to in-migration. This has been highlighted as an important source of labour – especially in those parts of the country where there are labour shortages – and skill shortages. The accession of 10 new countries to the EU – most of which have strong education and VET systems, but low wage levels – provides a potentially rich supply of skills. Despite these large increases, it is important to recognise that migrants still only account for a tiny proportion of employment in most industries, including agriculture and construction. Recent research conducted on behalf of the LSC presents a detailed overview of the available evidence on this and related issues of ethnicity (Green, Owen and Wilson, 2005).

**Figure 3.2: An ageing population and workforce, England 2004–2014.**



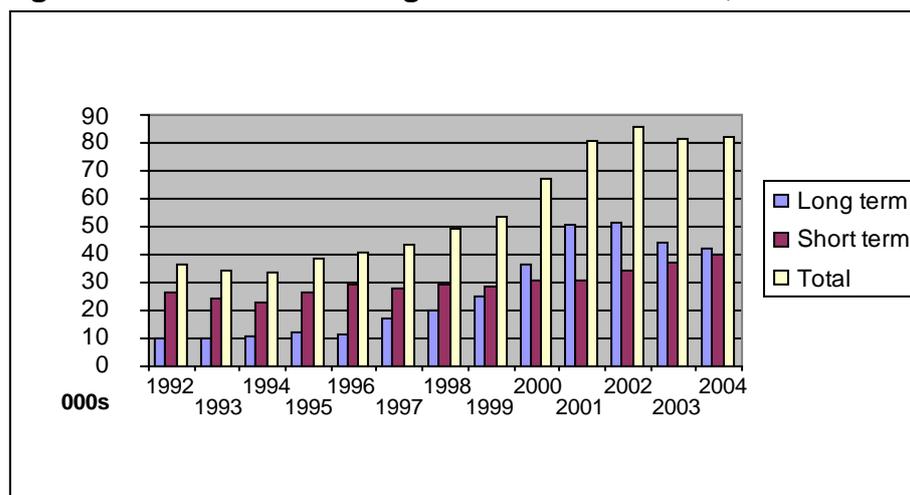
Source: *Changing Patterns of Employment* (Green, Owen and Wilson, 2005).

**Figure 3.3: An ageing labour force, England 2004–2014.**



Source: *Changing Patterns of Employment* (Green, Owen and Wilson, 2005).

**Figure 3.4: Inflows of foreign workers to the UK, 1992–2004.**



**Source:** Based on grants of work permits (excluding dependants).

**Notes:** Long term is 12 months or more; short term is under 12 months.

Data exclude EU nationals up to 1993, and EEA nationals since 1994. Figures include extensions and changes of employment.

## Migration and the UK labour market

- 3.23 Figure 3.4 shows the influx of foreign workers between 1992 and 2004. Worldwide, the numbers of international migrants have increased substantially in recent decades (Glover et al, 2001). The UK has shared in this trend, experiencing an increasing net gain in population in nearly every year since 1982, as a result of a growing difference between increasingly large flows of people into and out of the UK, which peaked at nearly 172,000 in 2001 and fell to just over 150,000 in 2003 (Centre for Research and Analysis of Migration, 2005). This increase in migration has been drawn from all parts of the world (the rest of the EU, the Commonwealth and the rest of the world) (Salt, 2004). Between 1981 and 1999 there was a net addition to the UK population of 1.2 million through international migration (Dobson et al, 2001). The Government Actuary Department (undated) projects net migration to account for around three-quarters of the increase in the UK population (4.1 million of the projected 7.2 million increase) from 2004 to 2031).
- 3.24 According to the 2004 LFS, 10 per cent of the British working-age population were born in another country (Department for Work and Pensions, 2004). In 2004 (prior to EU enlargement), there were nearly 2.86 million foreign nationals living in the UK, making up 4.9 per cent of the UK population. Europe was the largest source of foreign nationals (43 per cent of the total), followed by Asia (25 per cent) and Africa (17 per cent).
- 3.25 Factors associated with increasing net migration to the UK include the current strength of the UK labour markets, economic globalisation, increasing economic migration and labour migration within the EU and increased political instability around the world. Much of the increase in immigration was accounted for by asylum seekers, who do not gain the right to work in the UK until they are granted leave to remain. As refugees, they then have the same rights to work and claim benefits as all UK citizens.
- 3.26 The UK Government embraces the principle of *managed migration*, coupled with measures to tackle abuse of the asylum system and illegal immigration. This policy makes explicit recognition of the potential role for migration to address labour market deficiencies, especially in key professions and some unskilled jobs. Migration from outside the UK is also increasingly being viewed as a potential solution for replacing workers who are retiring and are not being replaced at the younger end of the workforce due to falling birth rates (Stanfield, Campbell and Giles, 2004), but this is only a

temporary solution, since migrants also grow old and add to the support burden for future generations, if they choose to settle permanently.

3.27 There is also recent evidence that the majority of employers will not recruit from the core jobless and often look to migrants from outside the UK (CIPD, 2005). A survey of 1,300 employers in May 2005 showed that 27 per cent of employers intended to recruit from abroad, with the dominant reasons cited being a shortage of recruits with the desired experience (59 per cent) or the desired skills (56 per cent). Employers recruiting from outside the UK were looking to fill vacancies at all levels of the skills spectrum:

- 18 per cent of employers surveyed reported that they were recruiting professional vacancies
- 8 per cent were seeking to fill vacancies in skilled trades occupations
- 19 per cent were looking to fill manual vacancies
- 5 per cent were recruiting to unskilled vacancies.

3.28 Citizens of the EU15 and European Economic Area (EEA) do not need permission to work in the UK. Foreign nationals from these countries are not always counted as labour migrants, but they make up a significant proportion of all migrant workers in the UK (ippr, 2004). Currently, there are several managed migration routes of special relevance from a labour market perspective for those from outside the EEA, including work permits, Special Worker Schemes (focusing on specific sectors) and the Highly Skilled Migrant Programme.

3.29 Those entering the UK on work permits have a job to go to, as the work permit is applied for by their employer. Over the period 1995 to 2003, total applications for permission to work in the UK rose steadily from 38,617 to 161,699. In 2003, 119,000 non-EEA nationals were admitted as work permit holders or as their dependants. A substantial number of work permits go to corporate transferees. The work permit system has served to bring into the UK highly skilled people from a limited number of countries – especially the US and Japan. The bulk of permit issues is to a relatively restricted set of occupations. In 2003, health associate professionals accounted for 26 per cent of all issues, computer analysts and programmers and other IT-related occupations a further 9 per cent, and literary, artistic, sports and entertainment professionals 6 per cent. Professional occupations is the next largest category with 21 per cent (engineers and technologists, teaching professionals and health professionals), followed by managers and administrators at 14 per cent. In industrial terms, health and medical services and computer services were dominant (Dobson et al, 2001).

3.30 There has been an upward trend in the number of work permit holders entering the UK since the mid-1990s, from an annual inflow of around 40,000 in 1995 to over 80,000 annually since 2001. From 2000 to mid-2004, 367,730 work permits were issued. The top five industry groups were:

- health and medical services (26 per cent)
- computer services (16 per cent)
- administration, business and managerial services (12 per cent)
- education and cultural activities (7 per cent)
- financial services (7 per cent).

For these occupational groups, the key influences on decisions to migrate are the acquisition of knowledge, career advancement and personal development. It is expected

that linkages with the source country while in the UK, and the building of bridges by those returning to source countries, will lead to a degree of 'brain circulation' (NOP Business/Institute for Employment Studies, 2002).

- 3.31 The accession of eastern European countries to the UK offers a potential supply of migrants willing to accept relatively low wage rates who intend to return to their home country after a few years, which potentially answers this drawback of migrant labour. As the EU expands, they will be superseded by migrant workers from newer and poorer members of the EU. In May 2004 the UK put in place transitional measures to regulate access to labour market by nationals of eight EU accession countries – the 'Accession 8' (or 'A8') – via the Worker Registration Scheme and to restrict access to benefits (this applies to new Member States, except Cyprus and Malta). About 176,000 A8 migrants entered the UK in the first 11 months after accession (a number far above the 5,000 to 13,000 estimated by the Home Office), although a large number of these are thought to be existing migrants already working in the country illegally. Over the period between 1 May 2004 and 30 June 2005 there were 232,000 applications to the Worker Registration Scheme, of whom it is estimated that up to 30 per cent may have been in the UK before May 2004. The vast majority of registered workers are young and single: 82 per cent were aged between 18 and 34 years and 95 per cent of registered workers have no dependants living with them. Most migrants entered the agricultural sector, followed by administration, business and management, hospitality and catering (especially in London), health and construction.
- 3.32 Likewise, from the mid-1990s there was an increase in inflows of seasonal workers (under the Seasonal Agricultural Workers Scheme (SAWS)). Inflows rose from between 4,000 and 5,000 per year from 1993 to 1996, to between 9,000 and 10,000 per year from 1997 to 2000, over 15,000 in 2001 and over 23,000 in 2003. Quotas for the SAWS were cut from 2004/05 following the accession of 10 further states to the EU. Many workers under these schemes came from countries that joined the EU in May 2004.
- 3.33 Migrants to the UK who wish to work have to register for a National Insurance (NI) number. Data from such registrations provide an alternative perspective on labour migration. The number of people entering the UK and subsequently registering for a NI number was 272,000 during the tax year 2002/03. These migrant workers were younger on average than the population as a whole; 39 per cent were aged between 16 and 24 and 83 per cent aged between 16 and 34. In terms of national origin, 83,000 were from Asia and the Middle East, 67,000 from the EU and 52,000 from Africa (Office for National Statistics, 2004).
- 3.34 Migrants are heterogeneous – differing as much from each other as from the general population (Kirk, 2004). Currently, migrants experience mixed success in the labour market, and are found disproportionately at both ends of the skills continuum: i.e. in professional occupations and in unskilled occupations. They are more likely to have degrees than the UK-born population, but are also more likely to have no qualifications. A large number of migrants also have unnamed (or unrecognised) qualifications.

- 3.35 Where migrants find themselves on the skills continuum is related to a number of characteristics, including:
- *method of entry to the UK*: those entering by legal means tend to experience greatest success in the labour market
  - *level of education*: those who have the highest levels of education and qualifications that are recognised as transferable to the UK do best in the labour market
  - *English language fluency*: this is a crucial influence on labour market success; language proficiency is likely to reduce the gap between the UK-born and migrants considerably
  - *years since migration*: generally labour market outcomes improve with length of stay in the UK (Haque, 2002).
- 3.36 There are large variations in economic performance between migrants from different origins. Low employment rates are recorded by people from Somalia (12 per cent), Angola (30 per cent), Iran (32 per cent), Albania (32 per cent) and Ethiopia (32 per cent) (Kyambi, 2005). More detailed analysis of labour market outcomes by country of birth in London using LFS and 2001 Census of Population data shows that 61 per cent of the migrant population were in employment in 2002/03 compared with 74 per cent of UK-born Londoners (Spence, 2005). While those born outside the UK make up 35 per cent of persons of working age in London, they comprise 42 per cent of the unemployed and 45 per cent of the economically inactive.
- 3.37 Levels of qualification also differ markedly by country of birth. Large proportions of those from Canada, Nigeria and Greece have high-level qualifications, while 40 to 50 per cent of those from Somalia, Albania, Turkey, Portugal and Bangladesh have no qualifications. Around 60 per cent of those from New Zealand, Australia and the USA have 'other' qualifications, causing difficulties in comparisons of education levels (Kyambi, 2005). Hence, qualification levels and training needs differ markedly according to the origin and socio-economic profile of the migrant population in a local area.
- 3.38 Migrant workers are mainly located in Greater London and South East England. These regions are the predominant location of European and Old Commonwealth migrants, though A8 migrants have a more widespread distribution and many are found in regions such as the East of England, working in agriculture. The bulk of the foreign-born workforce originated in the New Commonwealth, and their geographical distribution mirrors that of the black and minority ethnic (BME) population as a whole.
- 3.39 The BME population is still largely concentrated in the London and West Midlands regions, followed by the North West, South East and Yorkshire and the Humber. Their concentration in large cities and former industrial towns and cities in northern England and the Midlands reflects the attraction of first generation migrants to jobs in textiles and engineering industries and to public sector service jobs in the major cities. Migrants are now most common in the hotels and catering, and health and social work industries, together with business services (and food, drink and tobacco in some regions).

### Migration: summary

- 3.40 The Government Actuary's Department estimates that the working-age population of England increased by 271,000 between 2004 and 2005. It also estimates that 64 per cent of the growth in England's population during that year was due to net international migration. The accession of 10 more countries to the EU, most of which have strong VET systems, but low wage levels, provides a potentially rich new source of skilled workers. About 176,000 migrants from the 'A8' countries (the new members from eastern Europe) entered the UK in the first 11 months after accession.

- 3.41 The number of employers planning to employ overseas workers in the future seems likely to grow and this will place a premium on the provision of good guidance to understand the legal issues surrounding the employment of such workers and the sensitive issues this can raise. At a wider policy level there are also a number of ethical issues involved, not least in drawing down skills from countries that can ill afford to lose them. This, however, is not a one-way street and there are countervailing pressures resulting in some skilled workers being attracted into jobs abroad, especially in the areas of health care.
- 3.42 Research suggests that the use of migrants requires considerable flexibility in provision of support and advice across a range of agencies involved in supporting immigrants and providing them with training. An emphasis on work-related English is crucial, but some migrants also have other basic skills needs.
- 3.43 Despite the media hype, the existing evidence on the impact of immigrants on the labour market is weak or ambiguous. Recent research suggests that (to date) the impact of these new migrants on wage rates and unemployment has been minor. This partly reflects that new immigrants may not always compete for the same jobs as native workers, e.g. because they're willing to do unattractive work for lower pay (often in the informal economy). It may also reflect the fact that they are helping to meet existing skill shortages rather than competing in areas where there is already a strong domestic supply. Evidence on trends over the past decade does suggest that some sectors are becoming increasingly reliant on such labour and this may become even more important in the future (Green, et al, 2005).
- 3.44 Most migrant workers in the UK were born in the New Commonwealth and work in the sectors in which ethnic minorities are most strongly represented (e.g. hotels and catering, retailing, health and social services, with most women working in the public sector). Migrants from the rest of the EU still only account for a relatively small proportion of employment in most industries, even in agriculture and construction, though those from accession countries are beginning to outnumber those from the EU15. Whilst most new migrants seek work in London, eastern European migrants are recruited to hard-to-fill vacancies (HtFVs) across the whole UK. Migrant workers are heterogeneous and experience mixed success in the labour market. They mainly work in sectors with labour shortages such as food processing, hotels and catering, and health and social work industries, together with business services. They are found disproportionately at both ends of the skills continuum, i.e. in professional occupations (especially those from the EU15 and Old Commonwealth) and in unskilled occupations.

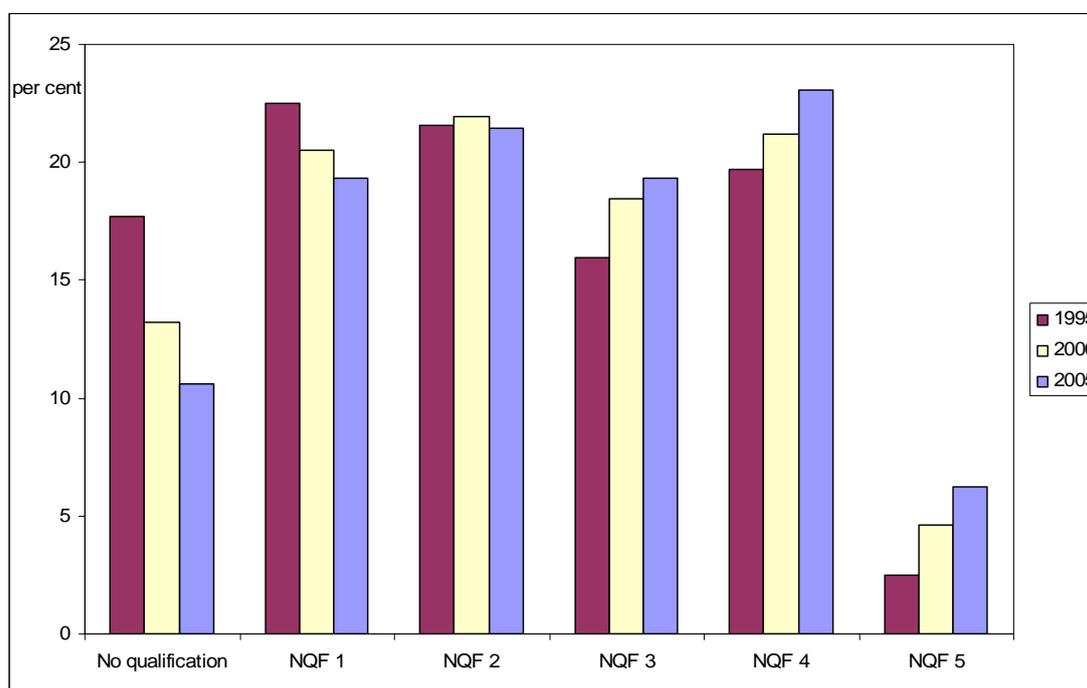
## Qualifications Held by the Workforce

- 3.45 The highest level of educational attainment, measured by qualifications obtained, provides one means of measuring improvement in skills supply over time. Figure 3.5, derived from the LFS, shows the percentage of the workforce who have achieved qualifications at various levels based on the NQF. The data clearly show the improvement in skills supply over time, with substantial increases at NQF Levels 3, 4 and 5. In many respects it is improved supply at these levels that is expected to drive the high value economy of the future.
- 3.46 But, as *Skills in England 2004* revealed, these data need to be interpreted carefully. As indicated in the introduction there is a cohort effect, with younger people being much more likely to have a qualification of some type compared with their older counterparts. This is simply a consequence of changes in education policy with its increased emphasis on certification. It does not necessarily imply a proportionate improvement in skill. Identifying the degree to which the overall increase in qualifications amongst the workforce is due to the cohort effect – whereby older and less qualified workers are retiring and being replaced by younger workers with more qualifications – or due to

upgrading of qualifications by those who continue in employment is clearly of interest for policy-makers. Analysis using pseudo cohorts of LFS data shows that the education level of young people (below the age of 33) in the UK is rising (both within and between cohorts) and improving compared with France and Germany (McIntosh, 2004). Almost all of the relative gains that the UK has made recently have been in terms of improvement between cohorts (i.e. each successive cohort being better qualified than its predecessor).

- 3.47 From the research summarised below it is clear that there is limited improvement in the qualifications of the existing stock of people in employment. Most improvement stems from the inflow of entrants from the education and VET systems.

**Figure 3.5: Highest qualification held by economically active population 1995, 2000 and 2005.**



**Source:** Labour Force Surveys.

**Notes:** Highest NQF qualification held for all those in employment. The figures are sensitive to the treatment of certain responses to LFS questions. 'Don't knows' are included here with those reporting no qualifications. Some low-level qualifications that do not attain NQF 1 status are also included in the 'no qualification' category. In total these differences boost the 'no qualifications category by almost 1 percentage point.

3.48 Table 3.1 shows the type of qualification – whether vocational or academic – by NQF level. Over half of qualifications obtained are of an academic type. In the past there have been concerns expressed that the VET route in England is not as rigorous as that associated with the dual system in countries such as Germany. Young people appear reluctant to pursue the vocational route, because these types of qualification are regarded as being of lower status. The latest research evidence suggests the rates of return associated with vocational qualifications are lower than for academic ones (see Section 4). Recent years have seen considerable efforts designed to increase the take-up of the vocational routes, especially in the case of Apprenticeships (Modern Apprenticeships Advisory Committee, September 2001; Apprenticeships Task Force, 2005).

**Table 3.1: Economically active, 2005.**

Qualification level	Type	000s	%
No qualification		2,607	10.6
NQF 1, GCSE (below grade C)	academic	3,845	15.6
NQF 1, GNVQ foundation	vocational	14	0.1
NQF 1, BTEC 1st certificate etc.	vocational	907	3.7
<b>NQF 1 total</b>		<b>4,767</b>	<b>19.3</b>
NQF 2, GCSE(grades A–C)	academic	2,934	11.9
NQF 2, GNVQ intermediate	vocational	126	0.5
NQF 2, BTEC 1st diploma etc.	vocational	2,230	9.0
<b>NQF 2 total</b>		<b>5,290</b>	<b>21.5</b>
NQF 3, A-level and equivalent	academic	1,644	6.7
NQF 3, GNVQ advanced	vocational	185	0.8
NQF 3, ONC BTEC national etc.	vocational	2,933	11.9
<b>NQF 3 total</b>		<b>4,762</b>	<b>19.3</b>
NQF 4, First degree and equivalent	academic	3,461	14.0
NQF 4, HE below degree level	academic	509	2.1
NQF 4, HNC, BTEC and RSA higher etc.	vocational	1,085	4.4
NQF 4, Nursing and teaching	vocational	639	2.6
<b>NQF 4 total</b>		<b>5,693</b>	<b>23.1</b>
NQF 5, Higher degree	mainly academic	1,544	6.3

Source: *Labour Force Survey*, Spring 2005.

3.49 Table 3.2 shows the distribution of qualifications across the workforce. A number of points emerge:

- the relatively high levels of people with no qualification who are unemployed
- the strong age cohort effect, with older people being much more likely to have no qualifications
- women are much less likely to be qualified to NQF Level 3
- there is little difference between the qualifications profile of white and non-white populations respectively
- people in higher-level occupations are more highly qualified, but a substantial proportion of people in managerial and professional occupations are qualified at NQF Level 2 or lower.

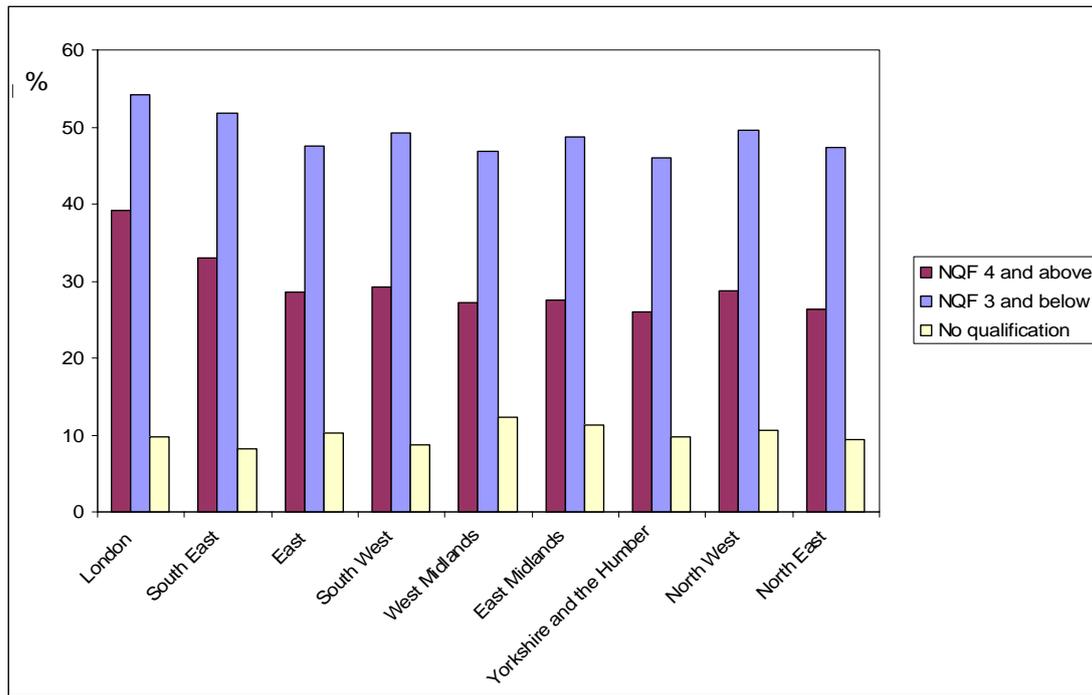
**Table 3.2: Qualifications of the workforce, England 2005.**

	Row percentages					
	Qualification level					
	No qualification	NQF 1	NQF 2	NQF 3	NQF 4	NQF 5
<b>Economic status</b>						
Economically active	10.6	19.3	21.4	19.3	23.1	6.3
In employment	10.2	19.0	21.3	19.6	23.5	6.4
ILO unemployed	19.8	26.0	23.7	14.3	13.0	3.2
Inactive	30.8	20.1	19.8	17.1	9.9	2.4
Total	14.8	19.5	21.1	18.9	20.3	5.4
<b>Age (economically active)</b>						
16 to 24	8.9	21.1	29.1	27.2	12.7	1.1
25 to 49	7.8	19.9	20.1	18.2	26.4	7.6
50 to 59	15.8	17.6	20.0	17.9	22.4	6.4
60 to 64	21.3	16.9	21.9	16.8	17.9	5.2
<b>Gender (economically active)</b>						
Male	10.6	17.8	20.7	22.3	22.1	6.6
Female	10.6	21.0	22.3	15.9	24.2	5.9
<b>Ethnicity (economically active)</b>						
White	10.4	19.2	21.7	19.9	22.9	5.9
Non-white	12.3	20.7	18.7	13.7	24.9	9.6
<b>Occupation SOC2000 (economically active)</b>						
1 Managers and senior officials	5.7	14.1	19.2	20.3	32.8	7.9
2 Professional occupations	0.9	4.3	6.3	8.3	51.9	28.3
3 Associate professional and technical	2.9	11.5	16.8	18.1	43.8	6.9
4 Administrative and secretarial	7.8	26.9	27.3	19.2	16.9	2.0
5 Skilled trades occupations	12.1	18.7	25.4	34.8	8.2	0.8
6 Personal service occupations	8.5	21.3	28.5	24.7	15.5	1.4
7 Sales and customer service occupations	14.7	24.8	28.8	21.4	9.7	0.7
8 Process, plant and machine operatives	19.5	31.6	26.0	18.4	4.1	0.4
9 Elementary occupations	27.8	28.9	23.4	14.6	4.5	0.7

**Source:** Labour Force Survey, Spring 2005.

3.50 Figure 3.6 shows the distribution of qualifications by region. There has been much debate over recent years relating to the productivity differences between regions (Department of Trade and Industry, 2004). Skill has been highlighted as the main reason for regional differentials. If skill is measured by qualification then substantial differences are visible between regions. London and the South East stand out as regions having relatively highly qualified workforces. If the region that has the most people qualified to NQF Level 4 (London) is compared with the region with the least (Yorkshire and the Humber) then the difference is around 10 percentage points. But the most striking feature is the difference between the highly qualified workforces in London and the South East compared with the rest of England.

**Figure 3.6: Percentage of employees qualified by region, 2005.**



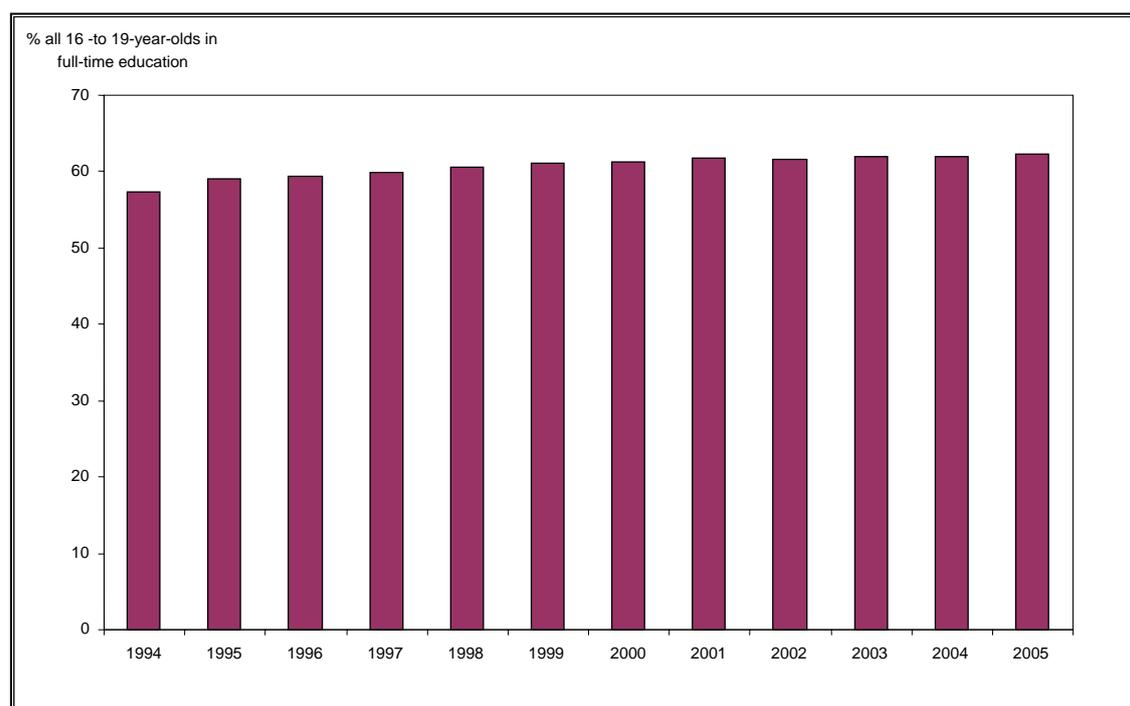
Source: Labour Force Survey, Spring 2005.

## Participation in Post-compulsory Education

### Participation at age 16 or 17 years

3.51 International evidence (see below) shows that participation rates in immediate post-compulsory education remain relatively low in the UK. Figure 3.7 shows the increase in participation of 16- to 19-year-olds over the past 10 years. It reveals modest improvement over the period, with little change over recent years. Table 3.3 shows the participation of 16- and 17-year-olds in further education (FE). This group is of interest because it is the one that continues on in education and training rather than becoming economically active. The data reveal that 79 per cent continue in education post-16 years, but this falls to 69 per cent by the time individuals reach 17 years.

**Figure 3.7: Participation of all 16- to 19-year-olds in full-time education, 1994–2005.**



Source: Labour Force Surveys 1994–2005.

**Table 3.3: Participation in post-compulsory education and training (participation rates).**

	16-year-olds				17-year-olds					
	At school	In FE		GST	All in full-time education and GST	At school	In FE		GST	All in full-time education and GST
	Full-time	Part-time				Full-time	Part-time			
England	35	37	4	7	79	28	31	6	9	69
Men	33	34	5	8	76	26	29	6	11	66
Women	38	40	4	6	84	31	33	5	8	71

Source: ONS (2005) *Education and Training Statistics 2005*, Table 3.2.

Note: GST = Government-supported training

3.52 Table 3.3 also reveals substantial differences by gender. The participation rate for 16-year-old males is 76 per cent compared with 84 per cent for 16-year-old females, and 66 per cent for 17-year-old males compared with 71 per cent for 17-year-old females. There are also some differences by region, with London reporting relatively high participation rates for both 16- and 17-year-olds (82 and 72 per cent respectively). There is also the example of the North East which reports a relatively high participation rate for 16-year-olds (80 per cent), but which then falls away to 67 per cent for 17-year-olds.

### Adult participation in learning

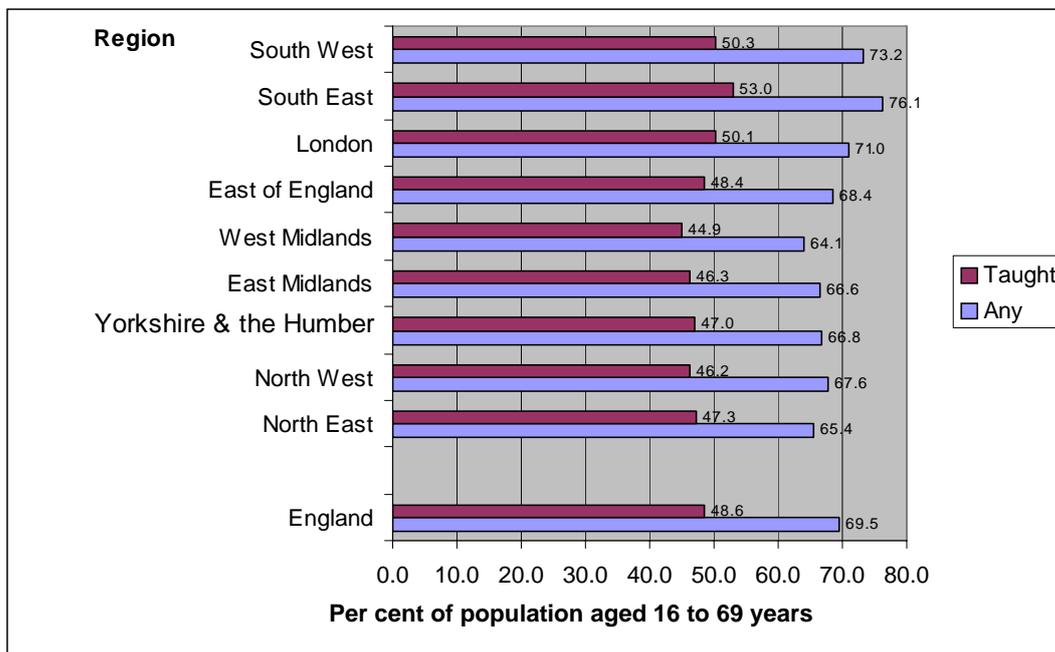
3.53 Figure 3.8 shows the participation rates for those participating in any form of learning over the previous 12 months, and those participating in a taught course of some form. Overall, the data reveal just under 70 per cent of the population reporting that they had been engaged in some form of learning and just under 50 per cent that they had been engaged in a taught type of activity. The figures are high, especially compared with those reported by the English Labour Force Survey (ELFS), for training completed over

the previous 13 weeks (see below). This is due to the wide definition of learning not related to a taught course, which includes:

*Studying for qualifications without taking part in a taught course; supervised training while doing a job; time spent keeping up-to-date with developments in one's work or profession, e.g. by reading books or attending seminars; deliberately trying to improve one's knowledge about anything, or teach oneself a skill without taking part in a taught course.*

There are also some regional differences in the data, with the South East and London standing out as having relatively high percentages of the workforce engaged in adult learning.

**Figure 3.8: Adult participation in learning, 2004-05.**



Source: DfES Statistics: ([www.dfes.gov.uk/rsgateway/DB/STA/t000596/adultparticipation.xls](http://www.dfes.gov.uk/rsgateway/DB/STA/t000596/adultparticipation.xls)).

## Apprenticeship training

- 3.54 An important element of the training provision relates to intermediate-level training – training leading to NQF Levels 2 and 3. Traditionally the Apprenticeship system sought to equip young people with skills at this level. The Modern Apprenticeship initiative was designed to provide a national structure, linked to nationally recognised qualifications, to provide Apprenticeship training to industries where this form of training had previously been non-existent. Evidence indicates that for organisations that use Apprenticeships the business benefits have been substantial (Employers for Apprentices, undated). Table 3.4 shows the current level of participation in Apprenticeship training, along with other initiatives designed to equip young people with skills.

**Table 3.4: Work-based learning for young people.**

	Advanced Modern Apprenticeships	Foundation Modern Apprenticeships	NVQ learning	Entry to Employment	000s Total
2000/01	72.4	104.1	50.1	26.3	252.9
2001/02	54.0	108.3	54.1	31.1	247.6
2002/03	47.3	115.7	40.6	35.7	239.3
2003/04	55.9	136.5	26.6	61.1	280.0

**Source:** LSC and ONS (2005) *Education and Training Statistics*, Table 3.12.

3.55 Table 3.4 indicates that enrolment onto the Apprenticeships has been static. For this reason, and others, Apprenticeships have received a mixed press over recent years, with the Cassells Report suggesting that the 'brand' needed an overhaul. This eventually led to the creation of the Apprenticeships Task Force (ATF), which has provided the following recommendations for the future of this form of training.

- The LSC should allocate marketing resources to generate a higher level of Apprenticeships vacancies.
- A primary role of Train to Gain skills brokerage service should be to identify new employer Apprenticeships vacancies.
- Models of delivery should reduce the administrative burden on employers.
- Public sector procurement policies should assign priority to skills development.
- Careers advice and guidance relating to Apprenticeships should be assigned a higher priority in schools and college inspections.
- The Government and LSC need to introduce a number of changes to encourage greater diversity in Apprenticeships.

3.56 Apprenticeships provide an important route into skilled employment for many young people. According to the LSC, there are currently some 250,000 learners in training places, following some 200 different courses. This programme is now aimed at a rather different cohort of young people in terms of ability and educational achievement than was the case in the past. This is having an impact upon completion and success rates. Nevertheless this represents an important step in the right direction in terms of the target group (which needs to be encouraged to achieve more) and the emphasis on the vocational as opposed to the academic.

3.57 Table 3.5 indicates recent patterns of completion which are rising. The table shows the percentage of 'Leavers less transfers' (i.e. the percentage of all the Apprentices that left during the academic year who achieved their full Framework). There is a big difference for monitoring purposes between, achieving the 'Framework' (which means that the learner has completed the Technical Certificate, and acquired key skills (where necessary)), and the NVQ elements of an Apprenticeship. Full Framework completion is the measurement used by Government to monitor the Apprenticeship programmes. Full completion is the only way a provider gets full funding for an Apprenticeship programme learner. The provider will lose 25 per cent of the potential funding available if the learner does not complete all elements. But of the three elements of an Apprenticeship (Technical Certificate, key skills and NVQ), it is recognised that the NVQ on-the-job part is probably the easiest and most likely to be completed. Accordingly these separate elements of achievement are recorded and published. Efforts are being made to reduce the proportion of NVQ-only completers as the learner does not benefit from the full Apprenticeship completion.

3.58 The volume of 'NVQs only' completed has reduced substantially in recent years. Therefore the figures the DfES and Government are mainly concerned with are the 24 per cent, 27 per cent, 31 per cent and 40 per cent in Table 3.5. For the 2008 Public Service Agreement (PSA) Performance Indicator the 75,511 completions required are full Apprenticeship Framework completions.

**Table 3.5: Apprenticeship outcomes.**

	2001/02		2002/03		2003/04		2004/05	
	Frame work	Frame work and NVQ						
Apprenticeship	22%	34%	24%	37%	30%	42%	41%	51%
Advanced Apprenticeship	26%	36%	32%	44%	32%	46%	38%	52%
<b>Total</b>	<b>24%</b>	35%	<b>27%</b>	39%	<b>31%</b>	44%	<b>40%</b>	51%

**Source:** LSC estimates.

### Participation in higher education

3.59 The final area of interest is that relating to participation in higher education (HE). Recent years have seen a massive growth in the numbers entering HE. In 1990/91 there were 749,000 students in full-time HE in the UK, compared with 1.4 million in 2003/04.

3.60 The Higher Education Initial Participation Rate (HEIPR) is used to measure progress towards the target of 50 per cent of young people entering HE. The current provisional total is 43 per cent, but this varies by gender (see Table 3.6).

**Table 3.6: Higher education initial participation rate, 1999–2004.**

	1999/2000 HEIPR (%)	2003/2004 (provisional) HEIPR (%)
Male	38	38
Female	43	47
Total	41	43
Number of initial entrants (000s)	246	269

**Source:** DfES Statistics: ([www.dfes.gov.uk/rsgateway/DB/SFR/s000572/SFR14-2005v3.pdf](http://www.dfes.gov.uk/rsgateway/DB/SFR/s000572/SFR14-2005v3.pdf)).

3.61 The data show that the HEIPR for women (47 per cent) is higher than for men (38 per cent). Between 1999 and 2004 there has been little change in the rate for men, in contrast to the growth in that for women.

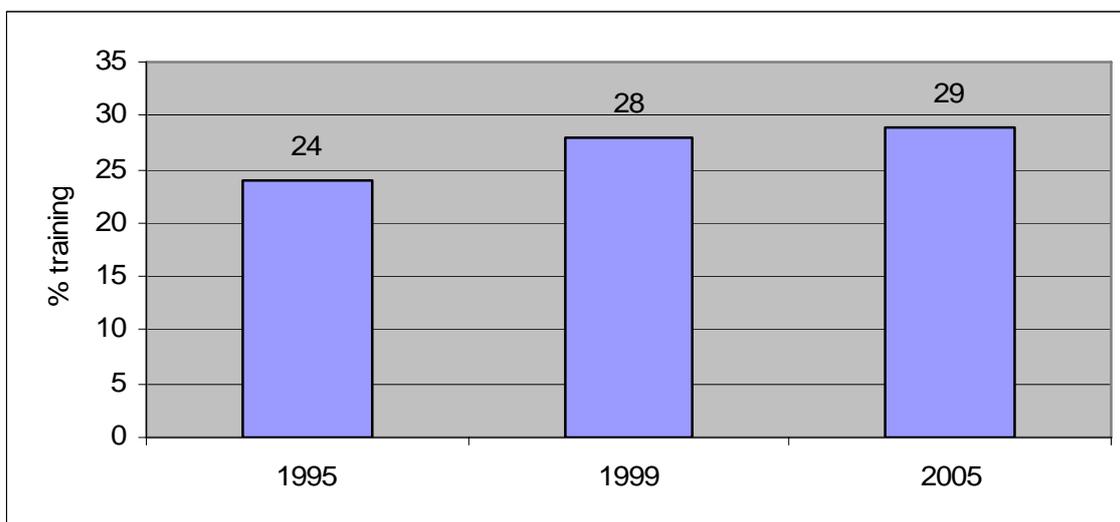
3.62 Higher Education Statistics Agency (HESA) statistics for the destinations of students leaving UK HE institutions in 2003/04 show that approximately two-thirds of leavers reported their first destination as employment in 2003/04. Around 6 per cent were assumed to be unemployed.

3.63 The economic impact of the massive increase in HE has never been fully estimated, other than to demonstrate that graduates still earn more than those with lesser qualifications (see Section 4 on the rates of return on graduation). Nevertheless, the increase in the number of people entering HE – and the relatively low drop-out rates for those who do enrol – indicates a marked qualitative change in skills supply over a relatively short span of time.

## Workplace Training

3.64 Figure 3.9 shows the incidence of training reported by people of working age. The data are drawn from the LFS which asks people if they have received training over the past 13 weeks. The data reveal that slightly more than 25 per cent participate in workplace-based training and there has been a modest increase over the past 10 years.

**Figure 3.9: Participation in training over previous 13 weeks.**



**Source:** *Labour Force Surveys.*

3.65 Table 3.7 provides a more detailed picture of who had received training over the previous 13 weeks. A number of findings emerge.

- Young people are much more likely to engage in training.
- Women are more likely to have received training and the gap between men and women has increased over time.
- Non-permanent staff are more likely to have received training, perhaps reflecting induction training where they have been recently hired as temporary staff.
- The more highly qualified receive more training.
- Professionals, associate professionals and those in personal service occupations are most likely to have been in receipt of training.

3.66 The distribution of training and FE remains skewed towards the better qualified, which results in the persistence of a long tail of people with no or low qualifications, despite overall high rates of participation in education and training. Such patterns are not unique to this country, but there is evidence that the degree of skewing is greater here than elsewhere.

**Table 3.7: Proportion who had received training in the previous 13 weeks.**

	1995 %	2000 %	2005 %
All	24.0	28.0	28.6
Age			
16 to 24	31.8	39.3	36.9
25 to 49	25.8	29.2	29.7
50 to 59	16.5	21.3	24.9
60 to 64	9.1	13.1	16.0
Gender			
Male	22.7	25.6	25.4
Female	25.7	30.8	32.4
Ethnicity			
White	24.1	28.0	28.5
Non-white	23.4	27.8	29.8
Full-time/part-time			
Full-time	25.0	29.3	29.5
Part-time	19.2	24.1	26.1
Permanent/temporary			
Permanent	25.8	29.5	30.4
Not permanent in some way	27.2	34.3	35.0
Qualifications			
NQF 5	41.9	45.1	43.7
NQF 4	40.5	41.5	39.0
NQF 3	23.9	33.1	28.8
NQF 2	23.0	28.3	25.8
NQF 1	20.1	28.3	22.5
No qualification	7.6	14.7	11.2
Occupation			
1 Managers and senior officials	26.1	28.6	26.9
2 Professional occupations	43.2	47.2	44.4
3 Associate professional and technical	33.5	36.8	39.7
4 Administrative and secretarial	24.2	26.5	25.0
5 Skilled trades occupations	16.3	19.8	18.5
6 Personal service occupations	26.4	32.7	42.3
7 Sales and customer service occupations	16.6	20.0	24.8
8 Process, plant and machine operatives	12.4	15.8	13.6
9 Elementary occupations	15.1	19.5	16.3

**Source:** *Labour Force Surveys.*

3.67 The LFS is not the only source of data relating to the incidence of workplace-based training. NESS05 also provides these data but from the employer's perspective. Overall the data reveal:

- 65 per cent of workplaces engage in some form of training
- 46 per cent engage in off-the-job training
- 51 per cent engage in on-the-job training
- 45 per cent of establishments have a business plan
- 33 per cent of establishments have a training budget.

Where training is provided it tends to be the larger employers that do so. Previous NESS reports show that the type of training provided tends to be:

- job specific
- health and safety
- induction.

The scale of activity tends to be large. NESS05 is the only dataset currently available with detailed information on training expenditure. Tables 3.8a and 3.8b show the key data drawn from NESS05.

**Table 3.8a: Training days and spend.**

	All	Train both on- and off-the-job	Train off-the-job only	Train on-the-job only
<i>Base: All employers (weighted)</i>	1,390,155	454,803	186,624	259,467
<i>Base: All employers (unweighted)</i>	74,835	31,425	9,879	13,562
Total training days (millions)	161.8m	130.4m	6.1m	25.3m
Per capita training days (total workforce)	7.5	9.6	2.8	8.6
Per capita training days (training employers' workforce)	8.7	9.6	2.8	8.6
Per trainee training days	12.3	12.6	6.6	13.6
Days off-the-job training per off-the-job trainee	6.1	6.1	6.3	-
Days on-the-job training per on-the-job trainee	10.8	10.1	-	14.1

**Source:** NESS05 (Shury et al, 2006)

**Base:** All employers.

**Notes:** The 'per trainee training days' row uses the derived employer engagement measure of number of trainees which models 'don't know' responses. The 'days off-the-job training per off-the-job trainee' and 'days on-the-job training per on-the-job trainee' rows use the total numbers trained off- and on-the-job respectively and 'don't knows' are excluded. Hence the slight discrepancy between the per training days per trainee among those training off-the-job only and the days off-the-job training per off-the-job trainee among the same employers. The equivalent effect happens for on-the-job training days.

**Table 3.8b: Training cost per capita and per trainee.**

	All trainers	All off-the-job	All on-the-job
<i>Unweighted base</i>	7,059	5,437	5,861
<i>Weighted base</i>	896,639	636,249	709,521
Training cost	£33,331m	£16,807m	£16,524m
Per capita training cost (total workforce)	£1,550		
Per capita training cost (training employers' workforce)	£1,789	£1,071	£1,005
Per trainee training cost	£2,544	£2,167	£1,531

**Source:** NESS05 (Shury et al, 2006).

**Base:** All employers.

**Note:** Per capita and per trainee spend figures rounded to nearest £5.

- 3.68 At face value, the data reveal a high incidence of training, especially that delivered on the-job. But there have always been questions about the quality of the training provided. The international comparative evidence indicates that whilst the incidence of workplace-based training is relatively high in this country, it is of much shorter duration than found in many other countries.

## Meeting Targets

- 3.69 The use of targets has been a primary means of improving the supply of skills in England. The Government has set the LSC various targets. In relation to participation in learning of 16- to 18-year-olds, the target for 2004 was 80 per cent. The achieved rate was 75.5 per cent. In relation to attainment at Level 2 at age 19, the target in 2004 was 77.8 per cent and the achieved rate was 76 per cent. In relation to Level 3, the target was for 55 per cent of 19-year-olds to have achieved this by 2004, and 51.6 per cent had achieved this. In relation to improving basic skills, the target was to improve these for 750,000 people in 2004, a target which has been exceeded, at 800,000 (Learning and Skills Council, 2005).

## International Comparisons

- 3.70 The OECD provides detailed information about education systems and levels of educational attainment across much of the developed world. *Education at a Glance 2005* (OECD, 2005) provides summary statistical information and a commentary on trends in educational attainment. This publication has been drawn on to provide an international perspective to skills supply. Table 3.9 shows the highest level of educational attainment in the UK compared with other OECD countries and Figure 3.10 shows the expected years of education.

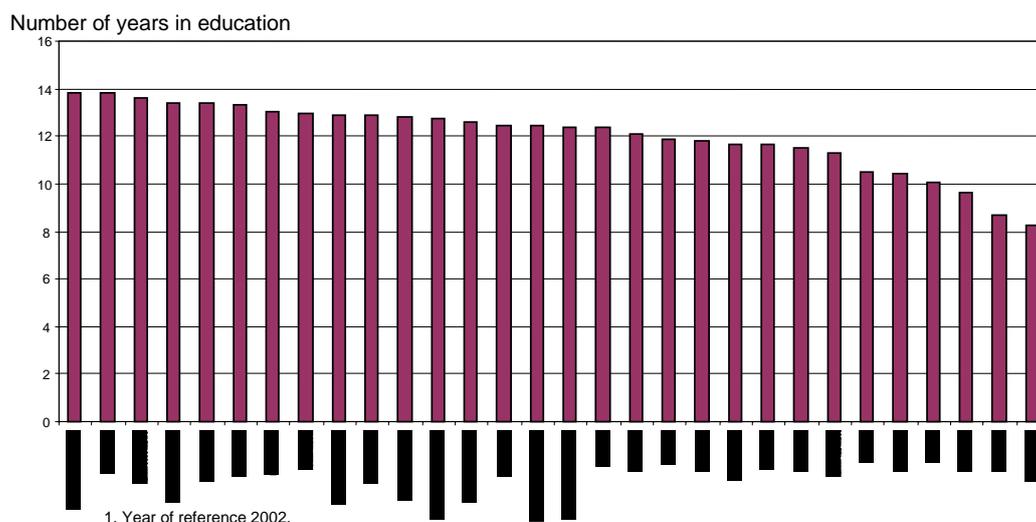
**Table 3.9: Highest level of educational attainment, 2003.**

	Row percentages					
	Pre-primary	Lower secondary	Upper secondary	Post secondary/ non-tertiary	Tertiary	Total
Australia	0	38	31	0	31	100
Austria	0	21	56	8	15	100
Belgium	17	21	32	1	29	100
Canada	6	11	28	12	44	100
Czech Republic	0	11	75	1	12	100
Denmark	1	17	50	0	31	100
Finland	14	10	42	0	33	100
France	16	20	41	0	23	100
Germany	3	14	54	6	24	100
Greece	37	10	29	6	18	100
Hungary	2	24	57	2	15	100
Iceland	2	32	30	10	26	100
Ireland	19	19	24	12	26	100
Italy <sup>1</sup>	20	33	34	2	10	100
Japan	0	16	47	0	37	100
Korea	14	13	44	0	29	100
Luxembourg	20	10	45	10	15	100
Mexico	53	25	6	0	15	100
Netherlands	12	22	37	5	24	100
New Zealand	0	22	39	8	31	100
Norway	0	12	53	3	31	100
Poland	0	17	65	3	14	100
Portugal	64	13	12	0	11	100
Slovak Republic	1	13	75	0	11	100
Spain	30	27	17	0	25	100
Sweden	7	10	49	0	33	100
Switzerland	3	10	53	7	27	100
Turkey	64	10	17	0	10	100
<b>United Kingdom</b>	<b>0</b>	<b>16</b>	<b>56</b>	<b>0</b>	<b>28</b>	<b>100</b>
United States	5	8	49	0	38	100
Average	14	17	42	3	24	100

**Source:** OECD, 2005, derived from Table A1.1a. Educational attainment: adult population (2003).

**Base:** 25- to 64-year-old population.

**Figure 3.10: Educational attainment of the adult population: average number of years in the education system, 2003.**



**Source:** OECD, 2005, Chart A1.A: ([www.oecd.org/dataoecd/22/35/35282639.xls](http://www.oecd.org/dataoecd/22/35/35282639.xls)).

**Base:** 25- to 64-year-old population.

**Note:** <sup>1</sup> Data for Italy and Netherlands relate to 2002.

- 3.71 Currently the UK spends just under 6 per cent of its GDP on education and training. According to a group of experts at the most recent World Skills Leaders Forum (25 May 2005, Helsinki, Finland) this would need to double if the State were to pick up the whole burden. While this might be a worthy objective, it seems unlikely to be politically feasible in the immediate future. New ways of persuading employers and individuals to share the burden need to be found.
- 3.72 The proportion of the population who do not complete upper secondary education has been falling, in common with most other OECD countries. The UK ranks 13th (of 30 countries) in the proportion of 55- to 64-year-olds who have now achieved this level (having formally completed school some 40 years ago). But it is losing ground compared with many countries which have been catching up fast. For instance, it ranks only 22nd in the proportion in the 25- to 34-year-old age group who have achieved this level (who will have left school just 10 to 20 years ago).
- 3.73 In the UK, 38 per cent of people go on to complete a first degree (above the average OECD average of 32 per cent). But there are relatively low levels of participation in immediate post-compulsory education amongst 16- and 17-year-olds. At age 17, at 75 per cent the participation rate is still 8 percentage points below the OECD average. But this improves as people become older such that Britain has relatively high participation rates amongst the 20-year-old plus age group.
- 3.74 Amongst those aged between 20 and 39 years, the participation rate is 26 per cent compared with an OECD average of 23 per cent, and amongst the 30 to 39 years age group, it is 16 per cent compared with the OECD average of 5 per cent. According to the OECD's statistics on *expected years in education* measure, the UK is second only to Australia in providing lifelong participation in education.

- 3.75 The evidence shows that where people fail to complete post-compulsory secondary education, labour market penalties are harsher in the UK than across OECD as a whole. Where individuals had not completed post-compulsory secondary education the employment rate in the UK was 62 per cent (men) and 47 per cent (women) compared with averages of 73 per cent (men) and 49 per cent (women) in the OECD.
- 3.76 With respect to non-formal education and training, often provided on courses supplied by employers, the participation rate is lower than in countries such as the US. But at 35 per cent (for 25- to 64-year-olds) it is still higher than the OECD average of 23 per cent. The duration of such training in the UK is relatively short, lasting 28 hours per participant in the labour force, per year, on average, compared with 62 hours across the OECD.
- 3.77 There are, however, difficulties in comparing such data across countries. Various attempts have been made to try to make more meaningful comparisons, including a series of Skills Audits commissioned by the Department for Education and Employment (DfEE), now the DfES. The most recent Skills Audit conducted in 2003 compared the UK with France, Germany, Singapore and the USA. This suggests a less optimistic picture. The UK has the lowest proportion of the economically active population qualified to NQF Level 2 or above. At Level 3 and above the position was more encouraging, with the UK showing the fastest rate of improvement over the period 1994 to 2003 for 21-year-olds attaining qualifications at NQF Level 3.
- 3.78 The position for those beyond the age of 21 was much less optimistic, with young people above the age of 21 failing to engage in learning to the same extent as in the other four countries, with the result that the UK failed to show any gains when skill levels were compared at the age of 25 to 28. Moreover, the pace of improvement appears to have slowed dramatically in the second half of the decade. In part this is because the other countries are not standing still. More importantly, the absolute pace of improvement in the UK appears to have ground to a halt in the second half of the decade. The implication is that the rate of future improvement will be much lower unless the rates of qualification acquisition achieved in the period up to 1998 can be regained.
- 3.79 International comparisons of basic skills from the International Adult Literacy Survey (IALS), also suggest that compared with other countries the UK has relatively more people in employment with low or no qualifications and relatively few with intermediate qualifications (although it tends to compare much more favourably at higher qualification levels).
- 3.80 International comparative data, in summary, provides the following key statistics in relation to the UK.
- On average, people spend a relatively long period in the education system compared with the OECD average with many people going on to gain a first degree (at least 16 years of education).
  - Nevertheless, the post-16 participation rate for those immediately continuing their secondary education is lower in the UK (at 75 per cent compared with the OECD average of 82 per cent).
  - The UK and England still have a relatively high proportion of the workforce with no or very low formal qualifications and relatively few at intermediate level (NQF Level 3).
  - According to the latest Skills Audit, around 64 per cent of the UK workforce were qualified to NQF Level 2 or better in 2003, lower than the US (73 per cent), France (77 per cent) and Germany (85 per cent).

- The participation of 17-year-olds with poor academic records (i.e. possessing fewer than 5 good GCSEs (grade C+)) remains poor (almost 50 per cent are not studying).

There is also much less emphasis on vocational as opposed to academic qualifications compared with other countries.

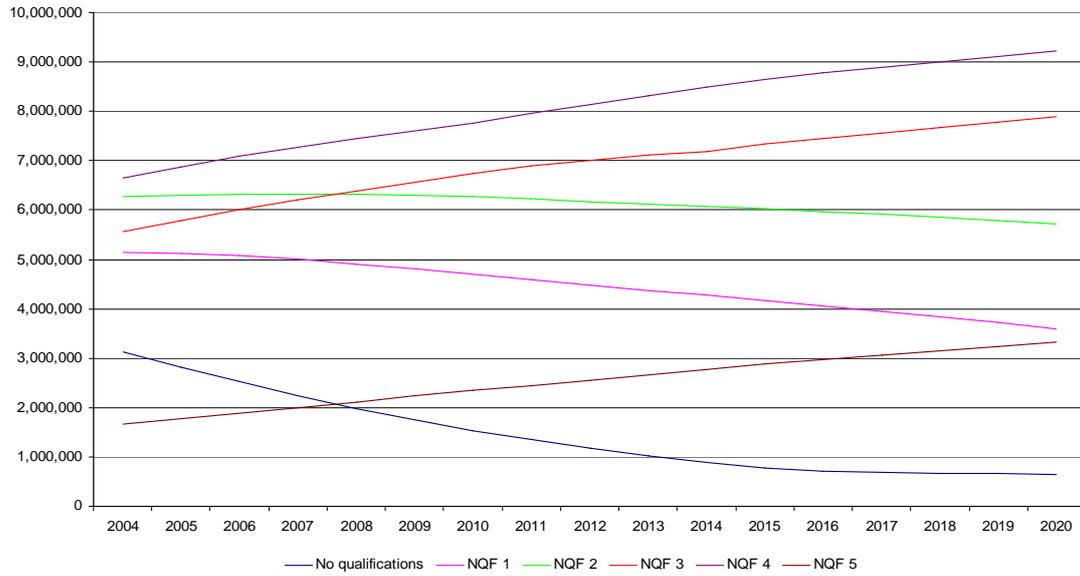
## Basic Skills

- 3.81 The latest Policy Briefing Note from the Centre for Economic Performance argues that attainment at school has improved in recent years and that there is some evidence that the National Literacy and Numeracy Strategies have successfully increased standards, especially for boys. The Education Maintenance Allowance (EMA) does appear to have increased staying-on rates for low-income pupils, but it is not clear that this has improved attainment. One possible reason given for the continuing high drop-out rates may be the lack of good vocational options. There remains a need to reform education for 14- to 19-year-olds based on the view that it is still the case that too few young people persist in education beyond the age of 16 and that they leave school with a low grasp of basic skills.
- 3.82 According to the NAO (National Audit Office, 2004) some 2.6 million people of working age in the UK still have levels of literacy and numeracy below the levels expected of school leavers. Further evidence shows that fewer than 6 per cent of adults with poor literacy or numeracy skills are currently participating in learning programmes to help them tackle this problem. This is not just a problem for those outside the workforce. For example, data extracted from the DfES's *Skills for Life Survey* (Department for Education and Skills, 2003) suggests that 14 per cent of people working in health and social care occupations are likely to have literacy skills at or below the level expected of an 11-year-old child and as many as 46 per cent of the staff are likely to have numeracy skills at or below that same level.

## Future Trends in Skills

- 3.83 A number of projections of the likely future developments in skills supply have been undertaken over the past 12 months. These include a new analysis produced as part of the *Working Futures* (Wilson and Bosworth, 2006) series as well as results produced as part of the Leitch Review (Leitch, 2005).
- 3.84 While these differ in detail, they all suggest a substantial further increase in the numbers and shares of people in the workforce with formal qualifications. The longer term trends identified earlier are projected to continue, with large increases in numbers qualified at NQF Level 4 and above, and reductions in the numbers and shares with no formal qualifications (see Figure 3.11).

**Figure 3.11: Long term projections of numbers of qualified people.**



**Source:** IER estimates as published in a contribution to the Leitch Review (Beaven et al, 2005).

## Conclusion

- 3.85 In previous years, the balance of new information relating to the supply of and demand for skills was always tipped in favour of the latter. This year there has been much more to say about the supply side for a number of reasons.
- One of the Government's principal responses to meeting what it calls the 'productivity challenge' is to increase the supply of skills at all levels.
  - There is also a social justice aspect, insofar as changes to the tax-benefit system are designed to free people from dependence upon benefits as part of the Welfare to Work agenda.
  - There is a need to boost labour supply, especially in those parts of England with relatively low levels of unemployment (i.e. where there is little reserve stock of labour).
- 3.86 Section 4 looks at how well skills supply is meeting demand by looking at the evidence in relation to skill mismatches. The emphasis upon the supply side begs the question as to the whether the demand side is all that it might be. In other words, is the demand for, and deployment of, skills in the workplace sufficient to meet the Government's productivity agenda? The Pre-budget Statement 2005, for example, emphasises the increasing importance of skills in achieving competitiveness, as does the interim report from the Leitch Review (Leitch, 2005).
- 3.87 As in previous years, the supply side showed considerable change with a continuing increase in the qualifications held by the population, and continued investment in job-related education and training. This represents an improvement in one of the main inputs in the production of the country's wealth and, accordingly, other things being equal, this will result in economic benefit. But uncertainties remain. A number of questions continued to be asked about the role of the supply side.
- Are some groups in society continuing to miss out on training and education opportunities?
  - How important is the supply side when the demand for higher levels of skills is less than it might be?
  - Is training supply optimally targeted at improving economic performance?
  - How does the quality of provision compare with that of the country's main competitors?
- 3.88 The policy reforms introduced during 2005, the effects of which will be more evident in 2006, seek to address at least some of these questions. So long as the discussion relating to the provision of VET is set in the context of competitiveness, be that at local, regional, national or international level, then the types of question raised above will receive serious consideration.

# Section 4: Mismatches in Supply and Demand

## Overview and Summary

- 4.1 This section reviews the evidence on the mismatch between skills demand and supply. Three means are used to demonstrate the extent of mismatch:
- an examination of wage levels by occupation: where skills demand outstrips skills supply this should be reflected in relatively high wage rates
  - the rates of return attached to obtaining a given qualification: again, where people with a qualification are in high demand this should be reflected in higher levels of income associated with its possession; that should certainly be the case over the lifecycle
  - the extent of hard-to-fill and skill-shortage vacancies reported by employers.
- 4.2 Data from the Annual Survey of Hours and Earnings (ASHE) show that managers earned the highest weekly wages in 2004 (£615 a week), and sales and customer service staff the lowest (£257). During 2003/04, the highest percentage increases were recorded in personal service, process and elementary occupations.
- 4.3 The economic benefits of obtaining an additional qualification reveal that the returns on academic qualifications are greater than for vocational ones, except at Level 5. The data also reveal that the earnings premium associated with obtaining a degree is beginning to diminish. A comparison of the early labour market experiences of those who graduated in 1999 with those who graduated in 1995 shows that the earnings of the former had not kept pace with the latter. Moreover, the earnings of those who graduated in 1999 had not kept up with the index of average earnings.
- 4.4 Results from NESS01 to NESS05 shows that skill-shortage vacancies (SSVs) have remained constant with around 4 per cent of workplaces reporting SSVs between 2001 and 2005. The percentage of workplaces reporting that at least some of their workforce were not fully proficient has declined from 23 per cent in 2001 to 16 per cent in 2005. These changes are arguably the combined result of the economy slowing slightly and supply being better placed to meet the needs of employers.
- 4.5 Previous *Skills in England* reports have revealed that mismatches between supply and demand, even at relatively modest levels, can be damaging to economic performance insofar as they can feed through into wage-push inflation and inhibit the capacity of employers to meet market demand.

## Introduction

- 4.6 This section reviews evidence relating to the extent of mismatch between the supply of, and the demand for, skills. The first part of the section focuses on overall numbers. The discussion then moves to examine the wage premia attached to skills, from the perspective that a failure from the supply side to meet demand will be reflected in higher wage rates in those jobs where there is excess demand; and in the rates of return on obtaining a qualification necessary to gain access to those jobs. The third part moves on to review available evidence about the extent of the mismatch between supply and demand based on the evidence from NESS and recruitment difficulties and internal skill gaps.

## Pay as an Indicator of Imbalance

- 4.7 Pay can provide an indicator of productivity, as well as a measure of mismatch and market disequilibrium. Relative pay levels are positively related to the higher productivity levels associated with higher qualifications. There is a wage premia attached to such jobs, reflecting higher levels of productivity (and the associated investment in skills necessary to achieve this). Rates of return can indicate the benefits to the individual of investing in education or training to achieve these gains. Typically rates of return on investment in higher level qualifications have been relatively high in the UK, indicating an excess demand for such skills. Declining rates of return and falling wage premia may indicate a change in the balance between supply and demand (markets signal excess demand by rising relative prices and conversely). Changes in relative pay over time can therefore provide an indicator of any shortages or surpluses.
- 4.8 One means of assessing imbalances between supply and demand is to look at earnings differentials. In one sense, the wage premium attached to a particular job is a reflection of the scarcity of skills to fill that particular job. In practice, however, there may be a number of non-economic factors that affect wage levels. Nevertheless, an analysis of wage levels (and changes over time) by occupation provides an indication of the extent to which demand for a particular skill is being met by supply. Figure 4.1 provides data on median annual wage levels by occupation between 2002 and 2004.
- 4.9 Data from ASHE reveals that managers earned the highest median gross weekly wages in 2004: £615 a week. But professionals earned the highest hourly wages of £17.10 an hour compared with £15.89 for managers. Sales and customer service occupations had the lowest median gross weekly wages of £257 a week (Dobbs, 2005; see also ONS, 2004). Table 4.1 shows the highest and lowest paid occupations – at a more detailed level – in 2004.

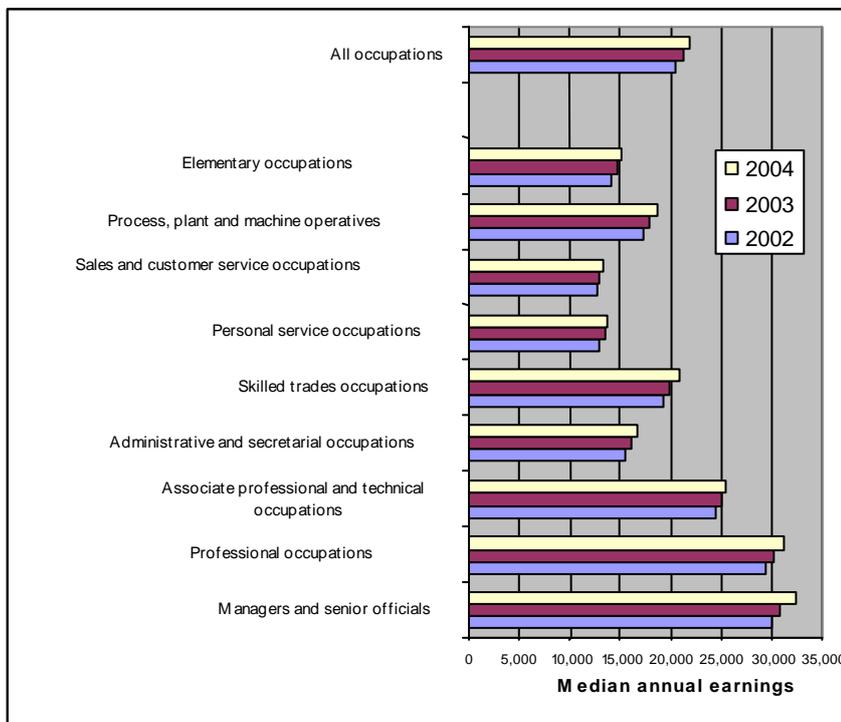
**Table 4.1: Highest and lowest paid occupations, 2004.**

Rank 2004	Rank 2003	Occupation	Gross weekly wage 2004 (£)
<b>Highest paid</b>			
1	(1)	Directors and chief executives of major organisations	1,791.30
2	(2)	Medical practitioners	1,193.20
3	(3)	Senior officials in national government	1,167.70
4	(4)	Aircraft pilots and flight engineers	1,095.10
5	(5)	Financial managers and chartered secretaries	944.00
6	-	Chemical engineers	873.50
7	(7)	Solicitors and lawyers, judges and coroners	862.70
8	-	Managers in mining and energy	834.30
9	(8)	Police officers (inspectors and above)	824.50
10	-	Brokers	798.50
<b>Lowest paid</b>			
1	(7)	Leisure and theme park attendants	192.50
2	(10)	Floral arrangers, florists	197.20
3	(2)	Retail cashiers and check-out operators	203.00
4	(5)	Waiters, waitresses	205.30
5	(4)	Launderers, dry cleaners, pressers	209.30
6	(6)	Bar staff	211.30
7	-	Elementary personal services occupations nec	211.80
8	(8)	Kitchen and catering assistants	215.30
9	-	Market and street traders and assistants	218.80
10	(3)	Hairdressers, barbers	219.20

**Source:** ONS (2004) *2004 Annual Survey of Hours and Earnings*: ([www.statistics.gov.uk/downloads/theme\\_labour/ASHE\\_1998\\_2004/Table9.xls](http://www.statistics.gov.uk/downloads/theme_labour/ASHE_1998_2004/Table9.xls)).

**Note:** nec = not elsewhere classified.

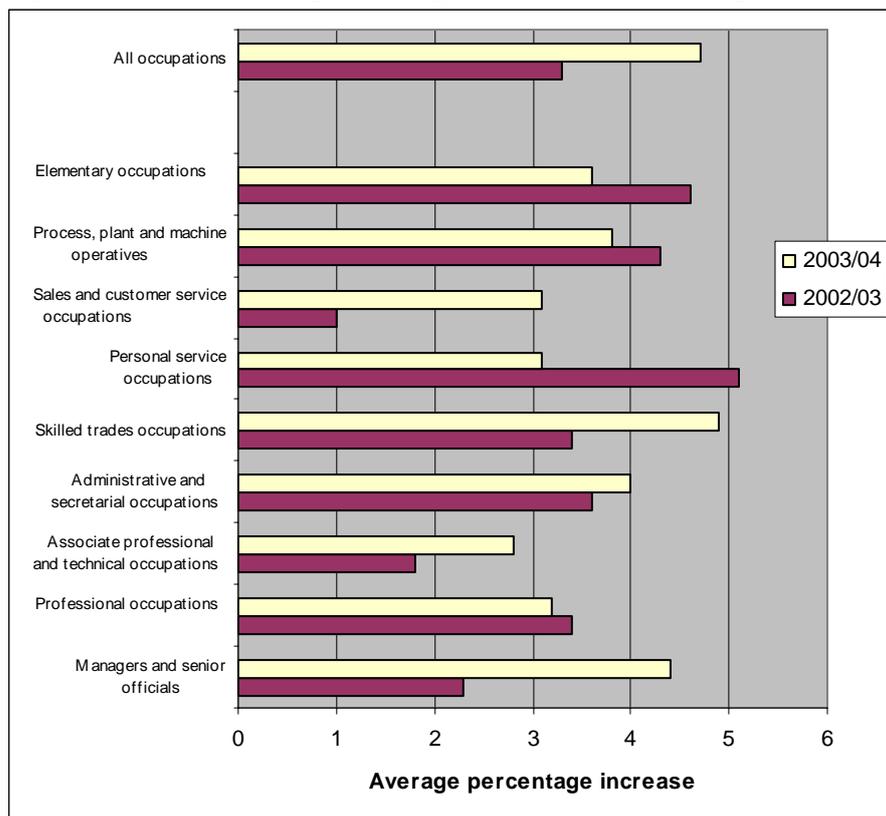
**Figure 4.1: Median earnings, 2002–2004.**



**Source:** ONS (2004) *2004 Annual Survey of Hours and Earnings*.

4.10 The data reveal marked occupational differentials in earnings, with managers and professionals earning substantially more than other occupations. Changes in earnings differentials over time are also revealing (see Figure 4.2). From the perspective of percentage increases, it is among managers and skilled trades that there have been the highest increases in wages over the period 2003–04.

**Figure 4.2: Percentage change in median earnings, 2002–2004.**



**Source:** ONS (2004) *2004 Annual Survey of Hours and Earnings*.

4.11 There are limitations to using occupational wages as a proxy for the skills premia. First, skill may be equated with occupation and/or qualification, but occupations and/or qualifications do not necessarily correspond with, for instance, an employer’s understanding of the skills required to perform a particular job. Secondly, while mismatches in supply and demand may lead to earnings premia (and to changes in relativities over time), these are not the only reasons why the earnings of one group of skilled workers may differ from those of another group. Another means of identifying imbalances is with respect to the returns associated with a given qualification.

# Benefits of Education and Training

## Rates of return

- 4.12 In recent years there has been extensive research into the benefits of investment in education and training for individual pay levels. This has focused both on rates of return on such investments and the wage premia associated with possession of different qualifications. The former takes into account the full costs of acquiring qualifications (primarily earnings forgone during the period of education and training, but also other costs such as tuition fees). The latter, which is much more common, focuses on the increase in earnings associated with qualifications or additional years of education (holding all else equal). Both measures show significant benefits to the individual of acquiring formal qualifications, especially at a higher level.
- 4.13 There are, of course, a range of other benefits of education and training to society and the State. Recent research from the Centre for Research into the Wider Benefits of Learning (Green, Preston and Sabetes, 2003) suggests that a more equitable distribution of education is associated with greater social cohesion. There is also evidence that more skilled or qualified people tend to be more active citizens, and are more racially tolerant.
- 4.14 Individuals obtaining additional academic qualifications continue to benefit progressively from higher earnings. The evidence on returns for people who take the traditional route of GCSEs, A-levels and then a degree suggests that each qualification adds to earnings. There is less evidence about the impact on earnings of gaining qualifications in adulthood. Research published by the DfES (2003) suggests that the pay premium for possession of qualifications actually increases as workers get older.
- 4.15 Most research focuses upon returns on qualifications or years of completed schooling. The Treasury has also published evidence (HM Treasury, 2005) that shows that the returns on adults participating in formal learning in terms of the distribution of hourly pay is significant and progressive, especially beyond NQF Level 2. There is also evidence of a premia for low-skilled adults acquiring qualifications at Level 2. Some research has also been undertaken on the returns to basic skills (numeracy and literacy), as well as on management skills and information and communications technology (ICT) skills. This indicates good returns on all such investments. Skills and learning do, therefore, pay for other levels of qualification too. Although returns are highest for NQF Level 3 and above, there is a significant pay premium for Level 2 qualifications, as well as for basic literacy and numeracy. DfES analysis also confirms that these returns apply to older adults as well as young people.

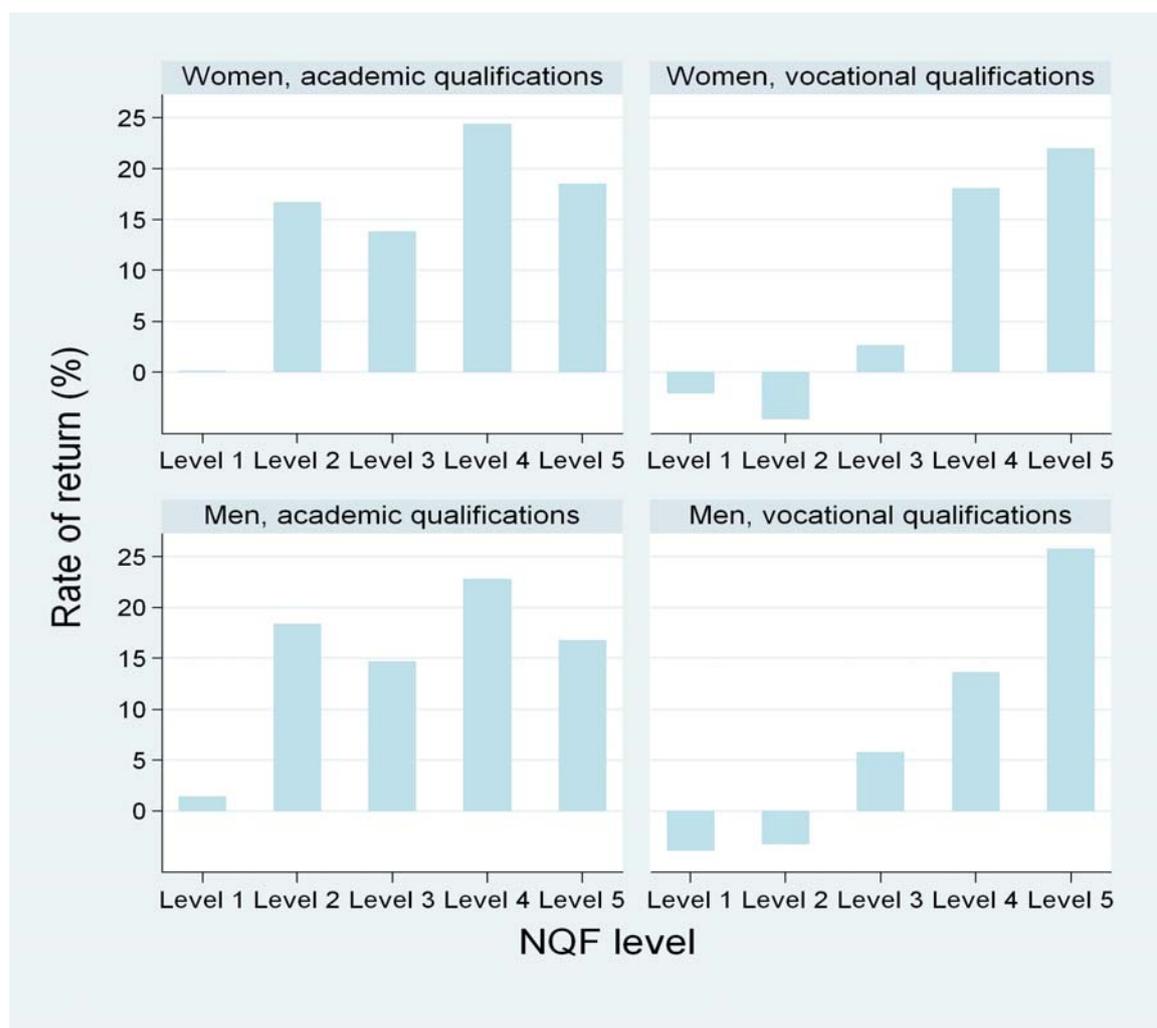
## Returns on qualifications

4.16 Recent years have seen a substantial volume of research on the rates of return on obtaining an additional qualification (Dearden et al, 2005). The most recent study (Dickerson, 2005) has found:

- returns on academic qualification are higher than vocational ones at every level except Level 5
- the returns on vocational qualifications at Levels 1 and 2 are negative, and low at Level 3
- returns on academic qualifications at Level 1 are zero, but increase rapidly thereafter
- there are increasing returns on higher vocational qualifications such that by Level 5 they are greater than academic ones.

These data are summarised in Figure 4.3. Earnings premia are used as proxy measures of the rate of return. (The study reports on returns by age, gender and industry in addition to the summary findings presented in this report.)

**Figure 4.3: Returns on academic and vocational qualifications by gender.**



Source: Dickerson, 2005.

- 4.17 The analysis also reveals that the higher the qualification attained, the higher the probability of being in employment. The relationship is especially marked for women.
- 4.18 Perhaps the key finding is that rates of return only become apparent after Level 2. That said, qualifications at Levels 1 and 2 are often a stepping stone to achieving higher level qualifications; but if a person wants to obtain a higher positive rate of return then they need to become qualified to a higher level. And here is the dilemma. As the next section on higher level qualifications will reveal, increased levels of participation and attainment can result in the rate of return falling away.

### Returns on higher level qualifications

- 4.19 The returns on graduation have been subject to close scrutiny through a series of longitudinal studies. The *Class of '99* (Purcell et al, 2005) study of the careers of over 9,000 people who graduated in 1999 is a study of the graduate career progression and salary levels over time. From this study it is also possible to compare the experiences of the 1999 graduates with those who participated in one of the earlier longitudinal studies, *Moving On*, which followed those who graduated in 1995 (Elias et al, 1999).
- 4.20 The data show that the real earnings in 2003/04 of those who graduated in 1999 had not kept pace with the earnings of those who had graduated in 1995 after a similar period of time in the labour market (see Table 4.2). Moreover, the earnings of those who had graduated in 1999 had not kept pace with the index of average earnings which grew by 25 per cent over the same period.

**Table 4.2: Mean and median average annual gross earnings for 1995 and 1999 graduates.**

	1995 graduates in 1998/99 Annual earnings in 1998/99 of people who graduated in 1995		1999 graduates in 2003/04 Annual earnings in 2003/04 of people who graduated in 1998		% growth	
	mean	median	mean	median	mean	median
Men	21,585	20,163	25,875	24,062	20	19
Women	18,441	17,611	22,479	21,524	22	22
Total	19,813	18,515	23,754	22,301	20	22

**Source:** Purcell et al, 2005.

**Base:** Graduates in full-time employment 3½ years (1995 graduates) or 4 years (1999 graduates) after graduation.

- 4.21 The study estimates that for male graduates, their earnings were around 11 per cent lower, in real terms, than their counterparts who had graduated in 1995 after a similar amount of time spent in the labour market. For female graduates the real decline was around 8 per cent. For men and women combined the decline in real earnings was around 10 per cent.
- 4.22 The rates of return evidence indicates that there is still a higher rate of return on obtaining a degree compared with a lower-level qualification. But the premium attached to being a graduate shows signs of diminishing over time. As the authors of the *Class of '99* point out:

*...it may be the first indication that the graduate earnings premium, which in the UK is high by international standards, is beginning to reflect a decline in the excess demand for graduate skills and knowledge that has characterised the situation prevailing through the 1990s.*

### **Benefits of generic skills**

- 4.23 Generic skills can also complement specific skills in the sense that they provide the means by which individuals can develop more specific and technical skills. For this reason some employers may be prepared to pay for general training, as a step towards investment in more specific and technical skills, the returns on which can be captured by the company as opposed to the individual.

## **Results from the National Employers Skills Surveys**

- 4.24 The NESS series 2003 to 2005 (the NESS series) provides comprehensive information about employers' experiences of recruiting labour and the difficulties they encounter. The series also provides information relating to skill gaps, i.e. the extent to which employers regard their existing workforce as proficient to meet the needs of their business. As well as providing information about the extent of recruitment problems and skill gaps in the economy, the NESS series also looks into the causes and implications of these.
- 4.25 There is now a substantial series of surveys that have collected data about employers' skill needs. The series commenced with the Skill Needs in Britain surveys conducted almost annually between 1992 and 1998. This was subsequently replaced by the Employers Skill Surveys (ESS) in 1999, 2001 and 2002. NESS carried on the tradition of these surveys; NESS03 was the first survey in the new series and subsequently two further surveys have been carried out, NESS04 and NESS05.

## Definitions used in National Employers Skill Surveys

- 4.26 The NESS series uses precise definitions to describe employers' skill needs.
- **Recruitment problems** refer to vacancies that the employer describes as either hard to fill or skill-shortage related.
  - **Hard-to-fill vacancies** (HtFVs) are those vacancies self classified by the respondent as hard to fill.
  - **Skill-shortage vacancies** (SSVs) are defined as HtFVs resulting from applicants not having the required skills, experience or qualifications the employer demands.
  - **Skill gaps**, or internal skill gaps, refer to the extent to which employers perceive their employees' current skills as insufficient to meet current business objectives. Respondents are asked to comment on an occupation-by-occupation basis about the extent to which employees were 'fully proficient at their current job'.
- 4.27 The NESS series data are weighted so that the data are representative of the population of employers and employees in the economy based on the most up-to-date population estimates.

## Summary of findings from National Employers Skill Surveys

- 4.28 Before providing a more detailed analysis of skill deficiencies in England, Table 4.3 provides the headline findings from ESS2001 to NESS05.
- 4.29 There are some definitional issues that complicate comparisons across time but the overall picture revealed from Table 4.3 is that the level of skill deficiencies has been fairly stable over the 2001 to 2005 period. This needs to be seen in the context of the overall stability of the economy over that period.
- 4.30 At first glance the extent of recruitment problems over the 4-year period appears fairly modest, with around 4 per cent of establishments in all 4 years reporting SSVs (or 143,000 such vacancies in 2005). But this should be interpreted cautiously. First, one would not expect a high number of such vacancies, especially at a time of a relative slowdown in economic growth. Second, it is not so much the number of recruitment problems that is important but their impact upon an organisation's performance.

**Table 4.3: Overall incidence of skill deficiencies in England, 2003 and 2005.**

	ESS2001	NESS03	NESS04	NESS05
<b>Vacancies and SSVs</b>				
% of establishments with any vacancies	14	17	18	17
% of establishments with any HtFVs	8	8	8	7
% with unprompted SSVs	4	4	4	4
% of all vacancies which are unprompted SSVs	21	20	17	17
Number of unprompted SSVs per 1,000 employees	8	6	5	5
% with unprompted or prompted SSVs	n/a	n/a	6	5
% of all vacancies which are unprompted or prompted SSVs	n/a	n/a	24	25
Number of unprompted or prompted SSVs per 1,000 employees	n/a	n/a	7	7
<b>Skill gaps</b>				
% of establishments with any staff not fully proficient	23	22	20	16
Number of staff not fully proficient as a % of employment	9	11	7	6

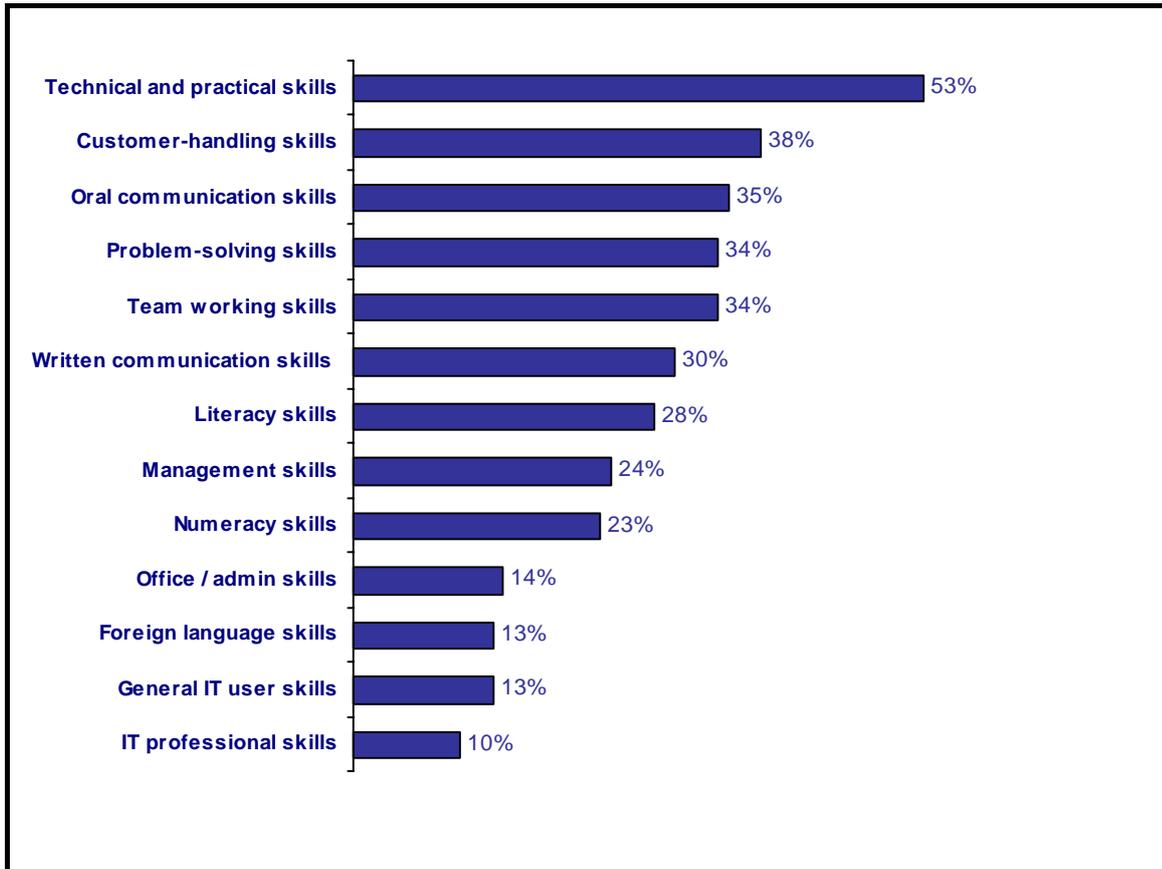
**Source:** NESS05 (Shury et al, 2006).

4.31 The extent of skill gaps in the economy is substantially greater than recruitment problems. The survey evidence points to around 1.3 million employees – 6 per cent of all employees – who fall short of full proficiency in their existing job. There is, however, a strong indication that skill gaps have become narrower over the four-year period.

### Recruitment problems in detail

4.32 A key issue is to identify the underlying skill needs giving rise to recruitment problems and the sectors of the economy where they are arising. Figure 4.4 shows the percentage of SSVs arising from shortages of different types of skill. In relation to SSVs, a difficulty finding applicants with the required *technical and practical skills* was one of the main skill-based reasons leading to a recruitment problem. But it is also apparent that softer, more generic skills also gave rise to recruitment problems. *Oral and written communication, customer-handling, team working, and problem-solving* skills were reported as being difficult to find in relation to a relatively high percentage of SSVs.

**Figure 4.4: Skills lacking in connection with skill-shortage vacancies.**



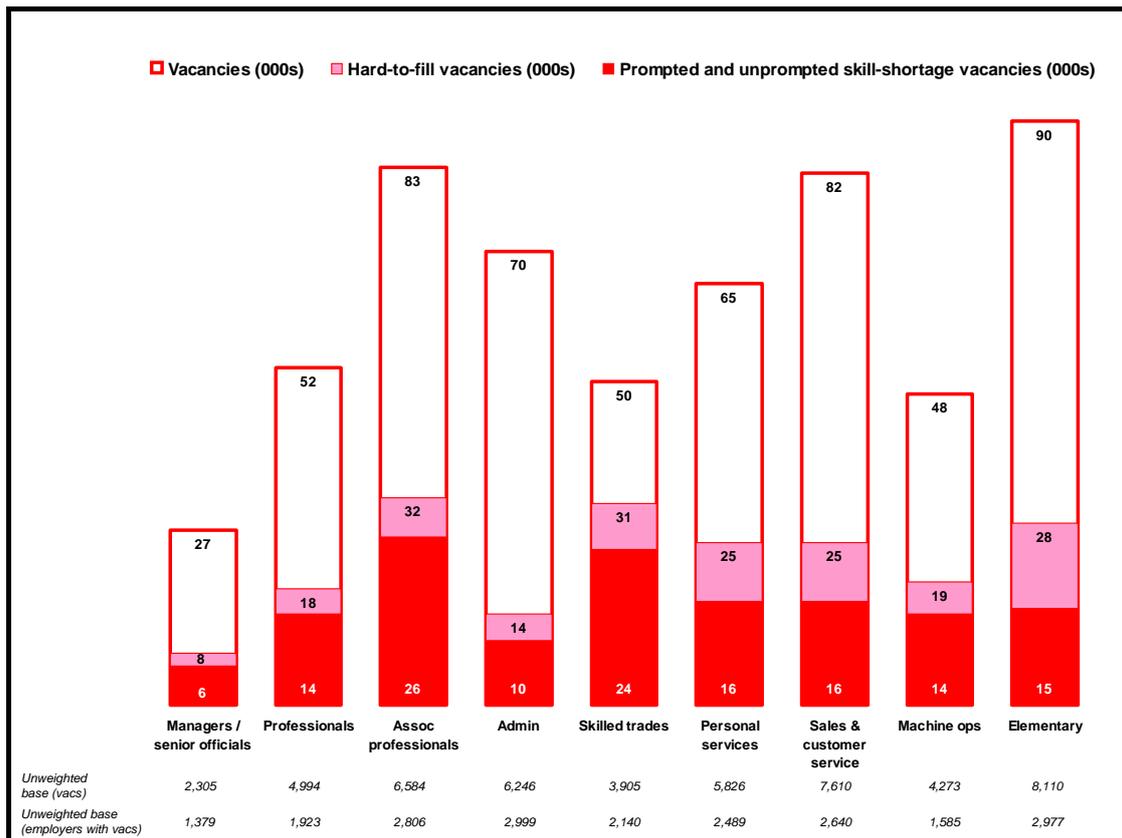
**Source:** NESS2005 (Shury et al, 2006).

**Base:** All unprompted and prompted skill-shortage vacancies (weighted=143,124; unweighted=11,326; unweighted employer base=4,846).

## Occupational characteristics of recruitment problems

4.33 Occupation provides a proxy measure of skills, albeit an imperfect one. Figure 4.5 and Table 4.4 show how vacancies, and recruitment problems, are distributed across occupations. The data reveal that skilled trades and associate professionals recorded the highest proportion of SSVs in relation to the number of vacancies reported.

**Figure 4.5: Overall distribution vacancies by occupation.**



**Source:** NESS05 (Shury et al, 2006).

**Base:** All vacancies.

**Table 4.4: Summary of skill-shortage vacancies by occupation.**

	Vacancies	Unprompted SSVs	Prompted and unprompted SSVs	% of vacancies that are SSVs (unprompted and prompted)	SSVs (unprompted and prompted) per 1,000 employees
<i>Unweighted base</i>	50,757	7,946	11,326		
All England	573,900	99,500	143,125	25%	7
<i>Occupation</i>					
Managers and senior officials	27,150	4,975	6,350	23%	2
Professionals	51,625	11,250	14,400	28%	6
Associate professionals	83,225	18,425	26,050	31%	15
Administrative and secretarial	69,625	8,100	10,225	15%	3
Skilled trades	50,175	16,925	24,300	48%	16
Personal service	64,700	9,600	15,975	25%	10
Sales and customer service	81,550	10,975	16,175	20%	6
Transport and machine operatives	48,125	9,950	13,800	29%	8
Elementary occupations	89,575	8,800	14,975	19%	5

**Source:** NESS05 (Shury et al, 2006).

**Base:** All vacancies.

## Recruitment problems and size of establishment

- 4.34 When the number of SSVs is viewed in relation to the number of people employed, there was a clear tendency for SSVs to be more common in smaller workplaces (see Table 4.5). For example, there are 19 vacancies per 1,000 employees in establishments with 2 to 4 employees, compared with 2 per cent in establishments with more than 500 employees.

**Table 4.5: Summary of skill-shortage vacancies by size of establishment.**

	Vacancies	Unprompted SSVs	Prompted and unprompted SSVs	% of vacancies that are SSVs (unprompted and prompted)	SSVs (unprompted and prompted) per 1,000 employees
<i>Unweighted base</i>	50,757	7,946	11,326		
All England	573,900	99,500	143,125	25%	7
2 to 4	112,600	22,900	36,625	33%	19
5 to 24	175,775	33,725	46,900	27%	9
25 to 99	132,950	20,800	30,250	23%	6
100 to 199	50,150	9,025	11,900	24%	5
200 to 499	59,950	8,750	11,225	19%	3
500+	42,475	4,275	6,225	15%	2

**Source:** NESS05 (Shury et al, 2006).

**Base:** All vacancies.

## Recruitment problems by industrial sector

- 4.35 For NESS05, analysis in relation to industry has been carried out by reference to the SSC representing the workplace rather than conventional industrial sector based on goods and services produced.
- 4.36 The overall pattern of results by SSC is shown in Table 4.6 and Figure 4.6. The main conclusion of the analysis is that relatively few sectors experience both a high *absolute number* of SSVs and a high *proportion* of vacancies which are hard to fill for skill-related reasons. The bulk of industry groups fall into the bottom left quadrant where the absolute number of skill shortages is relatively low and the density of SSVs is also lower than average.
- 4.37 It is industries in the top two quadrants where skills shortages are most likely to be inhibiting the growth and development of workplaces. The top-right quadrant of the figure contains the industries that could be said to be experiencing the greatest skill challenges in recruitment. Skill shortages as a percentage of vacancies and the absolute number of current SSVs are both high. These industries are ConstructionSkills and SEMTA.
- 4.38 The top-left quadrant of the figure contains those industries where the density of SSVs is high, but a relatively low number of vacant positions means that the absolute number of skill shortages is low. It may be that what prevents these industry groups from appearing in the top-right quadrant is a reluctance to recruit actively because of the poor prospects of finding people with the right skills if they do so. The industries in this quadrant particularly affected by a high density of SSVs are those covered by SummitSkills, GoSkills, Automotive Skills and Lantra.
- 4.39 The bottom-right quadrant contains industries experiencing a relatively low density of SSVs but where the sheer volume of employers looking to recruit means that the volume of skill shortages is relatively high. Industries in this category include those covered by Skillsmart Retail, People 1st and Skills for Care & Development.

**Table 4.6: Number and density of skill-shortage vacancies by sector skills council sector.**

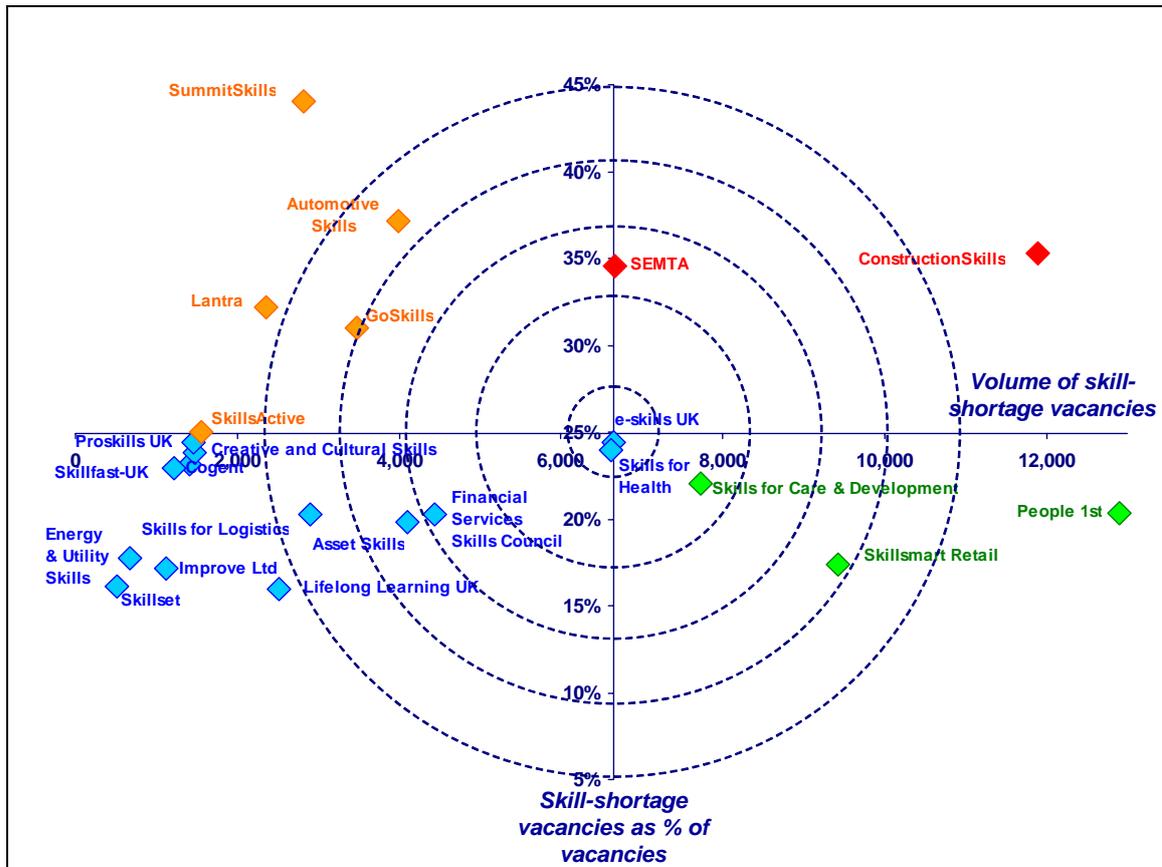
	Vacancies	HtFVs	Unprompted SSVs	Prompted and unprompted SSVs	% of vacancies that are SSVs (unprompted and prompted)	SSVs (unprompted and prompted) per 1,000 employees
<b>All England</b>	573,905	203,555	99,500	143,125	25%	7
<b>SSC:</b>						
Lantra	7,321	3,893	1,575	2,350	32%	8
Cogent	6,108	2,074	1,025	1,400	23%	3
Proskills UK	6,197	1,931	1,100	1,475	24%	4
Improve Ltd	6,572	1,657	875	1,125	17%	3
Skillfast-UK	5,331	1,923	925	1,225	23%	5
SEMTA	19,301	8,069	5,300	6,675	35%	5
Energy & Utility Skills	3,813	873	475	675	18%	3
ConstructionSkills	33,727	16,037	10,600	11,900	35%	12
SummitSkills	6,406	3,277	2,575	2,825	44%	13
Automotive Skills	10,734	4,703	3,400	4,000	37%	9
Skillsmart Retail	54,189	17,172	5,300	9,425	17%	4
People 1st	63,363	22,863	7,050	12,900	20%	8
GoSkills	11,200	4,965	2,775	3,475	31%	9
Skills for Logistics	14,374	4,494	2,000	2,900	20%	5
Financial Services Skills Council	21,903	5,829	3,125	4,450	20%	5
Asset Skills	20,740	6,675	2,650	4,100	20%	6
e-skills UK	27,208	7,754	6,025	6,650	24%	10
Skills for Justice	4,051	605	375	400	10%	1
Lifelong Learning UK	15,784	3,529	1,750	2,525	16%	3
Skills for Health	27,637	9,384	3,050	6,625	24%	4
Skills for Care & Development	35,000	13,754	4,025	7,725	22%	10
Skillset	3,178	659	375	500	16%	4
Creative & Cultural Skills	5,979	2,164	1,125	1,450	24%	7
SkillsActive	6,229	2,338	1,125	1,550	25%	6
Non-SSC employers	143,265	49,160	30,150	37,250	26%	7

**Source:** NESS05 (Shury et al, 2006).

**Notes:** Figures rounded to the nearest 25.

The symbol ! is used where the base size was less than 25. Figures in italics denote base sizes of 25 to 49 and should be treated with caution.

**Figure 4.6: Summary of skill-shortage vacancies by sector skills council sector.**



**Source:** NESS 2005 (Shury et al, 2006).

**Base:** All skill-shortage vacancies (unprompted and prompted).

**Notes:** Energy & Utility and Skillset SSC sectors have base sizes of 25 to 49 and should be treated with caution. Skills for Justice and Government Skills SSC sectors have bases of less than 25 and have are therefore not shown. Employers not covered by an SSC are not shown.

## Regional and local patterns of recruitment problems

4.40 The NESS series has generally shown differences between regions in recruitment difficulties to have been slight. In part this stems from the varied characteristics of each region and the fact that they each encompass large parts of the English economy. Large regional variations in a country that is physically quite small would be unlikely given the flexible and free movement of people. The data reveals that SSVs as a percentage of vacancies is the highest in the West Midlands and North West (31 per cent) and lowest in the South West (18 per cent) (see Table 4.7).

**Table 4.7: Vacancies and hard-to-fill vacancies as a proportion of employment by region.**

Region	Vacancies	Vacancies % employment	HtFVs as % vacancies	Unprompted SSVs	Prompted and unprompted SSVs	SSVs as % vacancies
<b>Total</b>	573,900	2.7	35	99,500	143,125	25
West Midlands	56,250	2.5	39	12,000	17,325	31
East Midlands	39,725	2.3	30	5,975	8,175	21
Eastern	57,050	2.6	34	9,550	13,350	23
London	87,450	2.3	28	15,675	18,950	22
North East	23,775	2.5	36	4,175	5,525	23
North West	83,600	3.0	42	13,450	26,225	31
South East	99,150	2.8	39	17,850	25,600	26
South West	62,475	3.0	31	8,700	11,050	18
Yorkshire and the Humber	64,425	3.1	37	12,150	16,925	26

**Source:** NESS05 (Shury et al, 2006).

**Base:** All vacancies.

## Extent of skill gaps

- 4.41 The discussion so far has been in relation to external recruitment problems, but there is also a need to consider how well prepared an establishment's existing workforce are to meet organisational performance goals. Skill gaps are defined with respect to whether employers regard their staff as being fully proficient to meet the business needs of the organisation.
- 4.42 Skill gaps are more common than recruitment problems. Results from NESS05 suggest that there were around 574,000 vacancies in England in total, of which 143,000, some 25 per cent were SSVs. This compares with 1.3 million employees who were not fully proficient at the current job.
- 4.43 Table 4.8 shows the trend in skill gaps since 1999. There appears to have been a consistent reduction in the extent of gaps since 1999. Qualifications need to be entered about the strictness of the comparisons between ESS (1999 and 2001) and NESS (2003 and 2004) but the trend is clear. The narrowing of the skill gap is particularly marked in workplaces employing five or more people. The trend is apparent in both the proportion of employers who reported a gap and the scale of the gap reported. It was apparent across all occupational groups, sizes of workplace and regions.

**Table 4.8: Skill gaps 1999–2005.**

	ESS1999	ESS2001	NESS03	NESS04	NESS05
<b>All establishments:</b>					
Percentage of establishments with a skill gap	n/a	23	22	20	16
Percentage of staff described as having a skill gap	n/a	9	11	7	6
<b>Establishments with 5+ employees:</b>					
Percentage of establishments with a skill gap	56	50	39	31	26
Percentage of staff described as having a skill gap	11	10	11	7	6

**Source:** ESS1999 and ESS2001 (DfES); NESS 2003 to 2005 (Shury et al, 2005).

**Base:** First and third row all establishments; second and fourth rows all employment.

**Note:** ESS1999 and ESS2001 figures for the percentage of staff lacking proficiency are best regarded as estimates (as indicated in paragraph 4.43).

## **Skill characteristics of skill gaps**

- 4.44 Employers who had experienced skill gaps were asked to define what skills they felt needed improving for an occupation where staff were considered not fully proficient (see Table 4.9). The key areas in which employees were viewed as lacking skills can be classified as generic ones, i.e. team working (48 per cent); oral communication (42 per cent); customer-handling skills (46 per cent); and problem-solving (40 per cent). That said, technical and practical skills were lacking from 44 per cent of cases where skill gaps were followed up.

## **Occupational characteristics of skill gaps**

- 4.45 The occupations affected by skill gaps are outlined in Figure 4.7. The most striking feature is that skill gaps were frequently reported, proportionately, for sales and customer service occupations and elementary occupations. These are occupations that require a relatively modest level of skill but they account for the highest incidence of skill gaps. It is often assumed that skill gaps are most likely to be found in highly skilled jobs, since the range and depth of skills required are so extensive. But the evidence suggests that this is simply not so. In contrast to the three more junior occupations, managers and professionals stood out as having disproportionately few skill gaps.

**Table 4.9: Skills lacking overall by occupation.**

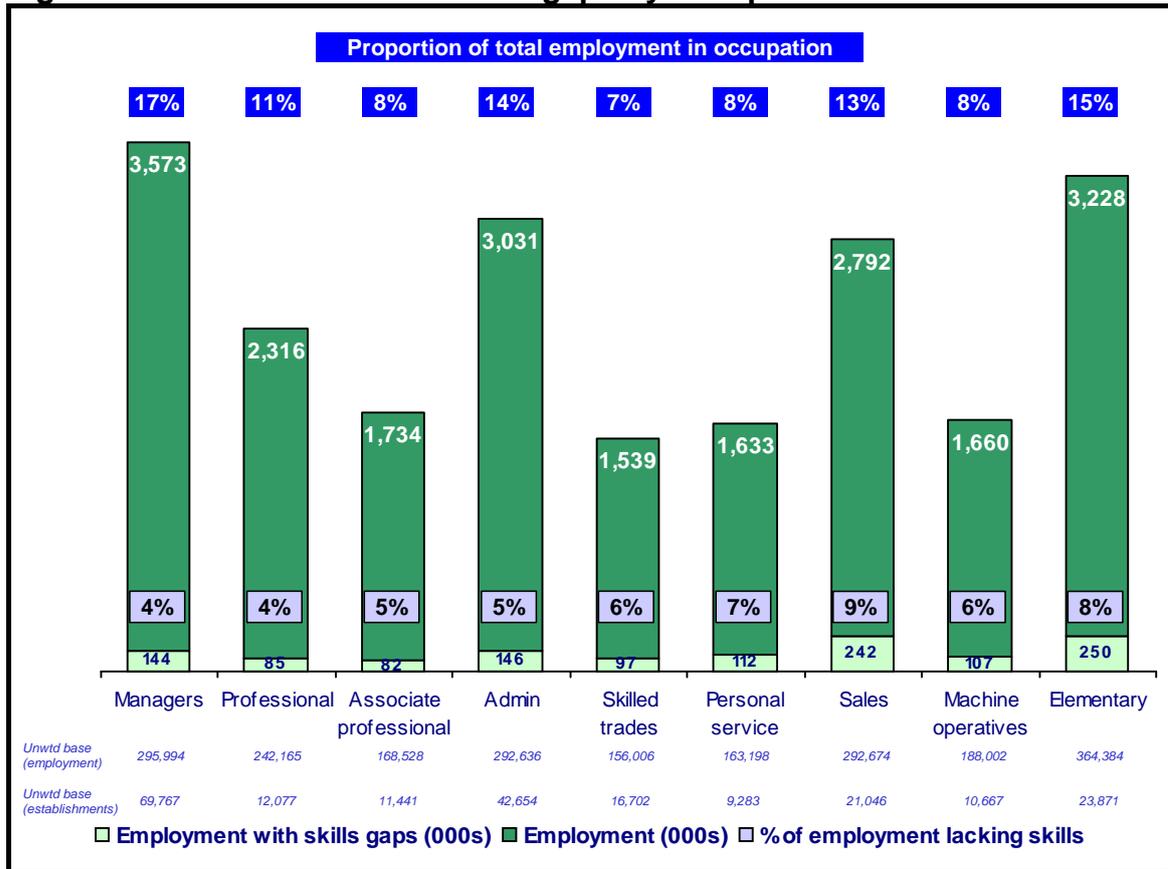
	All 2003	All 2004	All 2005	Managers	Professionals	Associate prof.	Administrative	Skilled trades	Personal services	Sales	Operatives	Elementary occupations
<i>Unweighted base</i>	112,789	85,175	109,310	10,661	8,413	5,284	10,883	8,133	9,020	21,627	9,769	25,520
<i>Weighted base (000s)</i>	1,776	1,241	1,059	115	69	65	114	81	91	218	81	226
	%	%	%	%	%	%	%	%	%	%	%	%
<i>Skills lacking</i>												
Team working	52	47	48	47	35	41	43	39	55	48	50	55
Customer-handling skills	55	47	46	34	30	39	52	33	47	63	29	51
Technical and practical skills	43	45	44	31	52	53	36	64	47	36	56	43
Oral communication	n/a	n/a	42	42	28	30	39	36	43	44	47	48
Problem-solving skills	47	40	40	45	36	41	44	43	41	38	43	38
Written communication	n/a	n/a	29	29	28	34	39	30	36	20	34	27
Management skills	32	25	26	76	30	23	23	18	16	23	11	15
General IT user skills	29	26	23	28	33	33	51	17	18	19	18	10
Literacy skills	24	19	22	10	18	22	24	23	32	16	27	27
Numeracy skills	21	16	21	14	16	17	18	19	21	20	28	26
Office admin skills	n/a	20	20	31	22	23	55	15	11	15	8	8
IT professional skills	13	12	12	19	26	21	29	9	8	7	5	5
Foreign languages	7	9	9	13	5	4	7	6	13	8	12	11

**Source:** NESS05 and NESS03 (Shury et al, 2006; 2004).

**Base:** All skill gaps followed up.

**Note:** Column percentages do not sum to 100 per cent because of multiple responses.

**Figure 4.7: The distribution of skill gaps by occupation.**



**Source:** NESS05 (Shury et al, 2006).

**Base:** All employment.

## Skill gaps by size of establishment

4.46 A higher percentage of larger employers reported skill gaps: 8 per cent of establishments with fewer than 5 employees reported skill gaps compared with 41 per cent with 500 or more employees. In contrast, the percentage of employees reported as having a skills gap varies little by size of establishment (at around 6 per cent). Across all size bands, the share of skill gaps is more or less in line with the percentage of the workforce employed (see Table 4.10).

**Table 4.10: Incidence, number and density of skill gaps by size of establishment.**

	% of establishments with any skill gaps	No. of employees not fully proficient (i.e. number of skill gaps)	% of staff reported as having skill gaps	Share of employment	Share of all skill gaps
		Row percentages		Column percentage	
				%	%
Overall	16%	1,265,000	6%	100	100
<i>Size:</i>					
Less than 5	8%	74,300	4%	9	6
5 to 24	23%	312,600	6%	24	25
25 to 99	35%	336,000	6%	25	27
100 to 199	39%	132,300	5%	12	10
200 to 499	44%	207,200	6%	16	16
500+	41%	202,500	6%	15	16

**Source:** NESS05 (Shury et al, 2006).

**Base:** First column all establishments, remainder all employment.

**Note:** The number of employees not fully proficient has been rounded to the nearest 100.

## Skill gaps in relation to industrial sector

4.47 As in its analysis of vacancies, NESS05 explored variations in skill gaps in relation to industrial sector using SSC sector categories. Table 4.11 summarises the results. The analysis showed that skill gaps were a particular issue in the following sectors: People 1<sup>st</sup>, Improve Ltd, Skillsmart Retail, Cogent, Financial Services Skills Council and SummitSkills. In all these SSC sectors, employers were more likely than average to report both having staff who lacked proficiency and having a higher proportion than average of staff lacking proficiency. The sectors where employers reported the lowest proportion of staff who were less than proficient were those covered by Skills for Justice, Skills for Logistics, Creative & Cultural Skills and Asset Skills. In these sectors, less than 5 per cent of staff were reported as lacking skills.

**Table 4.11: Incidence and number of skill gaps by industrial sector.**

	% of establishments with any skills gaps	Number of employees not fully proficient (i.e. number of skill gaps)	% of staff reported as having skill gaps	Share of employment %	Share of all skill gaps %
		Row percentages		Column percentage %	
Overall	16%	1,265,000	6%	100	100
People 1st	20%	144,700	9%	7	11
Improve Ltd	21%	30,700	8%	2	2
Skillsmart Retail	20%	186,000	8%	11	15
Cogent	20%	33,500	8%	2	3
Financial Services Skills Council	20%	62,300	7%	4	5
SummitSkills	20%	14,000	7%	1	1
SkillsActive	18%	16,000	6%	1	1
Skills for Care & Development	20%	50,400	6%	4	4
Automotive Skills	19%	26,600	6%	2	2
SEMTA	19%	69,600	6%	6	5
ConstructionSkills	13%	57,200	6%	5	5
Lifelong Learning UK	19%	37,700	5%	3	3
Proskills UK	15%	18,500	5%	2	1
GoSkills	14%	19,500	5%	2	2
Lantra	11%	14,200	5%	1	1
Non-SSC employers	15%	264,000	5%	25	21
Skillfast-UK	13%	12,000	5%	1	1
Skillset	12%	6,200	5%	1	0
e-skills UK	12%	31,000	5%	3	2
Energy & Utility Skills	19%	11,000	5%	1	1
Skills for Health	18%	70,300	5%	7	6
Skills for Justice	19%	11,400	4%	1	1
Skills for Logistics	14%	27,000	4%	3	2
Creative & Cultural Skills	9%	8,100	4%	1	1
Asset Skills	11%	29,000	4%	3	2

**Source:** NESS05 (Shury et al, 2006).

**Base:** First column all establishments, remainder all employment.

4.48 Table 4.12 shows the sectors where the share of skill gaps is disproportionately high or low compared with employment in that sector.

**Table 4.12: Sectors with a disproportionately high or low proportion of occupational skill gaps compared with employment.**

	Disproportionately HIGH share of employees with gaps relative to employment	Disproportionately LOW share of employees with gaps relative to employment
		Lantra (14% v 30%) ConstructionSkills (17% v 24%) SummitSkills (6% v 20%) Skillsmart Retail (9% v 16%) Automotive Skills (8% v 19%) People 1st (10% v 17%) Asset Skills (12% v 20%) Skillset (14% v 26%) Creative & Cultural Skills (15% v 26%) Asset Skills (2% v 10%) e-skills UK (9% v 15%) Skillset (3% v 9%) Non-SSC employers (14% v 20%) e-skills UK (8% v 17%) Skills for Health (15% v 23%) SummitSkills (7% v 13%)
Managers		
Professionals		
Associate professionals	ConstructionSkills (19% v 10%)	
Administrative occupations	Skills for Justice (41% v 33%) Skillset (28% v 14%) SummitSkills (60% v 47%)	
Skilled trades	Automotive Skills (41% v 32%) GoSkills (16% v 9%) Skills for Logistics (9% v 3%) Lantra (11% v 5%)	Skillset (5% v 14%)
Personal service occupations	Skills for Health (39% v 28%) Skills for Care & Dev't SSC (59% v 45%) Skillfast-UK (26% v 14%) e-skills UK (45% v 23%)	
Sales and customer service occupations	Financial Services Skills Council (34% v 24%) Skillsmart Retail (64% v 53%) Cogent (31% v 25%) SEMTA (36% v 28%)	
Machine operatives	Improve Ltd (38% v 27%) Proskills UK (41% v 31%) Skillset (12% v 3%) Lantra (35% v 21%) SummitSkills (14% v 8%)	
Elementary occupations	People 1st (65% v 56%) Asset Skills (25% v 19%) Skillset (10% v 3%) Creative & Cultural Skills (18% v 12%) SkillsActive (27% v 20%)	

**Source:** NESS05 (Shury et al, 2006).

**Note:** Figures in italics denote base sizes of 25 to 49 and should be treated with caution.

## Local and regional patterns of skill gaps

- 4.49 The proportion of employers reporting skill gaps within their workforce also varied quite considerably by region, ranging from 13 per cent of employers in London to 23 per cent of employers in Yorkshire and the Humber (compared with the national figure of 16 per cent) (see Table 4.13).
- 4.50 When skills gaps were expressed as a percentage of employment, there was less variation. Only in Yorkshire and Humber and the South East was the proportion of skill gaps reported greater than the proportion of employment in the region.

**Table 4.13: Incidence and number of skill gaps by region.**

	% of establishments with any skill gaps	No. of employees not fully proficient (i.e. number of skill gaps)	% of staff reported as having skill gaps	Share of employment	Share of all skill gaps
	<i>Row percentages</i>			<i>Column percentages</i>	
				%	%
<b>Overall</b>	<b>16%</b>	<b>1,265,000</b>	<b>6%</b>	<b>100</b>	<b>100</b>
Yorkshire and the Humber	23%	156,500	8%	10	12
North East	21%	53,300	6%	4	4
South East	18%	231,700	7%	16	18
North West	16%	165,000	6%	13	13
West Midlands	16%	110,200	5%	11	9
East Midlands	15%	106,700	6%	8	8
South West	15%	107,500	5%	10	8
Eastern	15%	115,100	5%	10	9
London	13%	218,800	6%	18	17

**Source:** NESS05 (Shury et al, 2006).

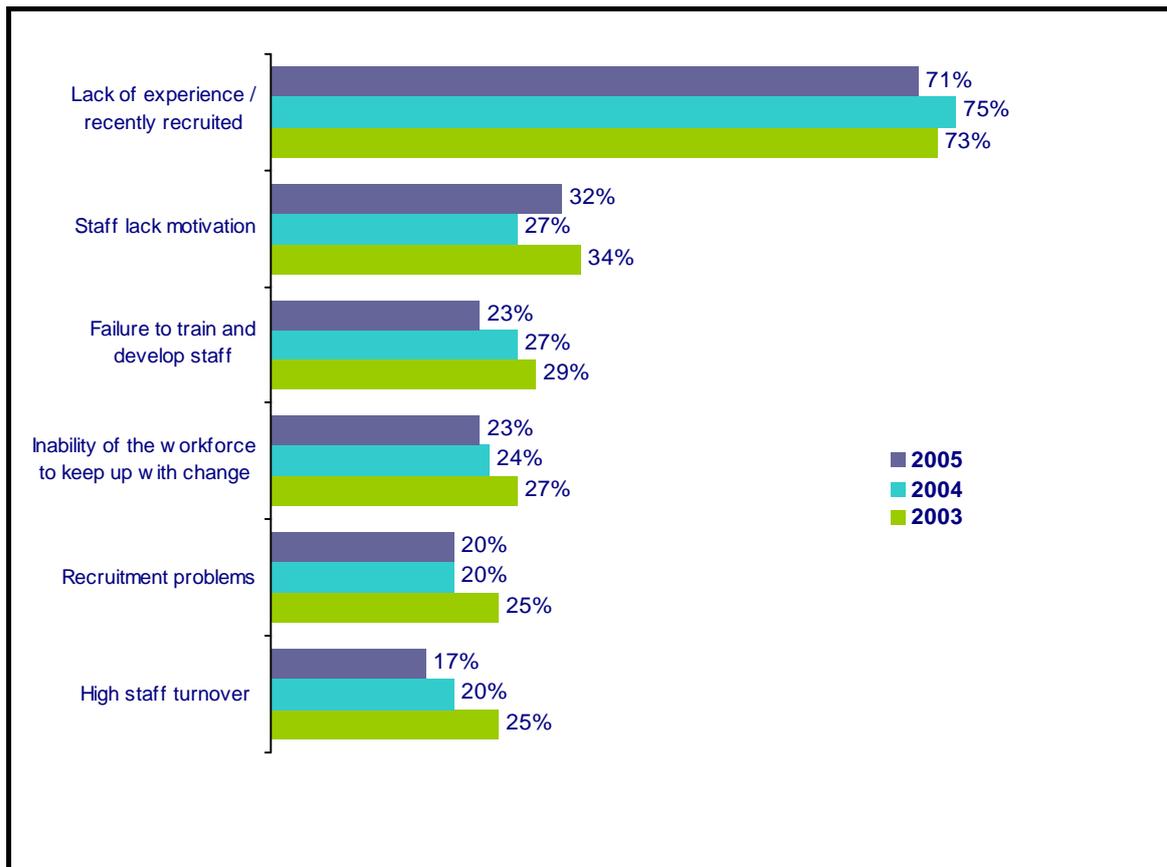
**Base:** First column all establishments, remainder all employment.

**Note:** The number of employees not fully proficient has been rounded to the nearest 100.

## Causes of skill gaps

- 4.51 Employers who were experiencing skill gaps were asked what the main causes were of their staff not being fully proficient (employers were asked about the causes of skills gaps for *one* occupation only, selected randomly where more than one skill gap was reported). Figure 4.8 shows, at an overall level, the reasons that were given. It should be noted that results are based on skill gaps followed up in detail during the interview rather than all establishments with skill gaps, i.e. it uses an employee-based measure with results showing the proportion of skill gaps that are caused by various factors, as opposed to the proportion of establishments that report skill gaps with these causes. The results reveal that the main cause was *staff lacking experience* (71 per cent of all skill gaps). This, of course, leaves open the question why staff were lacking in experience: whether it was because of taking on many new staff, the introduction of new production processes or movements into new markets.
- 4.52 The remaining five causes were more specific. They included the failure of the employer to train and to ensure that staff were kept up to date.

**Figure 4.8: Main causes of skill gaps.**



**Source:** NESS05 (Shury et al, 2006).

**Base:** All skills gaps followed up. (2005: unweighted=109,310; weighted=1,059,326

2004: unweighted=85,175; weighted=1,240,744

2003: unweighted=112,789; weighted=1,176,477).

- 4.53 As Table 4.9 showed, the key areas in which employees were viewed as lacking skills can be classified as relatively soft skills areas, including communication, customer-handling skills, team working and problem-solving skills. That said, technical and practical skills were lacking from just under half of employees with skills gaps that were followed up.

## Conclusion

- 4.54 The data on mismatches provide a revealing picture. Evidence on earnings differentials show that it is principally higher level managerial and professional jobs that have the highest premia attached to them. These are also occupations that have revealed strong growth over recent years and are projected to continue to do so over the next decade or so. Consistent with the occupational pattern, the data on the returns to qualifications indicate higher returns on higher level qualifications, even if this has diminished somewhat over recent years.
- 4.55 The overall prospect is for some 1.3 million additional jobs by 2014, but with replacement needs of 8 times that figure. If this is compared with the expected change in the numbers of young people in the workforce, it is clear that a significant gap is emerging. The size of the workforce aged between 16 and 24 is likely to rise by just a quarter of a million between 2004 and 2014. Beyond 2010 the size of this group will actually start to fall by some 60,000 a year. The implication is that employers will need to find the additional workers and meet their replacement needs by looking elsewhere than new young entrants. The inactive workforce, the unemployed and migrants will have to form an increasingly important source of supply to meet these needs.
- 4.56 People are living longer. Over a million people choose to work beyond State pension age already. They are able to increase their incomes, give their lives purpose and contribute to the well-being of society and the economy generally (the latter notably but not exclusively through the payment of taxes). More flexible arrangements are needed to make it easier for people to remain in employment and extend their working lives.
- 4.57 Survey data drawn from employers about their perception of skill imbalances add to this picture especially their demand for a range of softer, non-technical skills, related to communication, team building, etc. This is most telling because the review of the demand side indicated that there were a range of organisation-specific skills that need to be acquired if businesses are to raise their productivity. The bases of these organisation-specific skills were related to communication and team building, amongst others.
- 4.58 Given the nature of skill mismatches in the economy, and the potential limitations they impose, they clearly need to be addressed. This suggests the need for greater emphasis on the acquisition of softer skills for many workers. But this leaves open questions about both the content of future skills supply and who should pay for training; whether it should be the State, the employer or the individual? To date, the State has tended to step in where there has been a market failure. In contrast, the employer or the individual should pay where it is clearly evident that they are the main beneficiaries and there is no market failure. Hence individuals are expected to pay for their university education and employers for organisation-specific, non-transferable skills. But this leaves a considerable grey area for many generic skills where it is unclear who should pay.

## Section 5: Future Skill Needs

### New Estimates of Future Skill Needs

- 5.1 Earlier sections have provided an assessment of the current position, including a review of recent *historical* trends in the demand for and supply of skills. While this provides useful information for both decision-makers and policy-makers, what they would really like to know is what the *future* demand for skills will be. The long lead times involved in much investment in education and training mean that information is needed on the likely position 5 to 10 years ahead.
- 5.2 Anticipating future skill needs is not a straightforward business. Various approaches to predicting changing skill needs have been developed and used, both in this country and abroad. The consensus is that a combination of quantitative and qualitative methods is needed (Wilson and Lindley, 2005). There is also a consensus that, generally speaking, it is not possible to produce precise projections of skill needs suitable for mechanistic manpower planning. What is feasible is to produce more general assessments of how economic and other factors are likely to influence skill requirements.
- 5.3 Since the publication of *Skills in England 2004*, a number of new assessments of future skill needs have been produced. These include the latest set of *Working Futures* projections produced under the auspices of the SSDA, various forecasts produced by SSCs, as well as a major new long-term review conducted on behalf of the Treasury by Lord Leitch. In addition, the NESS series has from time to time asked questions about employers' perceptions of their future skill needs. All these sources of evidence are reviewed here.
- 5.4 The *Working Futures* series of projections, undertaken for the SSDA, in partnership with the LSC and other bodies, presents the most detailed and comprehensive, quantitative projections of changing employment patterns ever published in the UK. They provide a consistent and systematic assessment covering all parts of the economy. As well as providing considerable industrial detail, these results also include benchmark projections for individual local LSC areas. The main focus is upon the likely patterns of employment by sector and occupation and how these are influenced by changes in the economy and the labour market.
- 5.5 The *Working Futures* series of projections was completely updated in 2006, incorporating for the first time information on qualifications, as well as drawing out implications for the newly formed SSCs. The new set of results looks forward to 2014.

### Macroeconomic Context

- 5.6 The macroeconomic context for the *Working Futures 2004–2014* projections remains one of continued growth with low inflation. Despite the recent economic slowdown, overall levels of output of goods and services in the economy are projected to continue to grow at just under 2.5 per cent per annum over the period to 2014. Inflation is expected to remain low, while sterling is expected to maintain a stable value against the euro. A modest acceleration in public expenditure growth in real terms is projected, while the main tax rates are assumed fixed.
- 5.7 Steady employment growth is projected, with over a million additional jobs in England as a whole (a rate of increase of just under 0.5 per cent per annum). Just over half the additional jobs projected are expected to be taken by women. A significant proportion will be part time in nature.

- 5.8 Unemployment is expected to remain stable, increasing only slightly over the longer term.
- 5.9 Further structural change is expected. Output growth in many sectors, such as most primary industries and much of manufacturing as well as a number of more traditional service sector industries, will be accompanied by continuing job losses.
- 5.10 Primary industries such as agriculture and mining, as well as the utilities (electricity, gas and water), are expected to display relatively modest growth in output (just below 0.75 per cent per annum).
- 5.11 The picture in manufacturing is more varied. On average output growth is expected to grow somewhat more slowly than in the past, averaging just over 1.5 per cent per annum. This average conceals high growth rates in technology and research and development-related industries, while more traditional industries such as textiles, clothing and leather and metals are projected to do less well.
- 5.12 Construction output is projected to grow at just under 1.5 per cent per annum (although this does not take into account the success of the Olympic bid, which is likely to boost these rates slightly).
- 5.13 Output growth is projected to be considerably faster in distribution, transport etc. The transport and communications sector is the main source of this, with communications displaying the strongest growth of any services outside of computing. Distribution and retailing are also expected to grow faster than the average for all industries and services.
- 5.14 Business and miscellaneous services are another part of the economy projected to grow relatively rapidly, at just below 3 per cent per annum over the longer term, with the fastest increases in computers and related services and in other business services.
- 5.15 Non-marketed services, which include education and health and social work, as well as public administration and defence, are forecast to grow by around 2.5 per cent per annum, with the main increases being in health services.
- 5.16 Productivity growth will offset output growth in most sectors. In many parts of the primary and manufacturing sectors this will result in further job losses (see Table 5.1 and Figure 5.1). In most cases the changes in employment projected for 2004 to 2014 are, however, less dramatic than those observed over the previous decade.
- 5.17 In the *Working Futures* projections construction sector employment is projected to stay fairly stable between 2004 and 2014. This reflects significant productivity gains, which offset modest prospects for output growth. Other projections, such as those by ConstructionSkills, suggest a somewhat more optimistic picture in terms of employment growth.
- 5.18 The projected job losses in the primary and manufacturing sectors are expected to be offset by gains in the service sector, where productivity gains are expected to be more modest. The pace, however, of employment growth in services is expected to decelerate compared with the past decade. The largest job gains are expected in business and miscellaneous services.
- 5.19 The distribution, hotels and transport and communications sectors are expected to grow rapidly, especially distribution, which accounts for most of the projected increase of around 445,000 jobs.
- 5.20 A similar increase of around 355,000 additional jobs is projected in non-marketed services, concentrated in education and health services.

- 5.21 These sectoral changes will be a key driver of changing skill needs. Skill requirements will also change within sectors. Together these two factors are projected to result in significant changes in the occupational structure of employment (see Figure 5.2). These changes will require new skills and qualifications from the workforce.
- 5.22 Changes in occupational employment are projected to continue to favour managerial, professional, associate professional and technical and personal service occupations, all of which are expected to experience significant job growth. In combination, these occupations are expected to see an increase of almost 1.6 million jobs over the next decade.
- 5.23 Often these jobs will require high-level formal qualifications (for example, business and public service professionals (and associate professionals), teaching, research and science and technology professionals (and associate professional) and corporate managers).
- 5.24 Some of the most rapid growth is expected for caring personal service and customer service occupations, which are not quite so demanding in terms of levels of formal qualifications required. Other areas of rapid growth are for culture, media and sports occupations.
- 5.25 Job losses are expected amongst administrative, clerical and secretarial occupations, skilled metal and electrical trades, process, plant and machine operatives and elementary occupations, especially those related to clerical and service activities.
- 5.26 The projected net change in occupational employment (*expansion* or *structural demand*) tells only a part of the story. It is crucial to recognise that there will be many job openings, and important education and training requirements, for many occupations where employment levels are projected to fall. These arise because of the need to 'replace' the existing skills that will be 'lost' as a result of retirements and other aspects of the normal process of labour turnover. The scale of replacement demand is projected to substantially outstrip the scale of expansion demand (by a factor of around eight to one). Figure 5.3 illustrates for the nine major occupational groups the expected patterns of 'expansion' or structural demand and total requirements (the sum of replacement demand and expansion demand) across all sectors. The patterns vary considerably across occupations (as well as sectors), but even where substantial structural job losses are projected, the replacement demand elements are usually more than sufficient to offset this. It is essential, therefore, for employers, education and training providers and public agencies to recognise the different characteristics and requirements of these two different components of future skill needs.
- 5.27 Some occupations are projected to experience rapid growth of both expansion and replacement demand. Employers recruiting these occupational groups will face stiff competition and may need to work with providers, as well as themselves engaging in training and recruitment activities in order to ensure that their needs are met.
- 5.28 Somewhat paradoxically, it is in areas where employment is expected to decline that employers may face their greatest challenges. Where employers are laying off workers, meeting replacement demands for those organisations that are continuing in operation can be difficult. The fact that these types of jobs are in decline can discourage new entrants, as well as those displaced from other companies, from taking up such jobs. Meeting such needs can be especially challenging from the points of view both of employers and of education and training providers.
- 5.29 Changes in the industrial composition of employment will also have significant implications for other aspects of employment structure, including the mix of employment by gender and status (see Figure 5.4). This reflects both demand- and supply-side factors, including the greater involvement of women in the formal

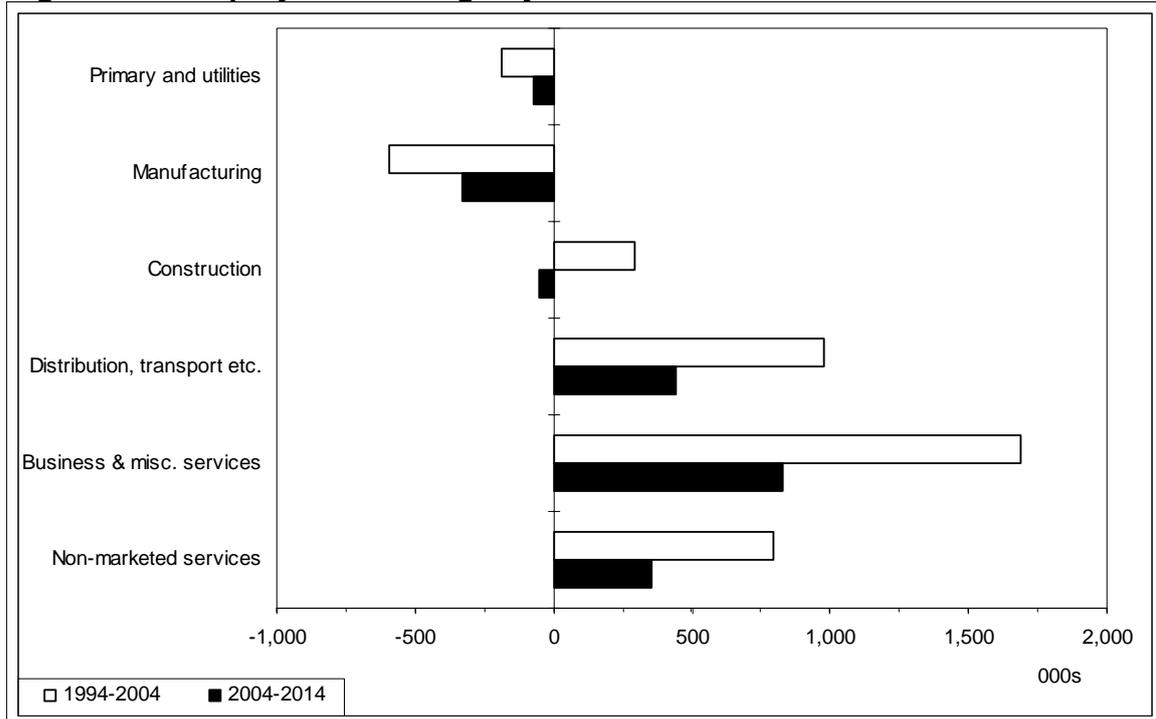
- economy and pressures from both supply and demand sides in favour of more flexible work patterns.
- 5.30 In the past two decades, the decline of employment in the primary and manufacturing sectors has been accompanied by the loss of many full-time jobs, most of which have traditionally been held by men. These trends are projected to continue.
- 5.31 The growth of jobs in the service sector has typically created more opportunities for women, particularly part-time opportunities. But the latest evidence suggests an increasing proportion of men are taking up such jobs. This recent trend is projected to continue.
- 5.32 Changes in the occupational structure are also likely to drive up the demand for formal qualifications. Many of the occupations projected to grow most rapidly are those with high proportions of qualified people typically employed. Those occupations expected to decline tend to have low shares of qualified people.
- 5.33 Employers have been putting increasing emphasis on the importance of generic skills. Analysis of likely changes in key generic and other skill requirements by the SSCs and others also suggest significant changes. Verbal and communication skills (especially among managers), numerical skills (especially among clerical and secretarial occupations) and customer-handling skills (especially amongst sales occupations) are all projected to increase in importance. Key skills such as problem-solving, team working and computing are increasing significantly in many occupations. Changes in autonomy (closeness of supervision) and the training and learning times needed to obtain and effectively discharge a job are also expected to increase in importance. Education courses and training programmes need to reflect the increasing value placed upon such skills by employers.

**Table 5.1: Expected future changes in output and employment by broad sector, 2004 to 2014.**

	Changes 2004 to 2014				Shares of employment in	
	Output (GVA)		Employment		2004	2014
	%	% p.a.	000s	%	%	%
Primary and utilities	7.4	0.7	-71	-15.7	1.8	1.4
Manufacturing	17.0	1.6	-328	-10.9	11.8	10.1
Construction	14.8	1.4	-51	-2.9	6.9	6.4
Distribution, transport etc.	29.4	2.6	445	5.9	29.6	30.0
Business and misc. services	33.7	2.9	826	12.1	26.7	28.6
Non-marketed services	27.7	2.5	355	6.0	23.2	23.5
All industries	26.6	2.4	1,176	4.6	100.0	100.0

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 5.1: Employment change by broad sector.**



**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Notes:** Primary and utilities = agriculture, mining and utilities.

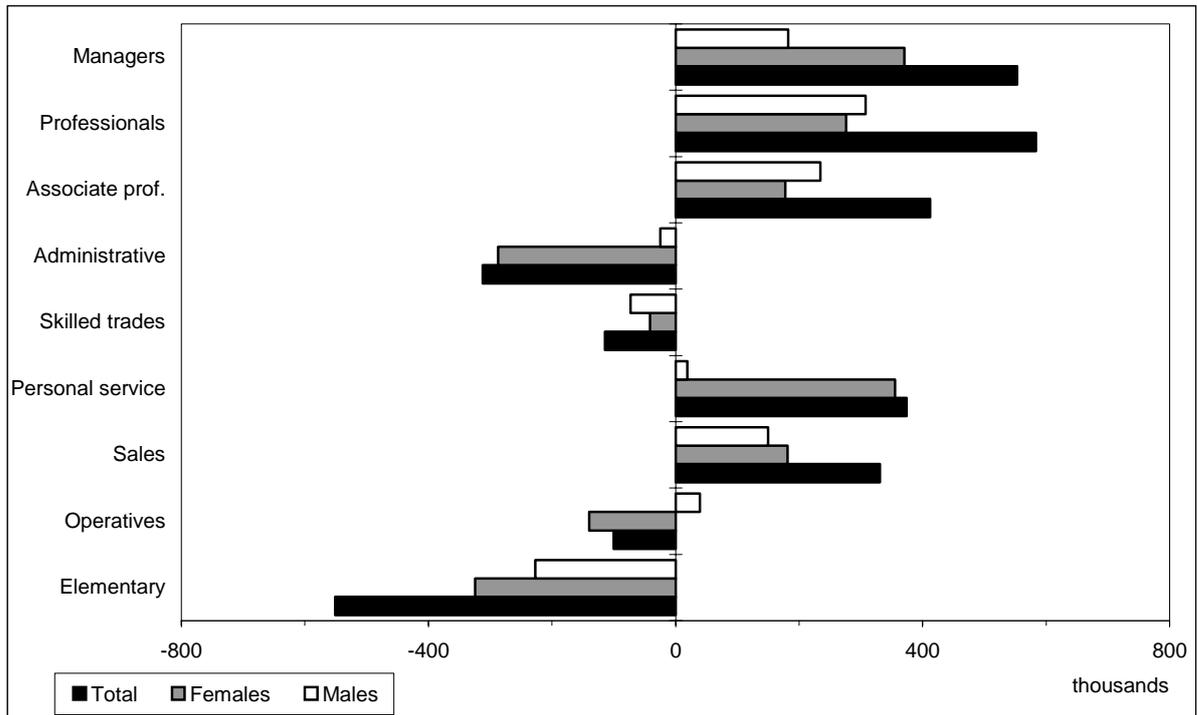
Distribution, etc. = retail and wholesale distribution, hotels and catering, and transport and communications.

Business and misc. = professional services, banking and business services and other personal services.

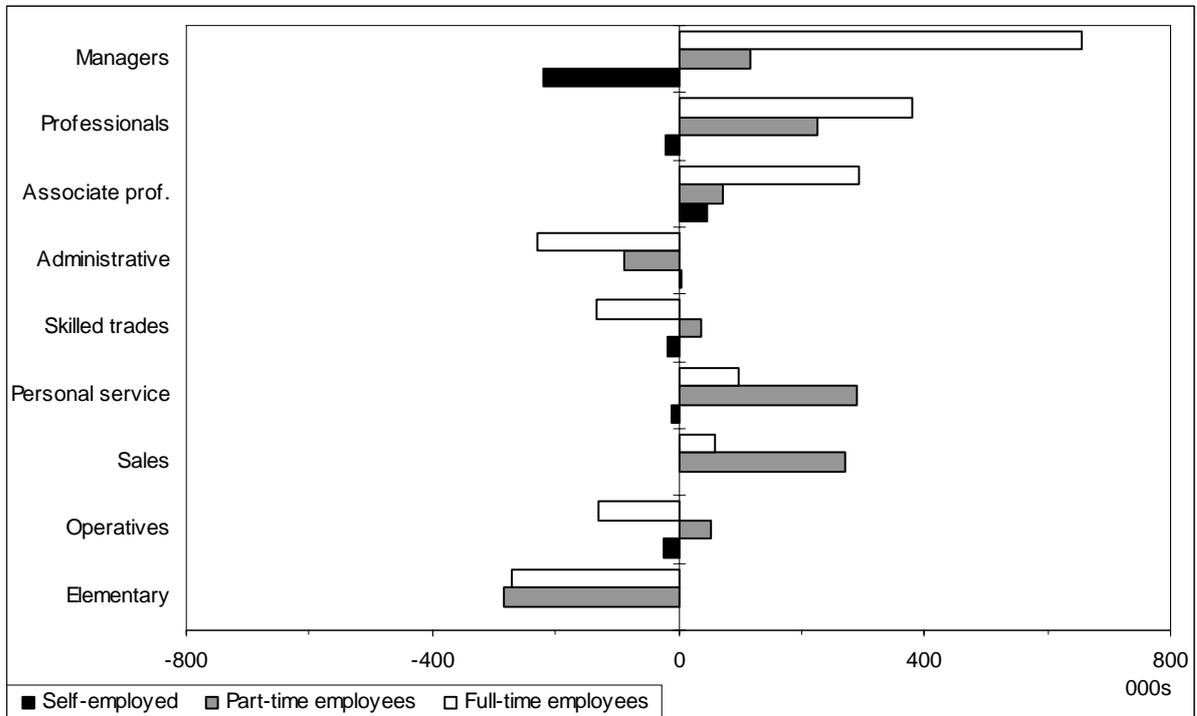
Non-marketed services = health, education, public administration and defence.

**Figure 5.2: Projected occupational change by gender and status.**

**Gender:**

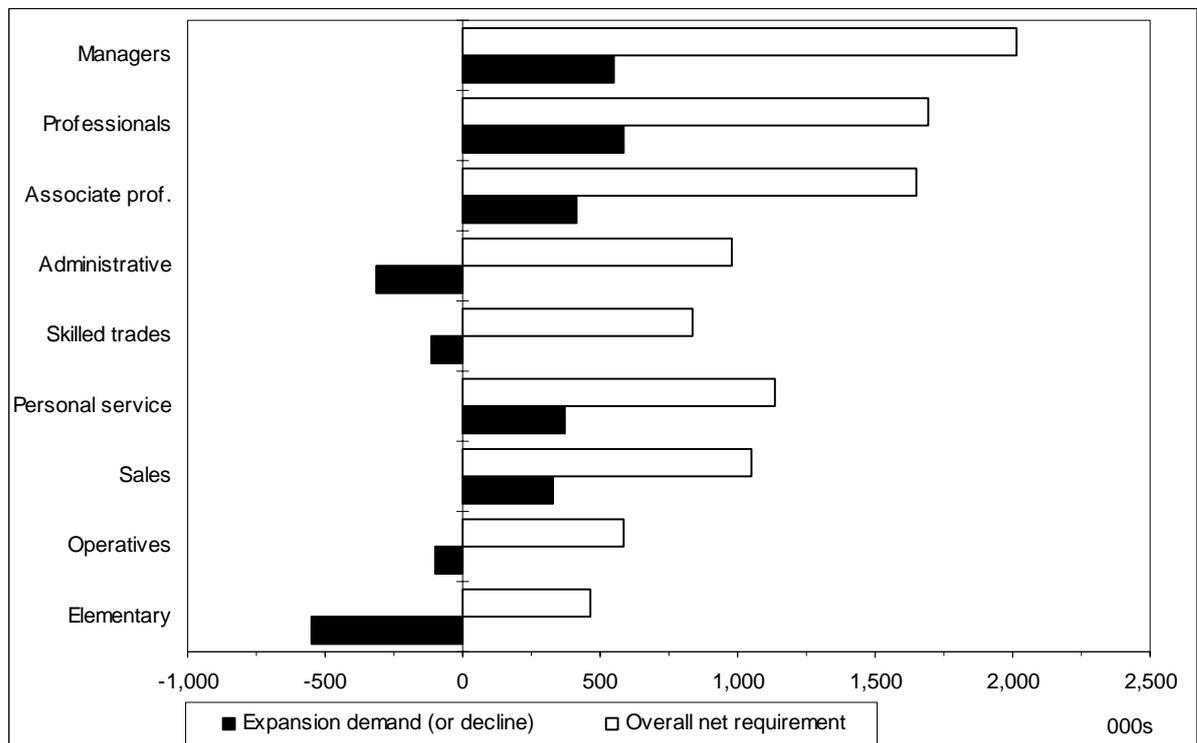


**Status:**



**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 5.3: Net requirements and expansion demand by Standard Occupational Classification major group, 2004–2014.**

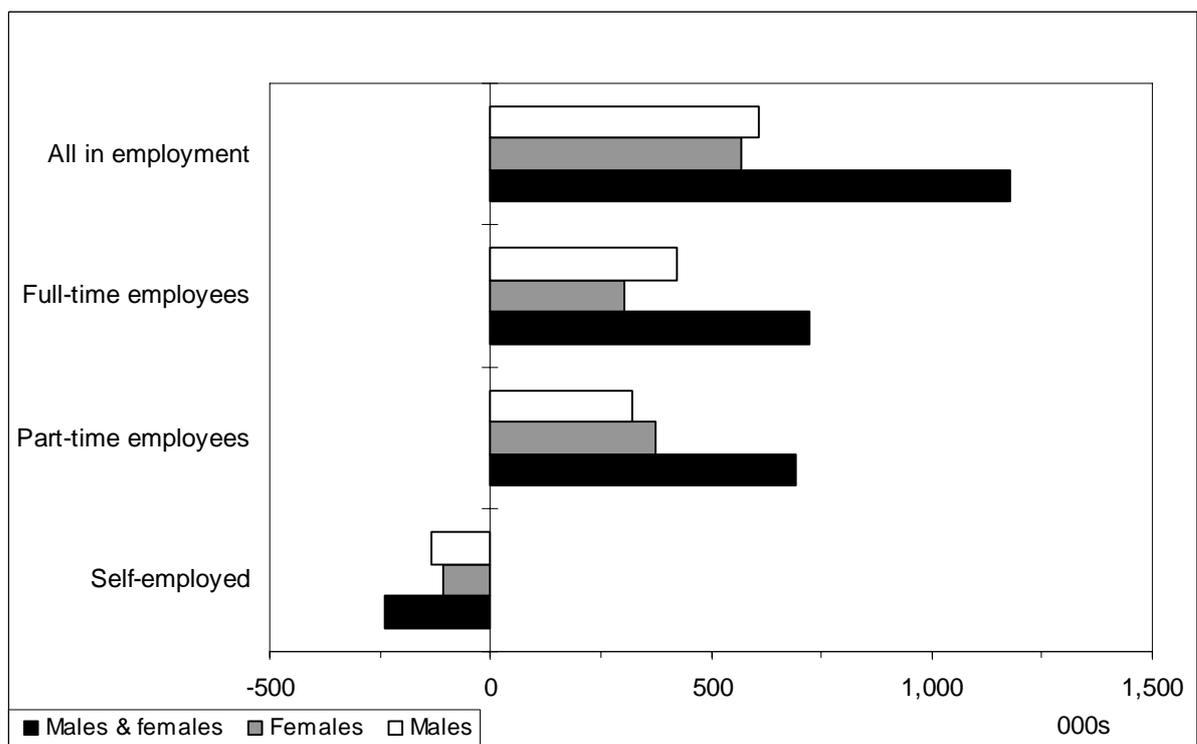


**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Notes:** These estimates do not allow for any losses due to occupational or geographical mobility.

Total requirements = replacement demand plus expansion (or structural) demand.

**Figure 5.4: Changing patterns of employment by gender and status, 2004–2014.**

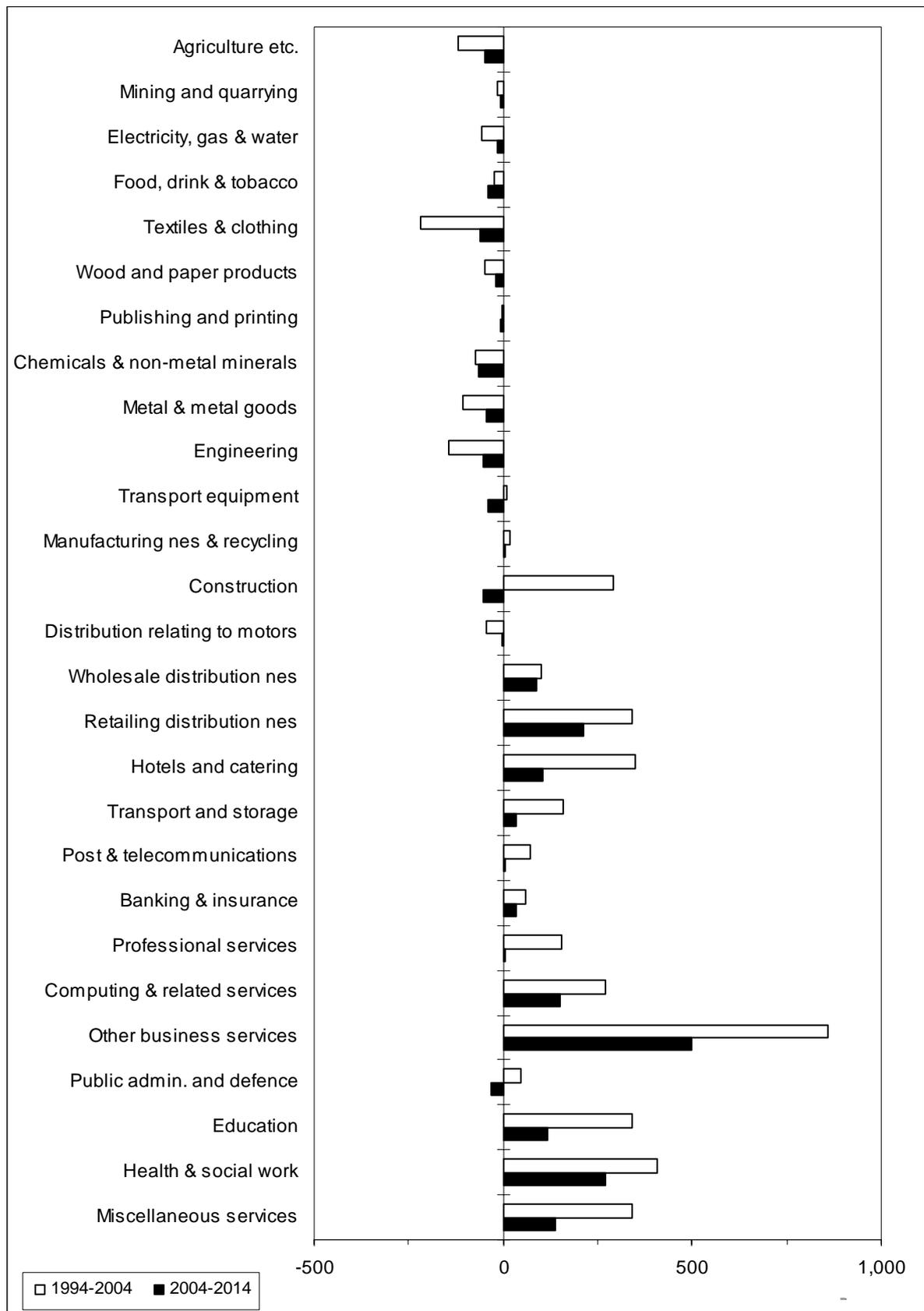


**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

## Prospects for Sectoral Change in Greater Detail

- 5.34 The *Working Futures* projections provide considerable sectoral detail. Figures 5.5 and 5.6 show the changes expected for the 27 sector skills matrix industries (based on Standard Industrial Classification (SIC) definitions and adopted by the LSC and SSDA for more detailed analysis). In addition a new set of results are now available for the industrial footprints covered by the SSCs (see Figures 5.7 and 5.8).
- 5.35 Within manufacturing virtually all industries are projected to experience continued job losses. Engineering (which includes motor vehicles and other transport equipment) is expected to be one of the largest areas of job losses. Metals and mineral products and textiles and clothing are projected to display some of the fastest rates of decline.
- 5.36 Nevertheless, these will remain important areas of employment, contributing a large number of jobs. The replacement demands from such industries will continue to result in significant education and training needs in these areas, as emphasised in the analyses conducted by SEMTA and other SSCs with an interest in this part of the economy.
- 5.37 Services are projected to remain the key source of additional jobs. But in most cases the pace of change is projected to be slower than over the past decade. Computing and related industries is expected to continue to be one of the fastest growing industries, although the rate of growth projected for the next 10 years is less than half that observed over the last decade.
- 5.38 Amongst other services:
- rapid increases are projected in professional services
  - banking and business services and other services are forecast to see more modest increases
  - in non-marketed services all the projected employment growth is accounted for by health and education services
  - public administration and defence is forecast to see small declines in employment.

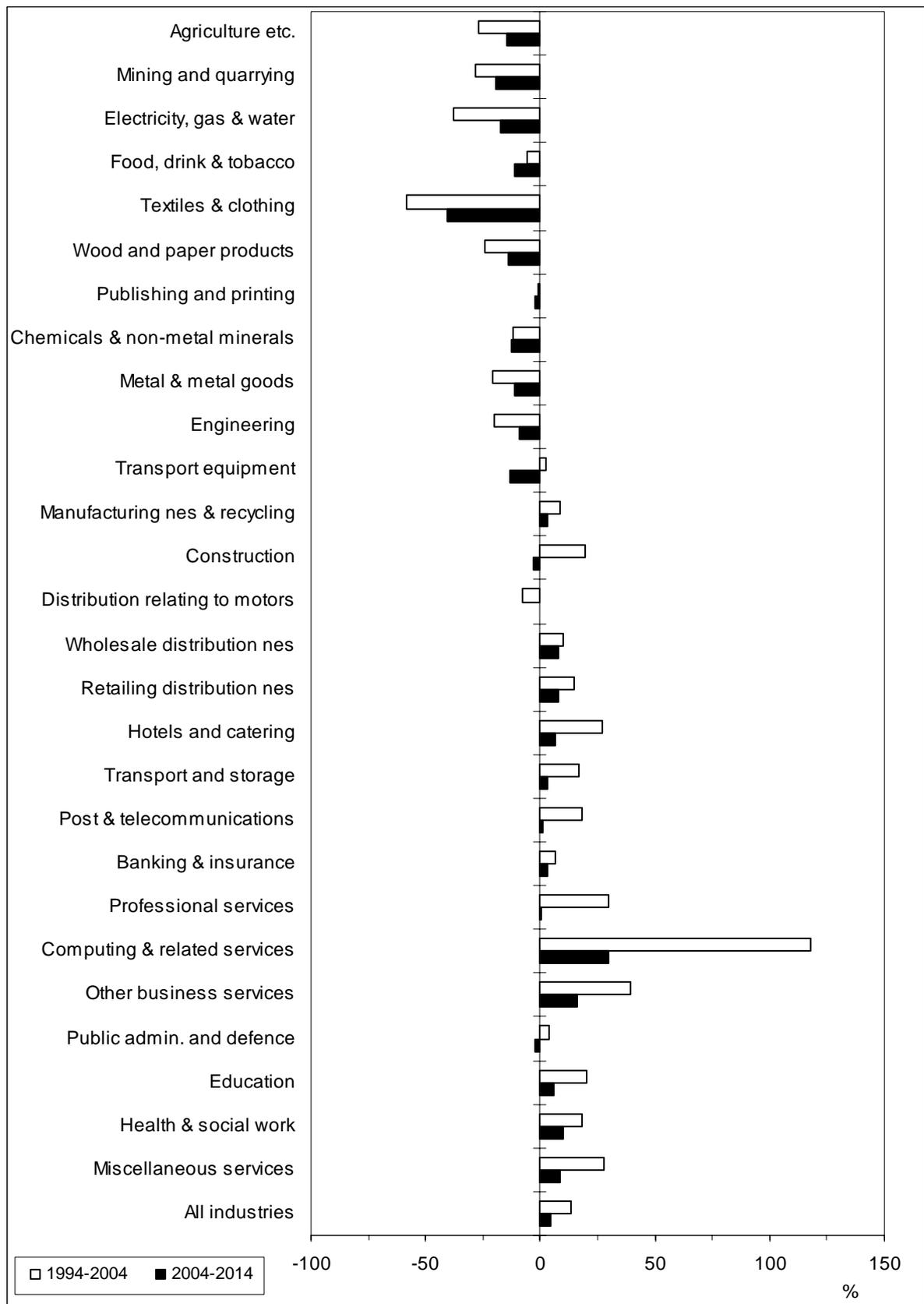
**Figure 5.5: Historical and projected changes in employment by industry, 1994–2004 and 2004–2014.**



**Source:** *Working Futures 2004-2014* (Wilson et al, 2006).

**Note:** The bars show changes in thousands over the periods shown.

**Figure 5.6: Historical and projected rates of change in employment by industry, 1994–2004 and 2004–2014.**



**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** The bars show changes in per cent over the periods shown.

## Prospects for areas covered by sector skills councils

- 5.39 The Skills for Business Network has involved the setting up of a number of SSCs. These organisations are charged with representing the views of employers in the areas they cover on all matters pertaining to skills. Following discussions with the SSDA, 'footprints' for the SSCs based on their coverage in terms of SIC categories have now been agreed. For details see Table A in the Annex.
- 5.40 The new SSC network comprises 25 SSCs with responsibilities for around three-quarters of all employment. A number of the SSCs have been developed from existing organisations and have well-established track records of anticipating changing skill needs. Others represent a new generation, intent on making a difference for the employers they represent. Not all of the latter have yet published formal assessments of future needs. There is not room here to cover all of the work carried out under the auspices of the SSCs. Instead a brief overview for each SSC is provided, with links to their websites where interested readers can find further information.
- 5.41 Generally speaking, historical time series data on employment do not exist for the SSC categories. The detailed results, however, available from the *Working Futures* database, enable an initial assessment to be made of both historical trends and future prospects for these categories. This is produced by combining together the results from the 67 detailed industries which underlie the results presented above. These have the advantage of being based on a consistent assessment, taking into account the situation across all industries simultaneously.
- 5.42 Despite these refinements, the conversion process remains quite crude, especially at a sub-national level. This is necessary in order to achieve a consistent picture across all the other dimensions of employment considered in *Working Futures*. The *Working Futures* database is designed to match headline constraints at regional, sectoral and other levels but cannot replicate every nuance of the Labour Force Survey (LFS). Point estimates based on the LFS for a particular SSC's employment structure will therefore inevitably differ from the detailed estimates presented here.
- 5.43 Moreover, many SSCs have a broader remit than implied by the narrow SSC-based footprint agreed with the SSDA. These differences are highlighted in the subsequent paragraphs, which deal with each of the SSCs in turn. These are based on material drawn directly from the SSDA and SSC websites.
- 5.44 **Lantra** represents 17 industries and professions which can be grouped into 3 areas: land management and production; animal health and welfare; and environmental conservation. Recent research undertaken as part of the development of a sector skills agreement (SSA) suggests that Lantra represents approximately 1 million workers, of whom approximately 40 per cent are employed in agriculture, with a further estimated 500,000 volunteer workers across the sector. The *Working Futures* estimate of its employment footprint is more narrow, at around 450,000. Micro- and owner-managed businesses are predominant in the sector which has approximately 210,000 businesses. Over 90 per cent of the businesses in the sector employ fewer than 10 people. Research for the SSA on current and future skill needs can be viewed at: [www.lantra.co.uk/SSAreports](http://www.lantra.co.uk/SSAreports).

- 5.45 **Cogent** is an independent, employer-led organisation formed when Cogent, the trailblazer SSC for oil and gas extraction, chemicals manufacturing and petroleum industries established in 2002, joined forces with the polymer national training organisation (NTO). The nuclear industry, through the Nuclear Industry Association (NIA) was also actively involved in the development of Cogent. The *Working Futures* estimate of its footprint is around 517,000 people in employment. Cogent's objectives are to:
- improve productivity and business performance through skills development
  - reduce skills gaps and shortages
  - increase opportunities to boost skills and productivity
  - influence skills supply across the spectrum, including apprenticeships, higher education and national occupational standards.

Further information can be found at: [www.cogent-ssc.com](http://www.cogent-ssc.com).

- 5.46 **Proskills UK** is the SSC for the process and manufacturing sector, a major part of the UK economy, This includes building products, coatings, glass, extractives and printing. Proskills UK estimates that it represents 454,000 people in 27,000 companies. The *Working Futures* estimate of its footprint is around 445,000. Some of Proskills UK's companies face stiff competition from overseas, and although employment is projected to be in slight decline, a considerable replacement demand is required, including some skills at higher level. It is proving difficult to fulfil these skill requirements. Further details of their research can be found at: [www.proskills.co.uk](http://www.proskills.co.uk).

- 5.47 **Improve Ltd** is the SSC for food and drink manufacturing, which is the single largest manufacturing sector in the UK. Its vision is to enable the employers it represents to increase profit through skills. Improve Ltd estimates that the sector has an annual turnover of £66 billion and employs 650,000 people in around 7,300 businesses. The *Working Futures* estimate of its footprint is more narrow at around 471,000 employees. To meet demand in the industry, 118,000 new recruits are estimated to be required by 2014 according to *Working Futures*. Improve Ltd has recently completed a research project which has examined the shortage of food scientists and technologists in the industry and it is now moving to develop strategies to resolve the issues identified. Key findings can be downloaded from the research section of their website: [www.improveltd.co.uk](http://www.improveltd.co.uk).

- 5.48 **Skillfast-UK** is the SSC for apparel, footwear, textiles and related businesses. Their aim is to help employers to compete in a global market by ensuring access to a skilled workforce, capable of delivering the added-value products and services the world market requires. It estimates that it represents around 41,000 businesses and approximately 380,000 people. The *Working Futures* estimate of its footprint is more narrow at around 319,000. The sector contributes £10 billion to the economy each year. This SSC is among the second tranche of organisations working towards a sector skills agreement and a skills needs assessment has now been produced for the sector. Further information can be found at: [www.skillfast-uk.org](http://www.skillfast-uk.org).

5.49 **SEMTA** developed out of the Engineering and Marine Training Authority (EMTA). It is responsible for the engineering sector as well as for science and manufacturing technologies generally. It estimates that it covers 100,000 companies employing some 2.5 million people in the UK. The *Working Futures* estimate of its more narrowly based SIC footprint is just over 1.4 million. SEMTA companies provide up to 10 per cent of UK GDP – £74 billion every year – and contribute 33 per cent to total UK exports. SEMTA has produced regular forward assessments of skill needs in the sector. For more information, see: [www.semta.org.uk](http://www.semta.org.uk).

5.50 **Energy & Utility Skills** is the SSC representing the electricity, gas, waste management and water industries. It is estimated that the sector has a turnover of £70 billion, and employs 522,000 people. The *Working Futures* estimate of its footprint is more narrow at around 324,000. The SSC is working with employers in the industries concerned to foresee and address the future skills needs, thereby improving the level of training and skills of those in the sector. Further information can be found at: [www.euskills.co.uk](http://www.euskills.co.uk).

5.51 **ConstructionSkills** is a partnership between CITB-ConstructionSkills, the Construction Industry Council and CITB Northern Ireland and covers the whole of the construction and building industry (excluding electro-technical), from crafts to professions across the whole of the UK. This is one of the largest SSCs in terms of employment coverage. The *Working Futures* estimate of its footprint (see Table 5.2) is around 2 million people in employment. ConstructionSkills conducts regular assessments of future skill needs. It estimates that it will need almost half a million new recruits by 2010, and the traditional pool of white, male school leavers will need to be extended to include more graduates, women, older people and ethnic minorities.

ConstructionSkills has grouped its sector priorities under three skills challenges, to:

- improve the business performance of construction companies
- achieve a fully qualified workforce at all stages of the construction process and throughout the supply chain
- improve the recruitment and retention of well-trained and qualified new entrants by creating a positive image of the industry and providing well-structured progression pathways into and through it.

ConstructionSkills is continuing to develop its labour market intelligence and forecasting capabilities with the launch of the Construction Skills Network. This is a collaborative approach to forecasting that brings together key stakeholders, including Government, the LSC and employers, in the production of iterative and dynamic regional and national forecasts. More information can be found at: [www.constructionskills.net](http://www.constructionskills.net).

5.52 **SummitSkills** is the SSC for the building services engineering sector. It covers electro-technical, heating, ventilation, air-conditioning, refrigeration and plumbing. Across the sector it estimates that there are 51,000 businesses employing 558,000 employees. The *Working Futures* estimate of its footprint is more narrow at around 451,000. Summit Skills is aiming to:

- alleviate skills gaps
- improve productivity
- provide career progression

- develop a competent workforce
- champion the sector's skills agenda.

Additional information can be found at: [www.summitskills.org.uk](http://www.summitskills.org.uk).

5.53 **Automotive Skills** is the SSC responsible for the motor industry. It includes the sale, maintenance and repair of the UK's 32 million vehicles. The sector is dominated by small firms, with more than 87 per cent employing fewer than 10 people. It estimates that it represents over 67,000 firms, with 519,000 workers, excluding Northern Ireland and the self-employed. The *Working Futures* estimate of its employment footprint is around 619,000. For further information see: [www.automotiveskills.org.uk](http://www.automotiveskills.org.uk).

5.54 **Skillsmart Retail** covers the retail sector. It aims to make a difference by:

- bringing retailers together to agree future skills needs
- raising the profile of retail with UK Governments and their agencies to secure funding and support
- working with retailers to attract good people into a career in the retail industry.

A third of all consumer spending goes through retail stores. There are 290,000 retail establishments in the UK, employing 3 million people. Large retailers employ 1.9 million people, accounting for 66 per cent of the sector's turnover. There are an estimated 150,000 sole traders operating in the UK. The *Working Futures* estimate of its employment footprint is over 3 million. Further details about the work of Skillsmart Retail can be found at: [www.skillsmartretail.com](http://www.skillsmartretail.com).

5.55 **People1st** is the SSC covering hospitality, leisure, travel and tourism. The *Working Futures* estimate of its footprint is over 2 million people covered. Its Skills and Labour Market Profile report provides an analysis of the size and scope of the sector, including an analysis of the industries making up the sector as well as differing geographical variations. It also looks in detail at employers' skill needs, including their current skill gaps and shortages. The report also presents a number of key economic indicators comparing the UK with its international competitors. The website for further information is: [www.people1st.co.uk](http://www.people1st.co.uk).

5.56 **GoSkills** is the SSC for passenger transport. Its aim is to assist businesses working in the UK passenger transport sector that are experiencing problems such as employee recruitment and retention and increasing skill shortages. Its objectives are to identify specific training solutions. GoSkills estimates that it represents about 772,000 people in rail, hackney and private hire, bus and coach, aviation, driver training, community transport and transport planning. *Working Futures* takes a more narrow definition of its footprint at around 674,000. The GoSkills SSA identifies emerging skill needs around customer service and driving skills. Communication skills are also becoming increasingly important, but are often industry specific, representing, for example, foreign language skills in aviation and teaching skills for driving instructors. For further information see: [www.goskills.org](http://www.goskills.org).

5.57 **Skills for Logistics** is the SSC responsible for the freight logistics industry, covering moving, handling or storing of goods. Based on employment types there are some 1.7 million logistics employees in the UK in 65,000 firms, but based on firm types there are around 800,000 people employed in purely logistics businesses. This discrepancy arises as many types of company undertake their own logistics operations in-house. The *Working Futures* estimate of its footprint is around 800,000 people in employment. The key objectives of Skills for Logistics are to:

- significantly reduce the light goods vehicle driver shortage
- identify and reduce internal skill gaps
- raise investment in vocational training
- improve productivity through training investment
- address diversity issues in the sector
- improve quality and quantity of learning supply
- improve the image of the logistics industry generally.

For further information see: [www.skillsforlogistics.org](http://www.skillsforlogistics.org).

5.58 **The Financial Services Skills Council (FSSC)** is an independent, employer-led organisation, established in 2004 to provide strategic leadership for education, training and skills development for the UK financial services industry. The FSSC is working closely with employers, education and training providers and Government to increase productivity by ensuring that the industry has the range and level of skills it needs, now and in the future. The FSSC represents more than 35,000 companies which together generate more than 5 per cent of GDP. The sector has a turnover of more than £46 billion each year and the FSSC estimates that it represents more than 1 million people. The *Working Futures* estimate of its footprint is around 1.2 million. Further details about the work of the FSSC can be found at: [www.fssc.org.uk](http://www.fssc.org.uk).

5.59 **Asset Skills** is responsible for property, housing, cleaning and facilities management. It is helping to raise productivity in these areas by driving up standards and skills. It is working with employers, their representative bodies and education and training providers to identify and deliver the right skills to meet the future demands of the sector. Asset Skills estimates that it represents around 121,000 businesses and 803,000 employees. The *Working Futures* estimate of its footprint is slightly larger at around 1 million. It is estimated that the sector accounts for 7 per cent of GDP. Asset Skills has recently conducted employer focus groups on the findings of the *Working Futures*' employment projections. These are reported in its skills needs analysis report which is available from the website at: [www.assetskills.org.uk](http://www.assetskills.org.uk).

5.60 **e-skills UK** acts as the voice of employers on IT, telecoms and contact centres. Its aim is to create the skills environment that businesses need to be productive and competitive. The UK IT industry generates a total gross value-added per job of £30 billion, which is nearly 5 per cent of the economy. It estimates that the total workforce covered is 5.7 per cent of the country's working population (across a range of sectors). The *Working Futures* estimate of its more narrow SIC-based footprint is around 875,000 people in employment. But there are more IT professionals working in non-IT industries than there are working in the industry itself. The *Working Futures* estimate does not take into account this broader IT user remit. Further information can be found at: [www.e-skills.com](http://www.e-skills.com).

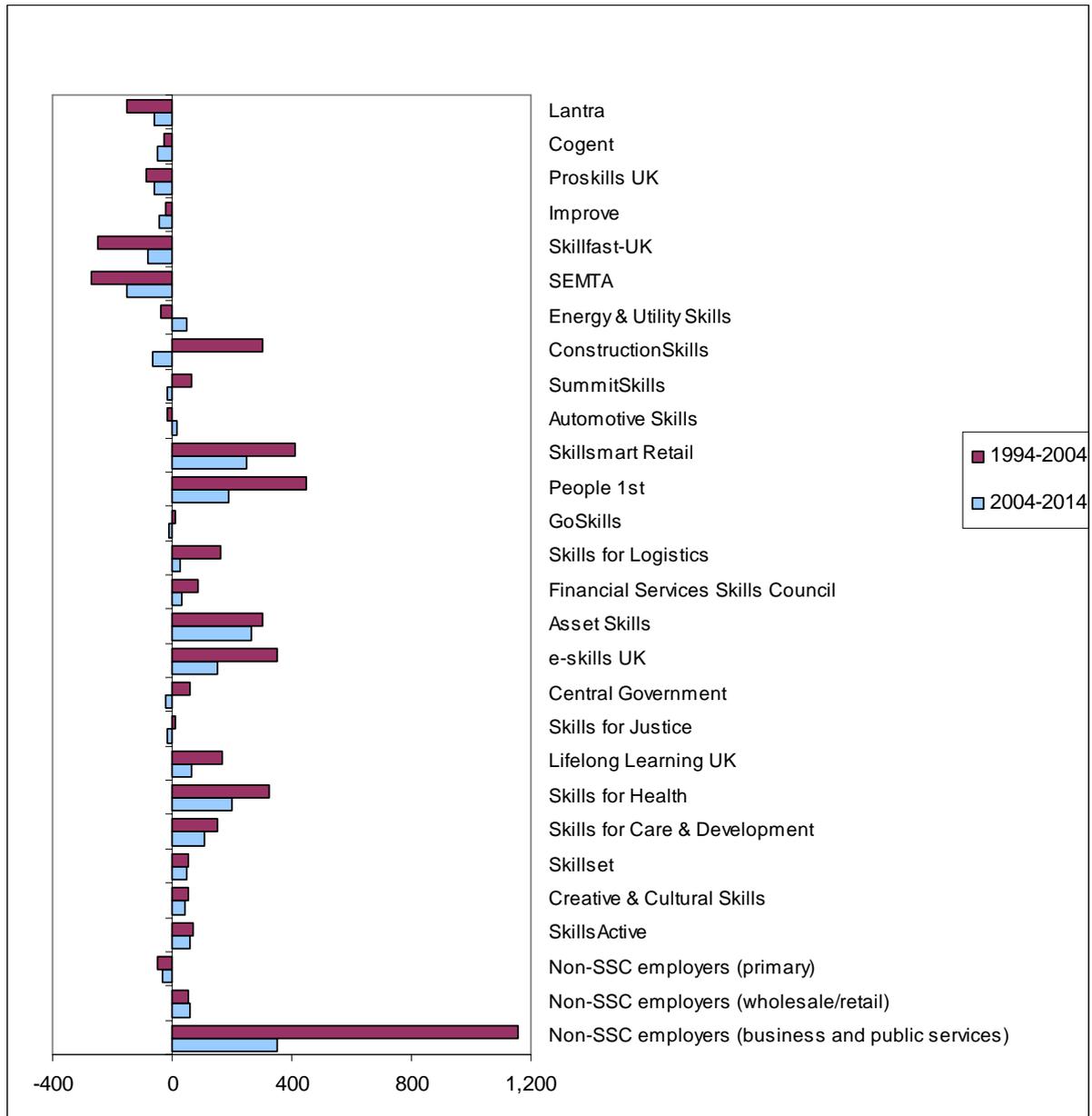
- 5.61 **Government Skills** is the SSC for central Government. It estimates that it covers 776,000 employees in 324 organisations across the UK. This includes all departments and agencies in the Civil Service accounting for 500,000 staff, non-departmental public bodies, the Armed Forces and Ministry of Defence (270,000 staff). The *Working Futures* estimate of its footprint is broader at around 1.2 million. Professional Skills for Government (PSG) will enable staff in all areas of the Civil Service to develop the skills and experience needed to design and deliver appropriate and high-quality services. PSG is a key part of the Government's Delivery and Reform agenda, designed to ensure that civil servants have the right mix of skills and expertise. Further information is available at: [www.civilservice.gov.uk/skills](http://www.civilservice.gov.uk/skills).
- 5.62 **Skills for Justice** provides the support necessary to enable the justice sector to identify its current and future learning needs, to engage more effectively with learning providers in order to meet these needs with high-quality development programmes and to link the acquisition of learning to reputable and valued qualifications. It estimates that it represents around 500,000 employees and volunteers in the UK. The *Working Futures* estimate of its footprint is more narrow at around 369,000. Most staff are employed in the public sector, for example court management, prisons, policing. For additional information see: [www.skillsforjustice.com](http://www.skillsforjustice.com).
- 5.63 **Lifelong Learning UK** is responsible for the professional development of all those working in libraries, archives and information services, work-based learning, HE, FE and community learning and development. The *Working Futures* estimate of its footprint is just under 1 million people in employment. The SSC's mission is to fulfil the needs of employers by developing a skilled workforce and a nationally recognised set of standards and qualifications. The latter should have full employer relevance and ownership and support the delivery of national skills targets. For further information see: [www.lifelonglearninguk.org](http://www.lifelonglearninguk.org).
- 5.64 **Skills for Health (SFH)** is responsible for the UK health sector, representing around 2 million people across a range of public, independent and voluntary organisations. The *Working Futures* estimate of its footprint is similar, suggesting a total employment coverage of 2.047 million in 2004. SFH is working with employers and other stakeholders to ensure that those working in the sector are equipped with the right skills to support the development and delivery of healthcare services. As with many SSCs it provides no training directly but sees education and training providers as its partners. As part of a UK sector skills agreement, the research team at SFH is tasked with workforce modelling over the next 10 years. This modelling is intended to help both drive and deliver benefits to patient care and outcome. For further details see: [www.skillsforhealth.org.uk](http://www.skillsforhealth.org.uk).
- 5.65 **Skills for Care & Development** is the SSC for social care and children's workforces in the UK. It is an alliance of 5 organisations licensed by Government to represent the interests of some 60,000 employers and 2.5 million workers. The *Working Futures* estimate of its footprint is over 1.1 million people in employment. These staff are employed by a range of organisations, both public authorities and independent organisations, often commissioned by the public sector to deliver services but sometimes acting directly for people who receive the services. In all cases, the SSC's drive is for appropriately skilled and qualified workers to meet the nation's current and future social care needs. To this end it is working closely with service users and carers, education and training providers, national stakeholders and the health sector. For further information see: [www.skillsforcareanddevelopment.org.uk](http://www.skillsforcareanddevelopment.org.uk).

- 5.66 **Skillset** is the SSC for the audio-visual industries, which comprise broadcast, film, video, interactive media and photo-imaging. The SSC estimates that there are around 450,000 people working in the audio-visual industries. The *Working Futures* estimate of its footprint is more narrow at around 240,000. The latter excludes interactive media as a discrete sector, freelancers employed on short-term contracts (estimated from previous Skillset research to be 80 per cent of all freelancers), freelancers available to the workforce but not actually employed at any one time and freelancers employed within transient sectors. Skillset's task is to make sure that the UK audio-visual industries have the right people, with the right skills, in the right place, at the right time, so that the sector remains competitive. Skills strategies for sectors within Skillset's remit are downloadable from Skillset's website on a sectoral and national and English regional basis. Each strategy examines skill needs both now and in the future. It explores whether these needs are being met and proposes solutions and recommendations for the future health of the industry. These documents also outline the activity which Skillset, its constituent industries, Government, the public agencies, and training or education providers throughout the UK need to deliver in order to address these issues. In order to access the skills strategies and for more information about Skillset and the audio-visual industries see: [www.skillset.org](http://www.skillset.org).
- 5.67 **Creative & Cultural Skills** is the SSC for advertising, crafts, cultural heritage, design, music, performing, literary and visual arts. It aims to deliver the skills and support that employers, artists and freelancers need and to make Britain a world-class hub of creative enterprise, and diverse cultural industries. The SSC estimates that around 945,000 people work in the industry, which has been growing at twice the rate of the economy as a whole over the past decade. Many of the employees within the sector are self-employed. The *Working Futures* estimate of its footprint is much narrower at around 389,000. Around 17 per cent of businesses in the sector currently say they are suffering from skills shortages. For further details of the work and views of the SSC see: [www.ccskills.org.uk](http://www.ccskills.org.uk).
- 5.68 **SkillsActive** is the SSC for active leisure and learning. SkillsActive is charged with leading the skills and productivity drive within the sport and recreation, health and fitness, playwork, the outdoors and caravan industries. In 2005, SkillsActive commissioned Experian Business Strategies to redefine the sector footprint, and it calculates that UK employment in active leisure and learning totals 576,000. Adding National Caravan Council estimates takes this to 634,000. On this basis the SkillsActive sector has experienced substantial growth, and expects to need an extra 100,000 workers in the next 10 years, plus 85,000 to meet replacement demand. The *Working Futures* estimate of its employment footprint is considerably narrower at around 352,000. Coaching is a key occupation and skill need, particularly in the approach to the 2012 Olympics, and it requires funding support for training. Communications, customer service and technical skills are crucial for the SkillsActive workforce. Further details of the research undertaken by the SSC can be found at: [www.skillsactive.com](http://www.skillsactive.com).
- 5.69 Although not all SSCs have produced formal assessments of future skill needs, the *Working Futures* projections provide for the first time an assessment of prospects for the parts of the economy covered by the 25 SSCs and the other parts of the economy not directly covered by the network. Details are given in the *Working Futures Sectoral Report* (Dickerson et al, 2006). These results are summarised in Figures 5.7 and 5.8. These show the overall changes in employment expected. The results are based on a mapping from detailed SIC categories to the SIC footprints agreed between the SSCs and the SSDA. A set of SIC to SSC converters, which differ for each gender status category, are used based on data from the Annual Business Enquiry (ABI) (for employees) and the LFS (for self-

employment). Some SSCs also define their coverage in terms of an occupational footprint. The results here are based solely on the SIC-based footprint agreed with SSDA that avoids any overlap with other SSCs. These results present a consistent and comprehensive picture across all the SSCs. Many individual SSCs also produce their own projections which may differ from those presented here (for details see the SSC websites referenced above).

- 5.70 The key features of projected employment change across the SSCs are summarised in Figures 5.7 and 5.8 and Table 5.2. More detailed results, including an analysis of occupational changes within the SSCs, can be found in the separate Sectoral volume of *Working Futures* (Dickerson et al, 2006).
- 5.71 In terms of employment coverage, the largest SSCs are ConstructionSkills, Skillsmart Retail, People 1st and Skills for Health, each of which covers over 2 million people (see Table 5.2). A number of other SSCs represent over 1 million people in employment, including SEMTA, which is the largest SSC covering manufacturing type industries.
- 5.72 In terms of changes over the period 2004 to 2014, the prospects for the SSCs are very different. Many of those at the top of the table, which represent industries in the primary and manufacturing sectors, face the problem of sharply declining employment levels, for example, Lantra, Proskills, Skillfast-UK and SEMTA. The problem of falling employment levels is often accompanied (somewhat paradoxically) by problems of skill shortages as older workers leave the sectors concerned and employers find it difficult to recruit new entrants. These issues are discussed and the detailed implications for occupations and replacement needs for the SSCs are set out in the *Working Futures Sectoral Report* (Dickerson et al, 2006).
- 5.73 Other SSCs such as Asset Skills, e-skills and Skillset face rather different problems. Here employment levels are projected to rise, in some cases quite rapidly. This is likely to lead to sharp increases in the demand for certain skills, which the SSCs, in collaboration with others, will need to address.
- 5.74 Comparing these projections with those produced by the SSCs themselves is not a straightforward task. The results may differ for a whole host of reasons. These issues are discussed in more detail in the *Working Futures National Report* (Wilson et al, 2005).

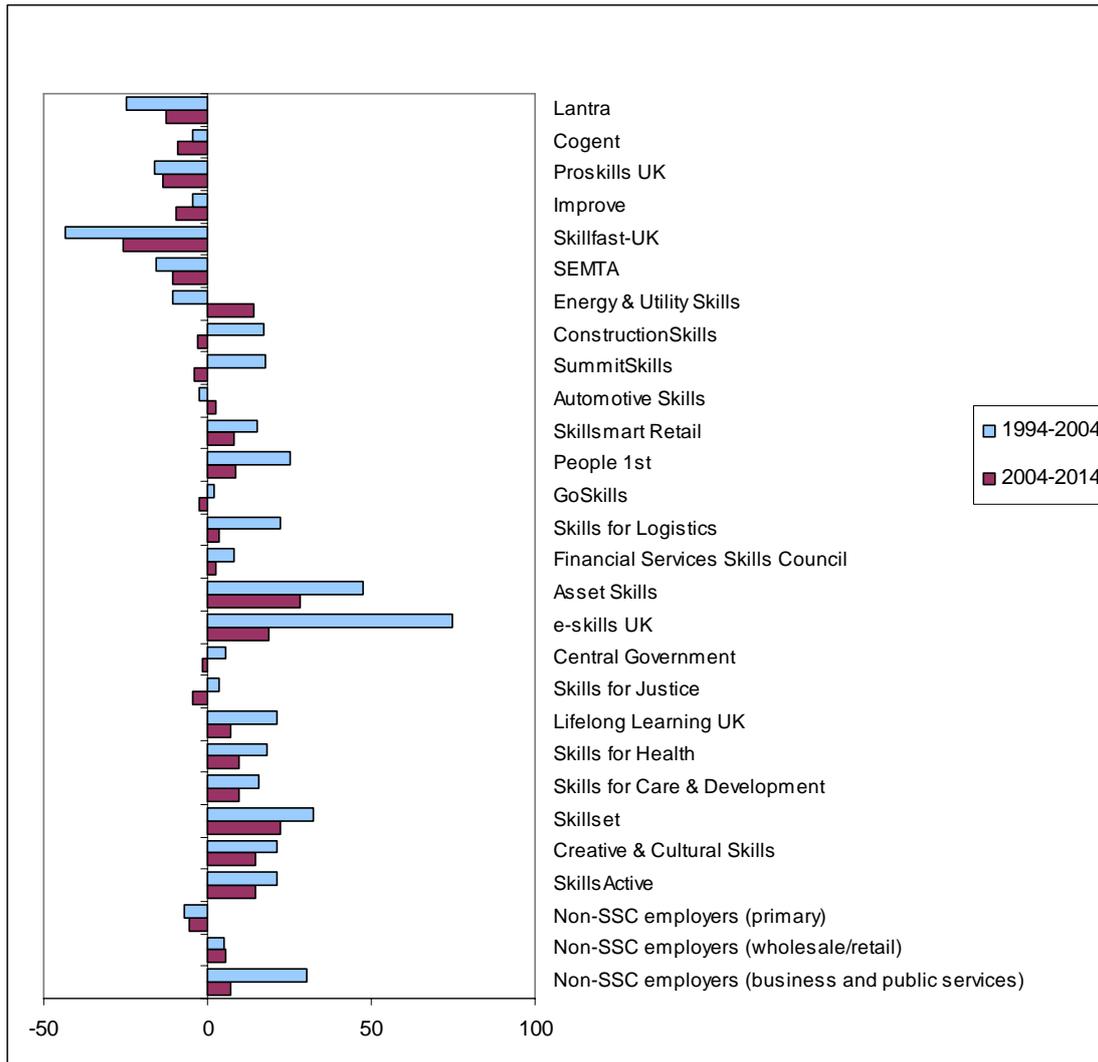
**Figure 5.7: Historical and projected changes in employment by sector skills council sector, 1994–2004 and 2004–2014.**



**Source:** *Working Futures 2004–2014* (Dickerson et al, 2006).

**Notes:** The bars show changes in thousands over the periods shown. Note that, in contrast to most figures and tables in this report, these are for the whole of the UK.

**Figure 5.8: Historical and projected rates of change in employment by sector skills council sector, 1994–2004 and 2004–2014.**



**Source:** *Working Futures 2004–2014* (Dickerson et al, 2006).

**Notes:** The bars show changes in per cent over the periods shown. Note that, in contrast to most figures and tables in this report, these are for the whole of the UK.

**Table 5.2: Projections of employment by sector skills council sector.**

Absolute levels and changes (000s)

	Levels			Changes		
	2004	2009	2014	2004–09	2009–14	2004–14
Lantra	451	421	387	-30	-34	-64
Cogent	517	498	471	-19	-27	-46
Proskills UK	445	418	390	-27	-28	-55
Improve Ltd	471	449	426	-22	-23	-45
Skillfast-UK	319	276	262	-43	-15	-57
SEMTA	1,443	1,374	1,293	-69	-81	-150
Energy & Utility Skills	324	319	314	-5	-5	-10
ConstructionSkills	2,073	2,057	2,056	-16	0	-17
SummitSkills	451	439	430	-11	-9	-21
Automotive Skills	619	609	607	-10	-3	-13
Skillsmart Retail	3,095	3,215	3,351	119	136	255
People 1st	2,186	2,272	2,351	86	78	164
GoSkills	674	665	668	-9	3	-6
Skills for Logistics	800	786	791	-13	5	-8
Financial Services Skills Council	1,162	1,190	1,194	29	3	32
Asset Skills	1,005	1,054	1,132	48	79	127
e-skills UK	875	950	1,080	76	130	205
Central Government	1,166	1,164	1,147	-3	-17	-19
Skills for Justice	369	363	353	-6	-10	-16
Lifelong Learning UK	965	997	1,025	31	28	59
Skills for Health	2,047	2,165	2,250	118	85	203
Skills for Care & Development	1,140	1,202	1,246	63	43	106
Skillset	240	262	287	22	24	46
Creative & Cultural Skills	389	420	448	31	27	58
SkillsActive	352	368	391	16	23	39
Non-SSC employers (Primary)	612	600	579	-12	-21	-33
Non-SSC employers (Wholesale/retail)	1,121	1,150	1,194	29	45	73
Non-SSC employers (Business and public services)	4,788	5,019	5,278	231	258	489
Total	30,099	30,705	31,399	605	695	1,300

**Source:** *Working Futures 2004–2014* (Dickerson et al, 2006).**Notes:** (a) Based on a conversion from SIC categories using separate converters for each gender status category. (b) The SIC 'footprints' used are as defined in Table A in the Annex. Note that, in contrast to most tables in this report, these are for the whole of the UK.

## Detailed Occupational Prospects

- 5.75 The *Working Futures 2004–2014* projections confirm that the economy is continuing to experience significant changes in the occupational structure of employment. Further changes are projected over the coming decade. These will favour certain higher level occupations, as well as a number of personal and customer-care related jobs, at the expense of many traditional skilled and semi-skilled trades.
- 5.76 The main driving forces are shifts in the patterns of demand for the goods and services produced by different sectors, as a result of changing patterns of demand from consumers and others. These changes also reflect shifting patterns of national competitive advantage resulting from technological change and other changes in the way that work is organised, including the increasing competition from Asia.
- 5.77 The changes in sectoral employment structure are expected to be reinforced by changes in the nature of many jobs within particular sectors. Many companies will be restructuring the way that work is organised and making changes in response to technological innovation, especially related to IT. The application of IT and its integration with communication technology is now having a substantial effect on many traditional clerical and secretarial jobs. But the increased emphasis on information handling jobs at other levels is tending to offset this.
- 5.78 Together, these factors will continue to alter the mix of skills that are required in order to produce the changing patterns of output and services demanded. Technological change and pressures from international competition are expected to lead to the continued loss of job opportunities for many skilled craft workers and for transport and machine operatives in manufacturing.
- 5.79 The continued advance of ICT-based technologies is also expected to displace many skilled manual workers in manufacturing, where many jobs have already been taken over by computer-controlled machinery and robots.
- 5.80 But substantial growth in the number of jobs for many professional, managerial and clerical workers (including doctors, nurses and teachers) will arise in the public services sector. Within the private service sector, the emphasis is more on leisure, culture, media and sports occupations, other personal service occupations, sales occupations and on business services professional and associate professional jobs.
- 5.81 The latest projections for the 25 SOC sub-major occupational groups suggest continuing rapid employment growth for managers and for sales and service occupations, offset by expected declines for administrative, clerical and secretarial occupations and many skilled trades.
- 5.82 New technologies also result in the need for new skills to manage, and operate and maintain ICT and related equipment and increasing employment for occupations such as managers, professionals and associate professionals (including technicians).
- 5.83 ICT is also resulting in new products and services which will create many new jobs of a professional, associate professional and managerial nature.
- 5.84 Flexibility and further skill development while on the job remain the catchword in order to adapt to the rapidly evolving labour market requirements of ICT developments.

5.85 Detailed occupational projections for the 25 sub-major occupational groups are presented in Table 5.3 and Figure 5.9. These highlight that the largest employment increases are expected for:

- managers
- caring personal service occupations.

5.86 Substantial increases are also projected for:

- teaching and research professionals
- science and technology professionals
- business and public service professionals
- business and public service associate professionals
- culture, media and sports occupations
- sales occupations
- customer service occupations.

These 9 groups account for the growth of over 2 million jobs over the period 2004 to 2014.

5.87 Job losses will be concentrated amongst administrative, clerical and various blue-collar jobs, including:

- administrative and clerical occupations
- secretarial and related occupations
- skilled metal and electrical trades
- other skilled trades
- process, plant and machine operatives
- elementary occupations.

5.88 Corporate managers will remain by far the largest occupational category, alone accounting for over 3.5 million jobs in 2014. It is expected that administrative and clerical occupations, clerical and services-related elementary occupations, caring personal service occupations, sales occupations, business and public service professionals and business and public service associate professionals will remain the most significant areas of employment (despite job losses for some of these groups). These seven occupational groups are projected to account for well over half of all jobs in 2014.

## Polarisation of Occupational Structure

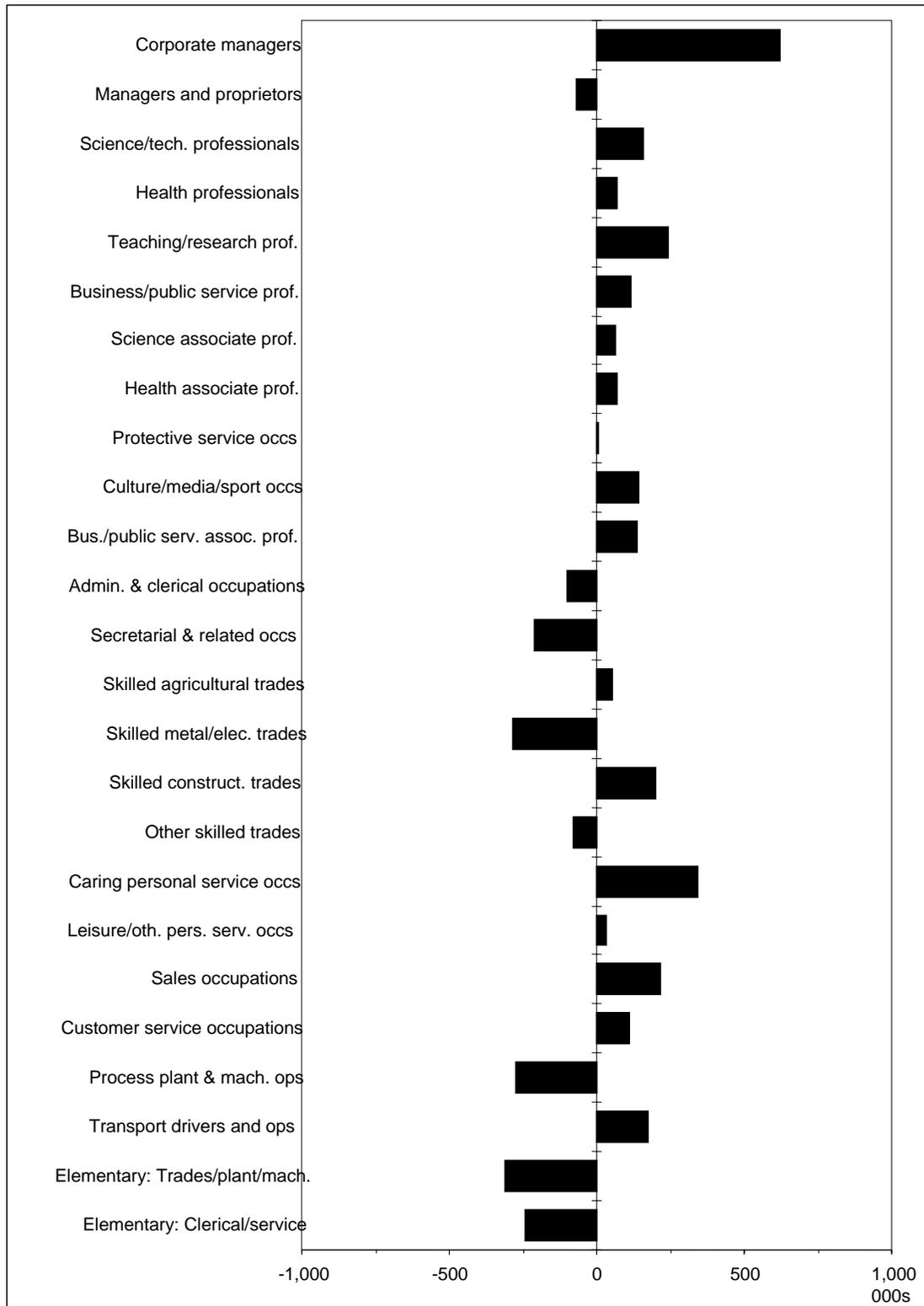
- 5.89 As noted in Section 2, there is an increasing polarisation of jobs occurring, with a shift towards an 'hour glass' shaped labour market, with many job opportunities at both the top and bottom of the skills spectrum, at the expense of the middle. It is important not to exaggerate this trend and to recognise that there will still be a large number of jobs at the middle level. These will typically require NQF qualifications at Level 3, with strong replacement requirements as the present workforce ages.
- 5.90 The reasons for this polarisation are complex and reflect the process of structural change which is being driven by technology and competitive pressures. Researchers such as Goos and Manning (2003) have suggested that occupational structure is becoming more polarised because technological change is biased in favour of high-skilled rather than low-skilled jobs. New machinery and equipment can more readily substitute for low-skilled jobs than for high-skilled ones (in which tasks are less easily automated).
- 5.91 Social polarisation and exclusion are two of the key threats facing the economy and labour market. Social division can result in a breakdown in social and political order, with severe economic consequences. Ideally societies achieve a balance between wealth creation and social cohesion. The best guarantee of inclusion is employment. But poor jobs, with low skills, low pay and low esteem, can pose almost as many problems as no jobs.
- 5.92 While many will undoubtedly benefit from expected future economic and technological developments, there is a danger that such change will polarise society into gainers and losers.
- 5.93 Ensuring that people acquire qualifications and skills as part of their formal education can be a key element in addressing problems of poorly developed basic skills, unemployment and social exclusion. Research on Government-funded training programmes indicates that they tend to have only modest success at producing qualifications or employment outcomes for those currently out of work. But formal education is not the only way in which people acquire skills. There will be a growing need to train and re-train the adult workforce after the normal period of formal education.
- 5.94 The high proportion of those with no formal qualifications, or lacking basic skills, raises important issues regarding the benefits to society that can arise from eradicating these deficiencies in the population. Those who fall foul of the law often have low skills, low incomes and are frequently unemployed. Equipping such people with basic skills can prove a key element in improving their employability and reducing probabilities of offending. Investment in skills can play a key role in improving social welfare and cohesion.
- 5.95 Another key dimension of polarisation is geography. There are significant geographical disparities within England. London and the South East continue to outperform the rest of the economy in terms of most key economic indicators such as output productivity and employment. There are even more significant differences within regions. These are associated with sectoral structures, but also have a strong geographical element.

**Table 5.3: Projected occupational change, Standard Occupation Classification sub-major group, 2004–2014.**

	2004	2014	Change 2004–2014		% shares	
	000s	000s	000s	%	2004	2014
Corporate managers	3,071	3,692	620	20.2	12.0	13.8
Managers and proprietors	954	887	-67	-7.1	3.7	3.3
Science/tech. professionals	840	998	158	18.9	3.3	3.7
Health professionals	237	308	71	29.8	0.9	1.2
Teaching/research prof.	1,211	1,452	241	19.9	4.7	5.4
Business/public service prof.	714	828	114	15.9	2.8	3.1
Science associate prof.	518	581	63	12.2	2.0	2.2
Health associate prof.	885	953	68	7.7	3.5	3.6
Protective service occs	336	338	3	0.8	1.3	1.3
Culture/media/sport occs	582	724	142	24.5	2.3	2.7
Bus./public serv. assoc. prof.	1,364	1,500	136	10.0	5.3	5.6
Admin and clerical occupations	2,402	2,302	-100	-4.2	9.4	8.6
Secretarial and related occs	805	593	-212	-26.4	3.2	2.2
Skilled agricultural trades	292	342	50	17.3	1.1	1.3
Skilled metal/elec. trades	1,069	784	-285	-26.7	4.2	2.9
Skilled construct. trades	985	1,185	199	20.2	3.9	4.4
Other skilled trades	536	457	-79	-14.7	2.1	1.7
Caring personal service occs	1,431	1,772	340	23.8	5.6	6.6
Leisure/oth. pers. serv. occs	468	502	34	7.3	1.8	1.9
Sales occupations	1,680	1,898	218	13.0	6.6	7.1
Customer service occupations	361	474	113	31.3	1.4	1.8
Process plant and mach ops	1,029	756	-274	-26.6	4.0	2.8
Transport drivers and ops	938	1,112	174	18.5	3.7	4.2
Elementary: trades/plant/mach.	852	541	-312	-36.6	3.3	2.0
Elementary: clerical/service	1,956	1,717	-240	-12.2	7.7	6.4
All occupations	25,517	26,694	1,176	4.6	100.0	100.0

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Figure 5.9: Projected occupational change by Standard Occupation Classification sub-major group, 2004–2014.**



Source: *Working Futures 2004–2014* (Wilson et al, 2006).

## Prospects by Detailed Occupation Within Sectors

- 5.96 The *Working Futures* projections also make possible a more detailed examination of occupational trends within sectors. Table 5.4 provides some further insights into how the importance of different occupational categories varies across individual industries, as well as making it possible to identify those that are growing or declining most rapidly.
- 5.97 In many respects the overall patterns of change are similar across sectors. But the different economic prospects for the sectors, together with their different existing occupational employment structures, result in substantial variations in the projected changes. Table 5.4 provides an overview of this more complex picture. Shading and use of + and – signs in the cells helps to highlight which occupations are numerically important in different industries, as well as which are growing or developing most rapidly. The shaded cells within the main body of the table indicate employment of 25,000 or more in 2004 or 2014. Shading of row and column headers indicates changes for the sector or occupation as a whole.
- 5.98 The patterns illustrate the importance of the service sector in terms of providing jobs across the occupational spectrum. The + signs indicate rates of growth of employment in excess of 20 per cent over the period 2004 to 2014. A few occupations are expected to achieve this in almost every sector (customer services occupations (SOC 72)). Rapid job losses in excess of 20 per cent, indicated by the ‘–’ sign, are concentrated among low and unskilled occupations (SOCs 81, 91 and 92) in many sectors.

**Table 5.4: Projected changes in occupational structure by Sector Skills Development Agency sector skills matrix industries, 2004–2014.**

	Sub-major groups																								
	11	12	21	22	23	24	31	32	33	34	35	41	42	51	52	53	54	61	62	71	72	81	82	91	92
Agriculture etc.																									
Mining and quarrying																									
Food, drink and tobacco			-				-		-	+			-			-					+	-		-	-
Textiles and clothing			-	-		-		-	-	+			-		-		-	+			+	-		-	-
Wood and paper products										+		-	-	+		+				-		-	+	-	-
Publishing and printing	-	-			-	-		-	-		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
Chemicals and non-metal minerals				+					-				-	+	-		-					-		-	-
Metal and metal goods	+		+	+						+		-	-			+	-	-		-	-		+	-	-
Engineering										+					-		-				+	-		-	-
Transport equipment								+	-	+					-	+					+	-		-	-
Manufacturing nes and recycling															-	+	+	-			+	+	-	-	-
Electricity, gas and water				+					-						-		-		+	+	+	-	-	-	-
Construction			+	+						+		-	-	+		+	-					-	+	-	-
Distribution relating to motors					-			-	-			-	-		-		-	-	-	+		-		-	-
Wholesale distribution nes													-		-		-		+		+	-	-	-	-
Retailing distribution nes		-											-	+	-	+		+			+		+	-	-
Hotels and catering			+	+			+						-	+		+		+			+		+		-
Transport and storage	+			+	+	+				+			-	+		+		+	+		+		+	-	-
Post and telecommunications			+	+	+	+	+	+	+	+				+		+		+	+	+	+		+		-
Banking and insurance	+			+	+			+		+		+			-	+		+	+	+	+	-		-	-
Professional services										+				+	-	+			+	+	+	-	+	-	-
Computing and related services	+		+	+	+			+		+			-			+		+			+	-		-	-
Other business services				+									-	+	-	+	-	+			+	-	+	-	-
Public admin and defence	+		+	+	+	+	+	+			+	+		+				+	+	+	+		+	-	+
Education	+		+	+	+	+	+			+	+		-	+		+		+		+	+		+	-	-
Health and social work					+					+			-		-	+	-	+				-		-	-
Miscellaneous services				+								-	-			+	-					-		-	-

- Level of employment in 2004 and/or 2014 is 25,000 or greater.
- +** Growth in employment between 2004 and 2014 is forecast to be 20% or greater.
- Growth in employment between 2004 and 2014 is forecast to be -20% or less.
- Growth in employment in the sector or the occupation between 2004 and 2014 is forecast to be 10% or greater.
- Growth in employment in the sector or the occupation between 2004 and 2014 is forecast to be -10% or less.

## Replacement Demand by Detailed Occupation and Sector

- 5.99 Projected changes in the level of employment may give a misleading impression of priorities for education and training. It is also important to consider replacement demands. These reflect the need to replace those leaving the workforce principally because of retirement. By combining replacement demands with the projected structural or 'expansion' demand, an estimate of the overall net requirement for each occupation can be obtained.
- 5.100 Results for each of the 25 occupational sub-major groups are set out in Table 5.5 and Figure 5.10. This information relates to the whole of England. Replacement demands outweigh the net projected decline in all occupations where job losses are expected. Between 2004 and 2014 there is expected to be an overall requirement of some 10.5 million new job openings. Retirements from the workforce are the main component of replacement demands.
- 5.101 Even in occupations such as administrative and clerical occupations, secretarial and related occupations, skilled metal and electrical trades (as well as other skilled trades), process plant and machine operatives and elementary occupations, total requirements are strongly positive despite negative expansion demand. In other cases, expected retirements will add to positive expansion demand to create even higher overall requirements for new entrants to these occupations.

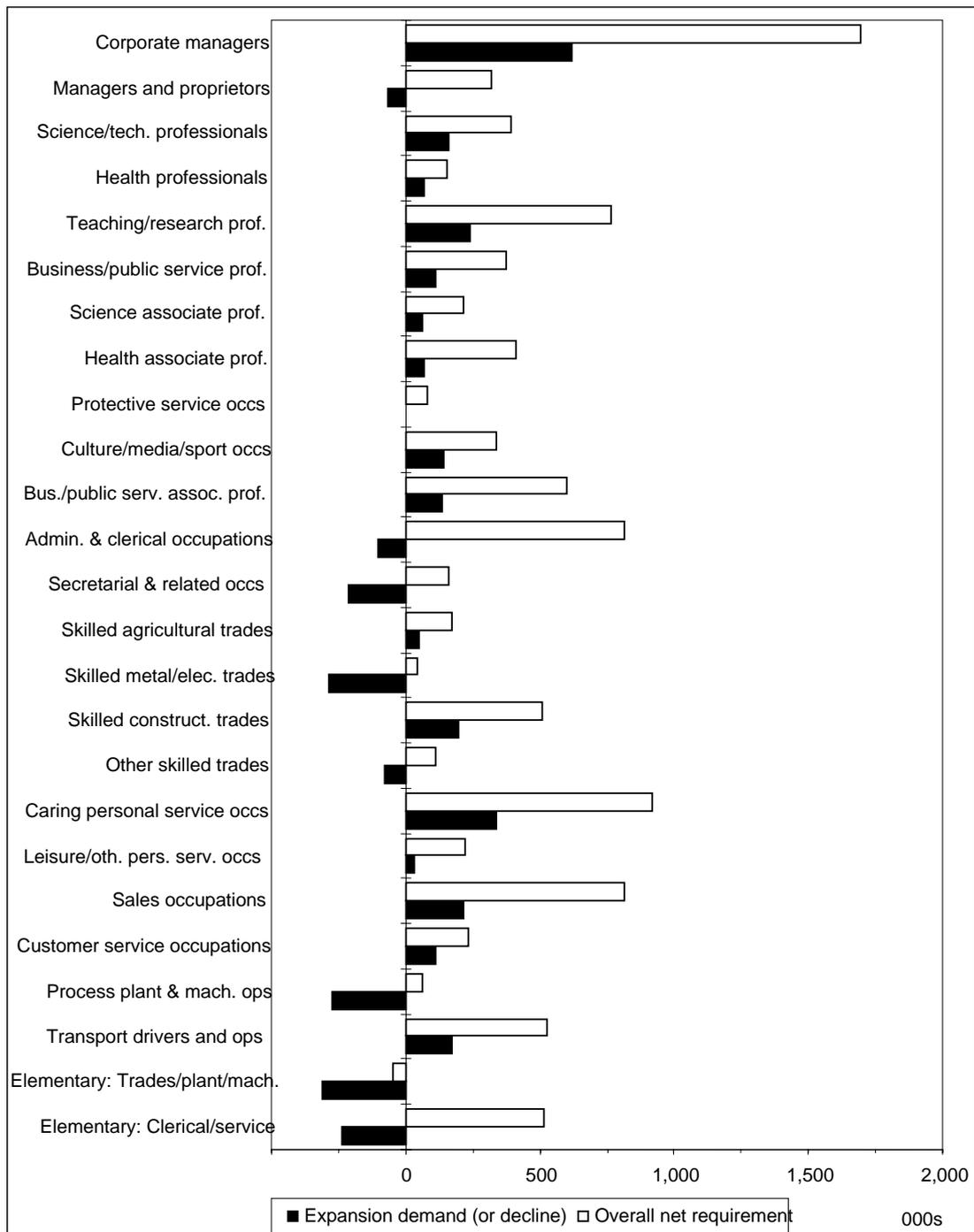
**Table 5.5: Replacement demand by Standard Occupation Classification sub-major group, 2004–2014.**

	(1)	(2)	000s (3)
	Expansion demand (or decline)	Replacement and mortality	Overall net requirement (1)+(2)
Corporate managers	620	1,074	1,694
Managers and proprietors	-67	384	316
Science/tech. professionals	158	236	394
Health professionals	71	86	156
Teaching/research prof.	241	523	764
Business/public service prof.	114	261	375
Science associate prof.	63	154	217
Health associate prof.	68	344	412
Protective service occs	3	80	83
Culture/media/sport occs	142	194	337
Bus./public serv. assoc prof.	136	462	598
Admin. and clerical occupations	-100	915	816
Secretarial and related occs	-212	374	161
Skilled agricultural trades	50	124	174
Skilled metal/elec. trades	-285	328	43
Skilled construct. trades	199	310	509
Other skilled trades	-79	189	110
Caring personal service occs	340	576	917
Leisure/oth. pers. serv. occs	34	187	221
Sales occupations	218	599	817
Customer service occupations	113	119	232
Process plant and mach. ops	-274	334	60
Transport drivers and ops	174	355	529
Elementary: trades/plant/mach.	-312	264	-48
Elementary: clerical/service	-240	754	514
All occupations	1,176	9,225	10,402

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** These estimates do not allow for any losses due to occupational or geographical mobility.

**Figure 5.10: Net requirements and expansion demand by Standard Occupation Classification 2000 sub-major group, 2004–2014.**



**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Notes:** These estimates do not allow for any losses due to occupational or geographical mobility. Total net requirements = replacement demand plus expansion (or structural) demand.

- 5.102 In principle, replacement demands will vary across regions and sectors depending upon the gender and age structures of their workforces as well as variations in the rates of flows, including geographical and other mobility flows. In practice, measuring these is far from straightforward. Currently, the estimates of age structures and rates of flows are based on the LFS. While this is adequate to generate reasonably robust estimates at national level, the sample size is too small to produce meaningful estimates consistently differentiated by sector or by region. The estimates here are therefore based on the same assumptions about age structures and flow rates as at national (UK) level.
- 5.103 Nevertheless, such benchmark estimates are useful in emphasising that, even for sectors (and regions) where quite sharp employment losses are projected, replacement demands are likely to be more than sufficient to outweigh these trends. Table 5.6 presents corresponding estimates to those in Table 5.5 but for 16 broad sectors. Regional results are presented at the end of this section.
- 5.104 There are common patterns at a sectoral level across all occupations. For four occupational categories (SOC major groups 4, 5, 8 and 9), structural or expansion demand is negative in almost every industry. The few exceptions are all quite trivial. Replacement demands are positive throughout and in all cases outweigh any negative expansion demands.
- 5.105 In many industries, total requirements for SOCs 4, 5, 8 and 9 are substantial. In all four occupational groups total requirements amount to a minimum of half a million new job openings over the period 2004 to 2014. In the case of SOC 4 (administrative, clerical and secretarial occupations), there are projected to be around 1 million such openings despite the overall decline in the total number of such jobs.
- 5.106 In the case of the other occupational categories, replacement demands reinforce positive expansion demands to result in even greater numbers of new job openings, requiring educated and trained entrants. To a large extent the patterns by sector reflect the overall size in terms of employment. The largest requirements are therefore in sectors such as retail distribution and other business activities, while they are only much smaller in absolute terms in utilities and mining and quarrying (which now employ relatively small numbers of people). But even here they may account for a significant proportion of the existing workforce.

**Table 5.6: Replacement demand by sector and occupation, 2004–2014.**

	SOC major group									000s
	1	2	3	4	5	6	7	8	9	All
a) Expansion demand										
1. Agriculture, hunting, forestry, fishing	-3	0	0	-1	6	0	0	-9	-40	-48
2. Mining and quarrying	-1	-1	0	-1	-2	0	0	-2	-1	-7
3. Food drink and tobacco	6	2	0	-11	-5	0	-7	-7	-19	-42
4. Engineering	0	1	-1	-5	-18	1	3	-15	-18	-51
5. Rest of manufacturing	10	0	11	-31	-49	-3	0	-86	-87	-235
6. Electricity, gas and water	-1	-2	-2	-5	-5	0	1	-1	-2	-17
7. Construction	19	7	4	-15	-7	1	4	-17	-48	-51
8. Retail distribution	97	27	52	-57	-12	46	176	33	-60	302
9. Hotels and restaurants	17	7	20	-4	3	35	19	5	0	103
10. Transport storage and communication	36	7	13	44	-47	16	37	-15	-51	40
11. Banking and insurance	23	20	14	-37	-1	1	19	-1	-6	34
12. Other business activities	171	167	169	-42	16	98	65	23	-12	656
13. Public admin. and defence	30	10	-4	-54	-4	14	5	-3	-25	-31
14. Education	18	183	9	-38	1	1	0	1	-58	116
15. Health and social work	80	84	47	-42	5	148	5	0	-57	271
16. Other services	52	71	80	-15	4	15	4	-8	-66	136
All sectors	553	584	412	-312	-114	374	331	-100	-551	1,176
b) Replacement demand										
	SOC major group									All
	1	2	3	4	5	6	7	8	9	All
1. Agriculture, hunting, forestry, fishing	11	1	2	4	57	9	1	8	28	121
2. Mining and quarrying	1	1	1	1	3	0	0	2	1	11
3. Food, drink and tobacco	17	5	10	12	18	1	9	35	20	126
4. Engineering	31	18	22	21	41	3	4	34	14	189
5. Rest of manufacturing	100	39	76	69	151	14	17	162	73	701
6. Electricity, gas and water	4	4	3	6	7	1	2	3	2	32
7. Construction	77	29	30	47	262	3	7	62	45	563
8. Retail distribution	292	41	123	151	143	56	491	100	152	1,550
9. Hotels and restaurants	179	8	30	41	66	28	30	11	240	634
10. Transport storage and communication	59	22	41	103	63	23	20	134	71	535
11. Banking and insurance	53	27	41	174	10	6	29	6	20	366
12. Other business activities	294	223	276	315	65	112	57	53	99	1,493
13. Public admin and defence	60	45	79	134	13	24	10	14	54	434
14. Education	45	456	95	54	8	89	8	15	68	839
15. Health and social work	127	126	290	99	17	300	16	15	57	1,048
16. Other services	107	61	115	58	26	93	17	33	74	583
All sectors	1,45	1,106	1,235	1,28	951	763	718	689	1,018	9,225
c) Total requirements										
	SOC major group									All
	1	2	3	4	5	6	7	8	9	All
1. Agriculture hunting forestry fishing	8	1	2	2	63	10	1	-1	-12	73
2. Mining and quarrying	1	0	1	1	1	0	0	1	0	4
3. Food drink and tobacco	23	7	10	1	12	1	2	28	0	84
4. Engineering	30	19	22	16	24	4	8	19	-3	139
5. Rest of manufacturing	110	39	87	38	102	11	17	76	-15	466
6. Electricity gas and water	3	2	1	1	2	0	3	2	0	15
7. Construction	96	37	35	32	255	4	11	45	-3	512
8. Retail distribution	389	68	176	94	130	102	667	134	92	1,852
9. Hotels and restaurants	196	16	50	37	70	63	49	17	240	737
10. Transport storage and communication	95	29	54	147	16	39	57	119	20	575
11. Banking and insurance	76	48	55	138	9	7	48	6	14	400
12. Other business activities	465	389	445	273	80	210	122	77	87	2,149
13. Public admin. and defence	90	55	74	80	10	39	15	11	29	403
14. Education	64	638	104	16	9	90	8	16	9	955
15. Health and social work	208	211	337	57	22	449	21	15	0	1,319
16. Other services	159	132	195	42	30	108	20	24	8	719
All sectors	2,01	1,689	1,647	977	836	1,13	1,04	589	467	10,402

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Notes:** These estimates do not allow for any losses due to occupational or geographical mobility.

Total net requirements = replacement demand plus expansion (or structural) demand.

## Implications for the Demand for Qualifications

- 5.107 The *Working Futures 2004–2014* projections also include for the first time forecasts of the implications for the types of qualifications that might be needed. The analysis in Wilson and Bosworth (2006) focuses upon both supply and demand factors. The supply side has been driven in recent years by successive government policies aimed at increasing educational participation and raising the pace at which formal qualifications are acquired, especially at higher level.
- 5.108 The future demand for qualified people will depend on a combination of the changes in occupational structure and changes in the proportion of people employed in these occupations requiring particular qualifications. The pattern of occupational employment is changing in such a manner as to increase the demand for better-qualified persons. The occupations which are increasing in importance tend to require higher qualifications, whereas those in decline are much less demanding.
- 5.109 In practice, there is not a rigid link between occupations and qualifications. For most occupations there is quite a wide range of qualifications that are acceptable. Typically, recent entrants are better qualified than those reaching retirement age. The average levels of qualifications held by those in employment have therefore risen because of this supply-side, cohort effect. Nevertheless, there is some evidence, from, for example, rates of return, that suggests that there has been a real increase in requirements from the demand side as well.
- 5.110 The combination of rapid growth in the numbers employed in several occupational groups where the qualification levels are relatively high (such as corporate managers, professionals and associate professionals in particular), together with the decline in several other occupational groups where the qualification levels are relatively low (such as administrative, clerical and secretarial and related occupations, as well as process, plant and machine operatives), will in itself lead to an overall increase in the demand for higher level qualifications. When this is combined with the projected changes in the qualifications mix within occupations, then substantial increases in the demand for higher level qualifications can be expected, as indicated in Tables 5.7 and 5.8.

**Table 5.7: Implications for qualifications.**

Total NQF category	Base year level	Change		Projected level
		2004	2004–2014	
NQF 5		1,525	1,009	2,534
NQF 4		6,143	1,746	7,889
NQF 3		5,042	1,510	6,551
NQF 2		5,633	-254	5,379
NQF 1		4,526	-866	3,659
NQF 0		2,649	-1,968	681
<b>Total</b>		25,517	1,176	26,694
		<b>% share</b>	<b>% change</b>	<b>% share</b>
NQF 5		6.0	66.2	9.5
NQF 4		24.1	28.4	29.6
NQF 3		19.8	29.9	24.5
NQF 2		22.1	-4.5	20.2
NQF 1		17.7	-19.1	13.7
NQF 0		10.4	-74.3	2.6
<b>Total</b>		100.0	4.6	100.0

**Source:** *Working Futures 2004–2014, Qualifications Report* (Wilson and Bosworth, 2006).

**Notes:** Producing consistent projections of qualifications across all the various dimensions covered in *Working Futures* is not possible due to data limitations. The estimates in this table therefore differ marginally from those in Table 5.8.

**Table 5.8: Projected change in demand for qualifications, 2004–2014.**

000s

	Employment change	Change in demand, 2004–2014, for those with:				No qualification
		NQF 4+	NQF 3	NQF 2	NQF 1	
Corporate managers	1,694	1,266	403	92	7	-73
Managers and proprietors	316	173	110	29	39	-34
Science/tech. professionals	394	357	40	1	1	-4
Health professionals	156	141	3	10	3	0
Teaching/research prof.	764	715	46	3	1	-1
Business/public service prof.	375	334	46	1	-6	-1
Science associate prof.	217	134	62	16	11	-6
Health associate prof.	412	292	81	32	13	-5
Protective service occs	83	30	31	17	7	-1
Culture/media/sport occs	337	277	51	9	7	-7
Bus./public serv. assoc. prof.	598	410	172	40	2	-27
Admin. and clerical occupations	816	376	326	138	52	-77
Secretarial and related occs	161	81	67	22	7	-15
Skilled agricultural trades	174	59	54	37	36	-12
Skilled metal/elec. trades	43	23	92	-26	-9	-38
Skilled construct. trades	509	60	268	121	103	-42
Other skilled trades	110	46	58	32	5	-32
Caring personal service occs	917	201	367	373	35	-59
Leisure/oth. pers. serv. occs	221	41	93	60	41	-15
Sales occupations	817	180	380	277	96	-116
Customer service occupations	232	78	95	62	9	-12
Process plant and mach. ops	60	44	47	53	21	-105
Transport drivers and ops	529	70	129	175	180	-25
Elementary: trades/plant/mach	-48	22	20	20	-2	-109
Elementary: clerical/service	514	136	256	190	124	-191
All occupations	10,402	5,547	3,296	1,783	785	-1,009

Source: **Working Futures 2004–2014, Qualifications Report (Wilson and Bosworth, 2006).**

**Notes: Producing consistent projections of qualifications across all the various dimensions covered in Working Futures is not possible due to data limitations. The estimates in this table therefore differ marginally from those in Table 5.8.**

- 5.111 In 2004, around 10 per cent of people in employment had no formal qualifications, while just over 1 in 20 were qualified to NQF Level 5. By 2014 these patterns are projected to be reversed. The proportion of those in employment qualified at NQF Level 4 is projected to increase from below 25 to about 30 per cent. The implication for replacement needs means that the total requirements for people with higher qualifications will rise even more rapidly than these figures suggest.
- 5.112 The bulk of the net increase in jobs is projected to be at NQF Level 4 or above. About a quarter of all new jobs are expected to be for those qualified to NQF Level 3 and just under a fifth at NQF Level 2 or equivalent. The demand for those with no formal qualifications is projected to fall. The most rapid growth at NQF Level 4 is for 'other' professionals, 'other' associate professionals and teaching professionals. At NQF Level 3 or equivalent, growth is projected to be fastest for personal service occupations and 'other' associate professionals.
- 5.113 In the benchmark scenario developed, over a third of those in employment are projected to be qualified to NQF Level 4 or 5 or the equivalent by the end of 2014. In contrast, less than 3 per cent are projected to have no formal qualifications.

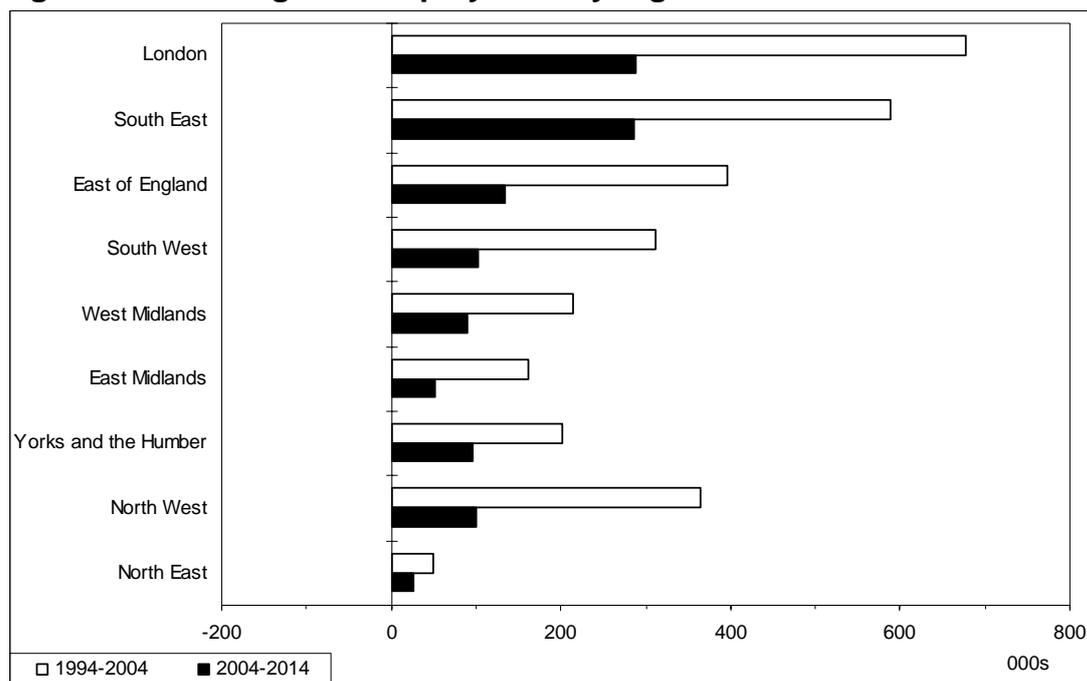
## Future Trends in Key and Generic Skill Requirements

- 5.114 Employers continue to place considerable emphasis upon various key and generic skills such as communication, IT, team working, problem solving, reasoning and work process skills. Many of the assessments conducted by SSCs (Wilson, 2001) reinforce this message.
- 5.115 The results from previous quantitative projections suggest that many such skills are likely to become increasingly important, including verbal skills, numerical skills, planning skills and various types of communication skills. Manual skills are projected to be of decreasing importance. Verbal skill requirements are projected to increase, especially amongst managers. Numerical skills are projected to increase in importance among administrative, clerical and secretarial occupations. The need for planning skills is projected to rise among sales occupations. Communication skills are projected to increase most among managers (both within the workplace and when dealing with customers or clients).

## Regional Variations in Future Skill Needs

- 5.116 The *Working Futures* projections also suggest substantial regional variations in the pattern of expected future skill needs (see Figure 5.11). This reflects their economic structures. Differences in general economic prospects, together with differences in their existing employment structures, mean that the skill needs of different regions will vary. Nevertheless, similar trends in occupational mix within industries are expected. This is reflected in terms of the projected changes in occupational employment, qualifications and other indicators. Variations in regional patterns of growth and decline across a wide range of occupations will have important implications for developments in the supply of skills required at the regional level. Providers will need to tailor their provision to meet these specific needs.

**Figure 5.11: Changes in employment by region.**



**Source:** *Working Futures 2004-2014* (Wilson et al, 2006).

- 5.117 London and the South East are expected to record relatively rapid job growth over the coming decade, albeit less dramatic than recorded over the previous decade. The East of England, South West, West Midlands and East Midlands, Yorkshire and the Humber, and the North West are all projected to experience growth rates around the national average. The North East is projected to show little change. The South East and London are projected to account for about half of the expected additional 1.2 million jobs expected over the period to 2014.
- 5.118 These patterns vary considerably by occupation. Particularly strong growth is expected in the demand for managers, professionals and associate professionals in London and the South East .

## Sectoral Prospects by Region

- 5.119 Details of broad sectoral employment prospects for individual regions are shown in Tables 5.9, 5.10 and 5.11. The dependence of particular regions on certain sectors of employment is illustrated in Tables 5.9 to 5.12, which show the scale and share of employment in each sector. While it is clear that distribution, transport, etc., business and miscellaneous services and non-marketed services now account for a very significant part of employment in all regions, the continued importance of manufacturing in many regions is also apparent. The changes expected over the decade to 2014 shown in Table 5.11 illustrate the preponderance of negative effects (shaded) in the top part of the table. These relate to primary and manufacturing industries and utilities. The declines in manufacturing are especially significant in both absolute and percentage terms for regions in the Midlands and the North of England.

**Table 5.9: Levels of projected employment by broad sector and region, 2004–2014.**

	000s									
	London		South East		East of England		South West		West Midlands	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Primary and utilities	15	11	93	87	57	44	80	69	55	43
Manufacturing	264	233	398	370	326	295	287	247	433	375
Construction	267	274	309	313	235	232	177	180	174	152
Distribution, transport, etc.	1,293	1,364	1,274	1,386	846	899	777	816	742	782
Business and misc. services	1,733	1,929	1,231	1,366	711	801	598	664	572	662
Non-marketed services	925	973	922	992	577	614	626	670	624	675
All industries	4,496	4,785	4,227	4,514	2,751	2,885	2,545	2,646	2,599	2,689

	000s									
	East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Primary and utilities	47	39	49	38	36	32	22	19	454	383
Manufacturing	338	295	361	332	453	403	153	136	3,013	2,686
Construction	148	140	177	156	203	194	68	66	1,757	1,706
Distribution, transport, etc.	580	607	725	769	1,021	1,058	298	320	7,554	7,999
Business and misc. services	406	455	541	628	795	886	226	248	6,813	7,639
Non-marketed services	487	520	590	617	850	887	327	331	5,925	6,281
All industries	2,004	2,056	2,444	2,540	3,358	3,459	1,093	1,120	25,517	26,694

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.10: Industry shares of projected employment by broad sector and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands		%
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	
Primary and utilities	0.3	0.2	2.2	1.9	2.1	1.5	3.1	2.6	2.1	1.6	
Manufacturing	5.9	4.9	9.4	8.2	11.9	10.2	11.3	9.3	16.7	14.0	
Construction	5.9	5.7	7.3	6.9	8.5	8.0	7.0	6.8	6.7	5.6	
Distribution, transport, etc.	28.8	28.5	30.1	30.7	30.7	31.2	30.5	30.8	28.5	29.1	
Business and misc. services	38.5	40.3	29.1	30.3	25.8	27.8	23.5	25.1	22.0	24.6	
Non-marketed services	20.6	20.3	21.8	22.0	21.0	21.3	24.6	25.3	24.0	25.1	
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Primary and utilities	2.3	1.9	2.0	1.5	1.1	0.9	2.0	1.7	1.8	1.4
Manufacturing	16.8	14.3	14.8	13.1	13.5	11.6	14.0	12.1	11.8	10.1
Construction	7.4	6.8	7.2	6.1	6.1	5.6	6.2	5.9	6.9	6.4
Distribution, transport, etc.	28.9	29.5	29.6	30.3	30.4	30.6	27.2	28.6	29.6	30.0
Business and misc. services	20.2	22.1	22.2	24.7	23.7	25.6	20.7	22.1	26.7	28.6
Non-marketed services	24.3	25.3	24.2	24.3	25.3	25.7	29.9	29.6	23.2	23.5
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.11: Changes in projected employment by broad sector and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands	
	000s	%	000s	%	000s	%	000s	%	000s	%
Primary and utilities	-4	-27.9	-6	-6.6	-13	-22.5	-11	-13.9	-12	-21.3
Manufacturing	-31	-11.7	-28	-7.0	-31	-9.6	-40	-14.0	-58	-13.3
Construction	8	2.8	4	1.4	-2	-1.1	3	1.7	-22	-12.9
Distribution, transport, etc.	71	5.5	112	8.8	53	6.3	39	5.0	40	5.4
Business and misc. services	196	11.3	135	10.9	90	12.7	66	11.0	90	15.7
Non-marketed services	49	5.3	70	7.6	37	6.5	45	7.1	52	8.3
All industries	289	6.4	287	6.8	134	4.9	101	4.0	90	3.5

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	000s	%	000s	%	000s	%	000s	%	000s	%
Primary and utilities	-8	-16.3	-11	-21.9	-4	-10.4	-3	-13.9	-71	-15.7
Manufacturing	-43	-12.8	-29	-8.1	-50	-11.1	-17	-11.1	-328	-10.9
Construction	-8	-5.4	-21	-12.0	-10	-4.8	-2	-3.0	-51	-2.9
Distribution, transport, etc.	27	4.7	44	6.1	36	3.6	22	7.5	445	5.9
Business and misc. services	49	12.2	87	16.0	90	11.4	22	9.6	826	12.1
Non-marketed services	34	6.9	26	4.5	38	4.4	5	1.4	355	6.0
All industries	52	2.6	96	3.9	101	3.0	27	2.5	1,176	4.6

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.12: Levels of projected employment by industry and region, 2004–2014.**

	000s																			
	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Agriculture etc	6	5	66	63	44	32	63	55	40	31	33	29	36	28	26	24	11	9	323	276
Mining, quarrying & utilities - of which:	9	6	27	24	13	12	17	14	15	12	14	11	14	10	10	8	11	10	131	107
Mining and quarrying	2	2	4	3	3	3	5	4	2	2	5	4	6	5	2	2	4	3	33	27
Electricity, gas & water	7	4	23	21	11	9	12	9	13	11	9	7	7	6	8	6	7	7	97	80
Food, drink & tobacco	30	22	28	26	41	37	37	32	36	33	55	49	59	53	61	55	17	16	364	322
Textiles & clothing	18	11	6	4	10	5	10	4	13	5	33	22	23	16	35	20	6	4	154	91
Wood, paper & publishing - of which:	114	110	75	71	57	53	43	42	35	31	44	43	53	51	56	49	18	16	496	466
Wood and paper products	9	7	21	18	19	16	14	13	14	12	20	18	20	20	26	20	10	8	154	133
Publishing and printing	105	103	54	53	38	36	28	29	21	19	25	25	32	31	31	29	8	8	342	333
Chemicals & non-metal minerals	26	23	75	77	52	40	38	33	67	58	58	53	61	55	105	85	32	28	513	450
Metal & metal goods	18	17	44	38	34	38	30	27	102	83	40	35	61	54	48	46	25	21	403	357
Engineering	31	24	116	103	74	70	66	57	84	76	52	46	53	53	67	66	28	25	570	519
Transport equipment	11	9	28	26	35	30	45	33	72	64	32	23	22	21	51	52	17	16	313	272
Manufacturing nes & recycling	17	17	25	27	23	23	18	19	24	25	23	25	30	30	30	30	11	11	201	207
Construction	267	274	309	313	235	232	177	180	174	152	148	140	177	156	203	194	68	66	1,757	1,706
Distribution relating to motors	58	61	98	100	63	69	65	65	67	66	45	37	55	46	67	68	27	32	545	544
Wholesale distribution nes	187	195	215	244	121	124	96	101	130	142	97	112	108	120	146	153	34	31	1,134	1,223
Retailing distribution nes	382	421	440	487	324	348	291	321	253	270	210	227	267	288	365	379	116	122	2,649	2,863
Hotels and catering	321	341	267	297	171	185	203	207	146	152	111	111	141	154	225	237	64	69	1,650	1,753
Transport and storage	246	249	176	185	115	125	77	79	102	102	89	93	116	123	163	160	35	38	1,117	1,153
Post & telecommunications	99	98	77	73	53	49	45	43	45	49	28	26	37	38	55	61	22	28	460	464
Banking & insurance	337	345	147	158	90	94	92	97	76	76	44	44	86	90	105	108	27	26	1,003	1,037
Professional services	149	154	127	113	83	85	70	73	57	64	43	43	53	53	74	78	23	21	679	683
Computing & related services	110	142	135	176	56	80	38	43	40	58	28	30	30	37	53	70	13	17	503	654
Other business services	799	928	552	630	308	355	247	283	258	313	183	216	237	288	364	417	98	115	3,045	3,545
Public admin. and defence	235	227	170	165	116	112	138	137	114	111	81	78	113	109	182	181	83	81	1,232	1,201
Education	286	293	331	355	201	212	216	235	234	254	179	194	208	217	284	294	104	107	2,044	2,159
Health & social work	404	453	421	472	260	291	271	298	275	310	227	249	270	291	383	412	139	144	2,649	2,920
Miscellaneous services	338	360	270	289	174	188	151	168	142	151	108	123	136	160	200	213	66	68	1,584	1,720
All industries	4,496	4,785	4,227	4,514	2,751	2,885	2,545	2,646	2,599	2,689	2,004	2,056	2,444	2,540	3,358	3,459	1,093	1,120	25,517	26,694

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.13: Industry shares of projected employment by industry and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Agriculture etc	0.1	0.1	1.6	1.4	1.6	1.1	2.5	2.1	1.5	1.1	1.6	1.4	1.5	1.1	0.8	0.7	1.0	0.8	1.3	1.0
Mining, quarrying & utilities - of which:	0.2	0.1	0.6	0.5	0.5	0.4	0.7	0.5	0.6	0.5	0.7	0.5	0.6	0.4	0.3	0.2	1.0	0.9	0.5	0.4
Mining and quarrying	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.4	0.3	0.1	0.1
Electricity, gas & water	0.2	0.1	0.6	0.5	0.4	0.3	0.5	0.4	0.5	0.4	0.5	0.3	0.3	0.2	0.2	0.2	0.7	0.6	0.4	0.3
Food, drink & tobacco	0.7	0.5	0.7	0.6	1.5	1.3	1.5	1.2	1.4	1.2	2.7	2.4	2.4	2.1	1.8	1.6	1.5	1.4	1.4	1.2
Textiles & clothing	0.4	0.2	0.2	0.1	0.4	0.2	0.4	0.2	0.5	0.2	1.7	1.1	0.9	0.6	1.0	0.6	0.5	0.3	0.6	0.3
Wood, paper & publishing - of which:	2.5	2.3	1.8	1.6	2.1	1.8	1.7	1.6	1.4	1.2	2.2	2.1	2.1	2.0	1.7	1.4	1.6	1.4	1.9	1.7
Wood and paper products	0.2	0.2	0.5	0.4	0.7	0.6	0.6	0.5	0.6	0.5	1.0	0.9	0.8	0.8	0.8	0.6	0.9	0.7	0.6	0.5
Publishing and printing	2.3	2.1	1.3	1.2	1.4	1.3	1.1	1.1	0.8	0.7	1.2	1.2	1.3	1.2	0.9	0.8	0.7	0.7	1.3	1.2
Chemicals & non-metal minerals	0.6	0.5	1.8	1.7	1.9	1.4	1.5	1.2	2.6	2.2	2.9	2.6	2.5	2.2	3.1	2.5	2.9	2.5	2.0	1.7
Metal & metal goods	0.4	0.3	1.0	0.8	1.2	1.3	1.2	1.0	3.9	3.1	2.0	1.7	2.5	2.1	1.4	1.3	2.3	1.9	1.6	1.3
Engineering	0.7	0.5	2.8	2.3	2.7	2.4	2.6	2.2	3.2	2.8	2.6	2.2	2.1	2.1	2.0	1.9	2.5	2.2	2.2	1.9
Transport equipment	0.2	0.2	0.7	0.6	1.3	1.0	1.8	1.2	2.8	2.4	1.6	1.1	0.9	0.8	1.5	1.5	1.6	1.4	1.2	1.0
Manufacturing nes & recycling	0.4	0.4	0.6	0.6	0.8	0.8	0.7	0.7	0.9	0.9	1.2	1.2	1.2	1.2	0.9	0.9	1.0	1.0	0.8	0.8
Construction	5.9	5.7	7.3	6.9	8.5	8.0	7.0	6.8	6.7	5.6	7.4	6.8	7.2	6.1	6.1	5.6	6.2	5.9	6.9	6.4
Distribution relating to motors	1.3	1.3	2.3	2.2	2.3	2.4	2.5	2.5	2.6	2.5	2.3	1.8	2.3	1.8	2.0	2.0	2.4	2.9	2.1	2.0
Wholesale distribution nes	4.2	4.1	5.1	5.4	4.4	4.3	3.8	3.8	5.0	5.3	4.9	5.5	4.4	4.7	4.4	4.4	3.1	2.8	4.4	4.6
Retailing distribution nes	8.5	8.8	10.4	10.8	11.8	12.0	11.4	12.1	9.7	10.0	10.5	11.0	10.9	11.3	10.9	10.9	10.6	10.9	10.4	10.7
Hotels and catering	7.1	7.1	6.3	6.6	6.2	6.4	8.0	7.8	5.6	5.6	5.5	5.4	5.8	6.1	6.7	6.8	5.9	6.2	6.5	6.6
Transport and storage	5.5	5.2	4.2	4.1	4.2	4.3	3.0	3.0	3.9	3.8	4.4	4.5	4.7	4.8	4.8	4.6	3.2	3.4	4.4	4.3
Post & telecommunications	2.2	2.0	1.8	1.6	1.9	1.7	1.8	1.6	1.7	1.8	1.4	1.3	1.5	1.5	1.6	1.8	2.0	2.5	1.8	1.7
Banking & insurance	7.5	7.2	3.5	3.5	3.3	3.2	3.6	3.7	2.9	2.8	2.2	2.1	3.5	3.5	3.1	3.1	2.4	2.3	3.9	3.9
Professional services	3.3	3.2	3.0	2.5	3.0	2.9	2.7	2.7	2.2	2.4	2.1	2.1	2.1	2.1	2.2	2.2	2.1	1.9	2.7	2.6
Computing & related services	2.4	3.0	3.2	3.9	2.0	2.8	1.5	1.6	1.6	2.2	1.4	1.5	1.2	1.5	1.6	2.0	1.2	1.5	2.0	2.5
Other business services	17.8	19.4	13.1	13.9	11.2	12.3	9.7	10.7	9.9	11.6	9.1	10.5	9.7	11.4	10.8	12.0	9.0	10.3	11.9	13.3
Public admin. and defence	5.2	4.8	4.0	3.7	4.2	3.9	5.4	5.2	4.4	4.1	4.0	3.8	4.6	4.3	5.4	5.2	7.6	7.2	4.8	4.5
Education	6.4	6.1	7.8	7.9	7.3	7.3	8.5	8.9	9.0	9.5	8.9	9.4	8.5	8.5	8.5	8.5	9.5	9.6	8.0	8.1
Health & social work	9.0	9.5	10.0	10.5	9.5	10.1	10.7	11.3	10.6	11.5	11.3	12.1	11.0	11.5	11.4	11.9	12.7	12.8	10.4	10.9
Miscellaneous services	7.5	7.5	6.4	6.4	6.3	6.5	5.9	6.3	5.4	5.6	5.4	6.0	5.6	6.3	6.0	6.2	6.0	6.1	6.2	6.4
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.14: Changes in projected employment by industry and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
Agriculture etc	-1	-16.5	-3	-5.0	-11	-25.8	-8	-12.5	-9	-23.1	-4	-12.8	-7	-20.7	-2	-6.1	-2	-18.0	-48	-
Mining, quarrying & utilities - of which:	-3	-35.0	-3	-10.5	-2	-11.7	-3	-19.0	-2	-16.6	-3	-24.5	-3	-25.0	-2	-21.5	-1	-10.0	-24	-
Mining and quarrying	-1	-26.1	-1	-13.9	0	-11.2	-1	-16.3	0	-14.3	-1	-27.3	-2	-25.2	0	-7.9	-1	-22.5	-7	19.5
Electricity, gas & water	-3	-38.0	-2	-10.0	-1	-11.8	-2	-20.2	-2	-17.0	-2	-23.1	-2	-24.8	-2	-25.5	0	-3.5	-17	17.5
Food, drink & tobacco	-8	-26.4	-2	-8.6	-4	-10.7	-5	-14.2	-3	-7.6	-6	-10.5	-6	-10.1	-6	-10.2	-1	-7.4	-42	11.5
Textiles & clothing	-7	-39.3	-3	-42.7	-5	-49.3	-6	-57.0	-8	-60.4	-11	-34.0	-7	-28.9	-14	-41.1	-2	-38.1	-63	40.7
Wood, paper & publishing - of which:	-4	-3.4	-4	-5.5	-4	-7.1	-1	-2.1	-4	-11.5	-2	-3.4	-1	-2.7	-7	-13.0	-2	-12.4	-30	-6.0
Wood and paper products	-2	-17.3	-3	-13.2	-3	-14.6	-2	-11.3	-2	-15.6	-2	-9.6	0	-2.0	-6	-21.7	-2	-22.6	-21	13.7
Publishing and printing	-2	-2.3	-1	-2.4	-1	-3.3	1	2.5	-2	-8.6	0	1.5	-1	-3.2	-2	-5.7	0	0.1	-8	-2.5
Chemicals & non-metal minerals	-3	-12.9	2	2.1	-12	-23.0	-5	-13.8	-9	-13.4	-5	-9.3	-6	-10.2	-20	-18.7	-4	-12.3	-63	12.3
Metal & metal goods	-2	-9.9	-6	-12.9	3	9.7	-3	-10.9	-19	-18.6	-5	-12.7	-8	-12.7	-2	-5.0	-4	-14.1	-45	11.2
Engineering	-6	-20.1	-14	-11.7	-4	-5.0	-9	-14.0	-8	-9.2	-6	-11.7	0	0.1	-1	-1.9	-3	-10.0	-51	-8.9
Transport equipment	-1	-13.0	-3	-8.9	-5	-14.5	-12	-26.1	-8	-11.8	-9	-29.3	-1	-5.1	1	1.3	-2	-10.2	-41	-
Manufacturing nes & recycling	1	3.6	2	6.1	0	-1.6	1	5.4	1	4.0	1	6.4	0	-0.4	0	0.8	1	6.2	6	3.0
Construction	8	2.8	4	1.4	-2	-1.1	3	1.7	-22	-12.9	-8	-5.4	-21	-12.0	-10	-4.8	-2	-3.0	-51	-2.9
Distribution relating to motors	3	5.5	2	1.6	6	9.8	0	0.7	0	-0.6	-8	-18.0	-10	-17.4	0	0.6	5	20.3	-1	-0.2
Wholesale distribution nes	8	4.2	29	13.6	4	2.9	5	4.9	13	9.8	15	15.5	12	10.7	7	4.7	-3	-8.1	89	7.8
Retailing distribution nes	39	10.1	47	10.7	24	7.4	30	10.4	17	6.7	17	8.1	21	7.8	13	3.6	6	5.2	214	8.1
Hotels and catering	19	6.1	29	11.0	14	8.5	4	2.0	6	4.3	0	-0.2	13	9.0	12	5.4	5	7.2	103	6.2
Transport and storage	3	1.2	9	5.2	9	8.2	2	2.3	1	0.6	5	5.3	7	6.2	-2	-1.4	3	8.0	36	3.2
Post & telecommunications	-1	-1.1	-5	-5.9	-4	-8.2	-2	-4.9	4	9.2	-1	-5.4	1	3.1	6	11.0	6	28.3	4	0.8
Banking & insurance	8	2.4	11	7.2	3	3.7	5	5.2	0	0.5	-1	-1.9	4	5.0	4	3.6	0	-1.8	34	3.4
Professional services	4	2.8	-14	-11.4	1	1.7	3	3.8	8	13.5	0	-0.1	0	0.8	4	5.1	-1	-6.1	4	0.6
Computing & related services	32	29.6	42	30.9	25	44.5	5	13.5	17	43.2	2	7.2	7	22.1	17	32.7	4	30.3	151	30.1
Other business services	129	16.2	78	14.1	47	15.2	36	14.7	55	21.4	33	18.3	51	21.6	52	14.4	17	17.6	500	16.4
Public admin. and defence	-7	-3.1	-5	-3.1	-4	-3.4	-1	-0.6	-3	-2.3	-3	-4.0	-4	-3.6	-1	-0.6	-3	-3.4	-31	-2.5
Education	7	2.4	24	7.3	11	5.2	18	8.5	20	8.5	14	8.0	9	4.2	9	3.3	3	3.2	116	5.7
Health & social work	49	12.1	51	12.2	31	11.9	27	10.0	35	12.5	23	10.0	22	8.0	30	7.7	4	3.0	271	10.2
Miscellaneous services	23	6.7	19	7.1	14	8.1	17	11.3	9	6.4	15	13.8	24	17.9	13	6.5	2	3.7	136	8.6
All industries	289	6.4	287	6.8	134	4.9	101	4.0	90	3.5	52	2.6	96	3.9	101	3.0	27	2.5	1,176	4.6

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** Shaded areas indicate projected employment decline.

5.120 Tables 5.12, 5.13 and 5.14 illustrate a more detailed industrial breakdown for the 27 SSSDA sector skills matrix industries. Patterns at this level of detail are more varied and reflect the detailed industrial specialisms of the regions. Nevertheless, the overall messages in terms of industrial structural changes are common across most regions. Again, primary utilities and manufacturing industries present a picture of consistent employment decline, with just one or two minor exceptions. The position in some of the service industries is more mixed. Public administration is projected to experience job losses in most regions. It is in business and professional services, miscellaneous services and non-marketed services such as education and health that most regions are projected to gain employment.

## Occupational Prospects By Region

5.121 Subject to the differences imposed by their different industrial structures, trends in occupational structure are expected to follow similar patterns in most regions to those at national level. These different industrial structures mean that there are some substantial variations in occupational prospects across the regions over the coming decade.

5.122 Tables 5.15 to 5.17 illustrate the common patterns of change across the regions for SOC major groups. In particular, Table 5.17 shows how declining employment (shaded cells) are in the same categories in most regions. Job losses are projected to be concentrated in:

- administrative, clerical and secretarial occupations
- skilled trades
- machine and transport operatives
- elementary occupations.

5.123 Other occupations are projected to grow in all regions. There is expected to be especially strong growth in demand for managers and senior officials in London, the South East and East of England; for professionals and associate professional occupations in London; and for personal service occupations in the South East, East of England and the Midlands.

5.124 **Managers** account for an above-average share of employment in London, the South East and the East of England. This is projected to become even more pronounced, with some of the largest increases in employment for these categories being in these regions. Somewhat more modest growth is expected elsewhere.

5.125 The share of employment in **professional occupations** is projected to increase across all regions. London is again expected to be the main hot spot. The North East is expected to have the lowest rate of employment increase for professionals across the English regions, but even that region is expected to experience a substantial increase.

5.126 The shares of employment in **associate professional and technical occupations** are also above average in London. Employment for these occupations is also expected to grow most rapidly here. The growth rate in the North West, North East and Yorkshire and the Humber is barely half that expected for the UK as a whole.

5.127 **Administrative, clerical and secretarial occupations** also account for a

disproportionately large share of employment in London and the South East, although this is changing. Trends here are generally downward. Most regions are now projected to experience job losses for these occupations.

- 5.128 Both shares and levels employed in **personal service occupations** are expected to rise in all regions. In many cases these changes are substantial, especially in the South East, West Midlands, East Midlands and the East of England. Growth is expected to be slowest in the North East and London.
- 5.129 All regions are also projected to experience employment growth in **sales and customer service occupations**. For customer service occupations, increases of around 30 per cent or more are expected for this occupational group in all regions outside London (see Table 5.20). For the much larger sales occupations group, rates of increase are much more modest but in absolute terms they are often as significant as for the customer service group (see Table 5.20).
- 5.130 Employment amongst **skilled trades** is expected to decline in almost all regions other than the South East. London, the West Midlands and the North West are all projected to see significant job losses, concentrated in the skilled metal and electrical trades.
- 5.131 **Machine and transport operatives** are projected to see significant job losses across England as a whole. Some modest job gains are expected for mobile and transport plant drivers and operatives.

**Table 5.15: Levels of projected employment by Standard Occupational Classification major group and region, 2004–2014.**

	000s									
	London		South East		East of England		South West		West Midlands	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Managers	820	970	752	873	457	523	385	425	362	405
Professionals	646	812	507	587	308	365	287	342	277	327
Associate prof.	846	1,017	632	694	379	418	334	361	340	380
Administrative	581	425	548	485	351	323	302	267	326	327
Skilled trades	389	372	451	459	323	314	323	323	343	315
Personal service	267	290	308	382	196	240	206	251	207	260
Sales	289	334	329	393	223	253	226	265	200	225
Operatives	214	201	258	256	205	195	187	174	261	239
Elementary	445	363	442	385	308	254	293	238	282	211
All	4,496	4,785	4,227	4,514	2,751	2,885	2,545	2,646	2,599	2,689

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
	Managers	302	339	344	388	467	506	136	149	4,025
Professionals	216	257	252	297	392	464	118	135	3,002	3,586
Associate prof.	252	275	304	325	452	477	144	151	3,685	4,097
Administrative	230	210	302	305	436	428	131	125	3,207	2,894
Skilled trades	243	217	301	286	375	355	134	126	2,882	2,767
Personal service	169	207	192	231	269	320	86	94	1,900	2,274
Sales	167	198	217	252	288	329	102	123	2,040	2,372
Operatives	199	185	243	236	296	279	104	102	1,968	1,868
Elementary	228	169	288	221	384	300	138	114	2,808	2,257
All	2,004	2,056	2,444	2,540	3,358	3,459	1,093	1,120	25,517	26,694

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.16: Industry shares of projected employment by Standard Occupational Classification major group and region, 2004–2014.**

	%									
	London		South East		East of England		South West		West Midlands	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Managers	18.2	20.3	17.8	19.3	16.6	18.1	15.1	16.1	13.9	15.1
Professionals	14.4	17.0	12.0	13.0	11.2	12.6	11.3	12.9	10.6	12.2
Associate prof.	18.8	21.2	15.0	15.4	13.8	14.5	13.1	13.6	13.1	14.1
Administrative	12.9	8.9	13.0	10.7	12.8	11.2	11.9	10.1	12.6	12.2
Skilled trades	8.7	7.8	10.7	10.2	11.7	10.9	12.7	12.2	13.2	11.7
Personal service	5.9	6.1	7.3	8.5	7.1	8.3	8.1	9.5	8.0	9.7
Sales	6.4	7.0	7.8	8.7	8.1	8.8	8.9	10.0	7.7	8.4
Operatives	4.8	4.2	6.1	5.7	7.5	6.8	7.3	6.6	10.1	8.9
Elementary	9.9	7.6	10.5	8.5	11.2	8.8	11.5	9.0	10.9	7.9
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Managers	15.1	16.5	14.1	15.3	13.9	14.6	12.5	13.3	15.8	17.2
Professionals	10.8	12.5	10.3	11.7	11.7	13.4	10.8	12.1	11.8	13.4
Associate prof.	12.5	13.4	12.5	12.8	13.5	13.8	13.2	13.5	14.4	15.3
Administrative	11.5	10.2	12.4	12.0	13.0	12.4	11.9	11.2	12.6	10.8
Skilled trades	12.1	10.6	12.3	11.3	11.2	10.3	12.2	11.2	11.3	10.4
Personal service	8.4	10.1	7.8	9.1	8.0	9.3	7.9	8.4	7.4	8.5
Sales	8.3	9.6	8.9	9.9	8.6	9.5	9.4	11.0	8.0	8.9
Operatives	9.9	9.0	9.9	9.3	8.8	8.1	9.5	9.1	7.7	7.0
Elementary	11.4	8.2	11.8	8.7	11.4	8.7	12.6	10.2	11.0	8.5
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.17: Changes in projected employment by Standard Occupational Classification major group and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands	
	000s	%	000s	%	000s	%	000s	%	000s	%
Managers	151	18.4	121	16.1	66	14.5	40	10.4	43	12.0
Professionals	167	25.8	80	15.8	57	18.6	54	18.9	51	18.4
Associate prof.	170	20.1	61	9.7	39	10.2	27	8.0	39	11.5
Administrative	-156	-26.8	-63	-11.4	-29	-8.2	-35	-11.7	1	0.3
Skilled trades	-17	-4.3	8	1.7	-9	-2.8	0	-0.1	-28	-8.2
Personal service	23	8.5	75	24.3	44	22.3	45	21.7	52	25.3
Sales	45	15.6	64	19.4	30	13.5	39	17.3	25	12.5
Operatives	-13	-5.9	-2	-0.8	-10	-4.7	-13	-6.7	-22	-8.5
Elementary	-81	-18.3	-57	-12.8	-54	-17.6	-55	-18.8	-71	-25.1
All	289	6.4	287	6.8	134	4.9	101	4.0	90	3.5

	East Midlands		Yorkshire and the Humber		North West		North East		England	
	000s	%	000s	%	000s	%	000s	%	000s	%
Managers	37	12.2	43	12.6	39	8.4	13	9.4	553	13.7
Professionals	41	19.1	45	17.7	72	18.3	17	14.5	584	19.4
Associate prof.	23	9.2	20	6.7	25	5.6	7	5.1	412	11.2
Administrative	-20	-8.6	2	0.7	-7	-1.7	-6	-4.3	-312	-9.7
Skilled trades	-25	-10.4	-15	-4.8	-20	-5.4	-8	-5.8	-114	-4.0
Personal service	38	22.2	39	20.4	52	19.2	8	9.0	374	19.7
Sales	31	18.6	35	16.2	41	14.3	21	20.1	331	16.2
Operatives	-14	-7.2	-7	-3.0	-17	-5.8	-2	-1.9	-100	-5.1
Elementary	-59	-25.8	-67	-23.2	-84	-21.8	-24	-17.1	-551	-19.6
All	52	2.6	96	3.9	101	3.0	27	2.5	1,176	4.6

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Note:** Shading indicates areas of expected employment decline.

- 5.132 The projections also make possible a more detailed examination of occupational trends at regional level, using the 25 SOC 2000 sub-major occupational groups (see Tables 5.18, 5.19 and 5.20). Table 5.21 provides some further insights into how the importance of different occupational categories varies across regions, as well as making it possible to identify those which are growing or declining most rapidly.
- 5.133 Although the overall patterns of change are similar across regions, their different existing employment structures result in substantial regional variations in the projected changes. Table 5.21 provides an overview of this more complex picture. Shading and use of + and – signs in the cells helps to highlight which occupations are numerically important in different locations as well as which are growing or developing most rapidly. The shaded cells indicate employment of 100,000 or more in 2004 or 2014. Shading of row headers indicates changes for the whole sector or occupation.
- 5.134 The patterns illustrate the dominance of London and the South East regions but also highlight the importance of particular types of jobs in other regions. The + signs indicate rates of growth of employment in excess of 20 per cent over the period 2004 to 2014. Certain occupations are expected to achieve this in every region (science and technology associate professionals; caring personal service occupations; and customer services occupations). Rapid job losses in excess of 20 per cent, indicated by the ‘–’ sign, are concentrated amongst low and unskilled occupations, especially in London, the West Midlands and the North West.
- 5.135 Specific features within individual regions can be highlighted by focusing on some of the most rapidly growing occupations. The fastest increases are expected in customer service occupations and caring personal service occupations (e.g. lower skilled jobs in health care, childcare and animal care). In the case of customer services occupations, a 31 per cent increase is projected for England as a whole. The fastest increases are expected in the East and West Midlands, Yorkshire and the Humber and the North East, with the slowest increases being in London. For caring personal services, rates of growth are less varied across regions.
- 5.136 Rapid growth, nationally, is also expected amongst professionals such as science and technology, health, and business and public service professionals. Among business and public service professionals (e.g. solicitors, surveyors, accountants, social workers and architects) a 16 per cent increase is projected for England as a whole. Here the largest increases are expected in London. The South East and the East of England also have average rates of increase. Much slower increases are expected elsewhere.

**Table 5.18: Levels of projected employment by Standard Occupational Classification sub-major group and region, 2004–2014.**

000s

	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Corporate managers	638	794	586	714	351	423	284	335	280	335	228	271	257	306	350	402	97	111	3,071	3,692
Managers and proprietors	182	176	166	158	106	100	102	91	81	70	74	67	87	82	117	104	39	38	954	887
Science/tech. professionals	145	174	167	191	102	119	78	90	81	99	63	79	65	81	109	130	30	36	840	998
Health professionals	56	77	34	43	23	32	19	24	21	26	19	24	22	28	29	35	13	18	237	308
Teaching/research prof.	230	293	184	213	112	135	133	164	120	141	87	101	110	125	182	221	53	59	1,211	1,452
Public service prof.	215	268	122	140	70	79	57	64	54	61	46	53	55	63	72	77	22	23	714	828
Science associate prof.	90	99	91	99	57	63	48	53	49	56	39	44	49	59	71	82	24	28	518	581
Health associate prof.	180	222	134	138	81	83	86	86	90	101	67	71	78	76	123	127	45	49	885	953
Protective service occs	69	67	59	64	34	36	23	21	31	32	22	23	33	35	46	43	18	18	336	338
Culture/media/sport occs	184	247	103	124	62	78	51	65	44	53	30	36	37	42	56	63	14	15	582	724
Bus./public serv. assoc prof.	324	381	246	270	146	158	125	135	125	137	93	100	107	113	156	162	42	42	1,364	1,500
Admin & clerical occupations	421	329	394	371	256	249	228	213	250	267	175	169	233	248	339	352	104	104	2,402	2,302
Secretarial & related occs	159	96	154	114	95	74	74	54	76	61	55	41	69	56	97	76	27	21	805	593
Skilled agricultural trades	21	25	50	65	32	38	43	50	38	41	28	32	32	38	33	39	14	13	292	342
Skilled metal/elec. trades	142	108	163	124	116	87	108	79	142	101	93	66	108	77	145	105	51	37	1,069	784
Skilled construct. trades	139	168	157	197	116	137	116	145	110	129	78	85	105	124	119	144	45	56	985	1,185
Other skilled trades	87	71	81	72	59	51	57	49	53	44	43	34	55	48	78	67	23	19	536	457
Caring personal service occs	187	211	226	287	145	184	160	202	162	212	134	169	147	182	206	254	65	72	1,431	1,772
Leisure/other pers. serv. occs	80	78	82	95	51	56	46	49	45	48	36	38	44	49	63	66	21	22	468	502
Sales occupations	229	265	269	315	184	202	190	219	163	173	139	162	182	202	237	259	87	102	1,680	1,898
Customer service occupations	60	69	60	78	39	51	35	46	37	52	27	36	35	49	51	70	15	21	361	474
Process plant & mach. ops.	73	36	122	86	107	79	102	75	156	116	119	92	137	110	153	109	60	51	1,029	756
Transport drivers and ops.	141	165	136	170	98	116	85	100	105	123	80	92	106	125	143	170	44	51	938	1,112
Elementary: trades/plant/mach.	95	52	125	80	98	60	92	60	101	62	83	53	103	69	115	78	40	28	852	541
Elementary: clerical/service	350	311	317	306	210	194	201	178	181	150	145	116	185	153	269	223	98	86	1,956	1,717
All occupations	4,496	4,785	4,227	4,514	2,751	2,885	2,545	2,646	2,599	2,689	2,004	2,056	2,444	2,540	3,358	3,459	1,093	1,120	25,517	26,694

Source: *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.19: Industry shares of projected employment by Standard Occupational Classification sub-major group and region, 2004–2014.**

	%																			
	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Corporate managers	14.2	16.6	13.9	15.8	12.8	14.7	11.2	12.6	10.8	12.4	11.4	13.2	10.5	12.1	10.4	11.6	8.9	10.0	12.0	13.8
Managers and proprietors	4.0	3.7	3.9	3.5	3.9	3.5	4.0	3.4	3.1	2.6	3.7	3.3	3.6	3.2	3.5	3.0	3.5	3.4	3.7	3.3
Science/tech. professionals	3.2	3.6	3.9	4.2	3.7	4.1	3.1	3.4	3.1	3.7	3.2	3.8	2.6	3.2	3.2	3.8	2.8	3.2	3.3	3.7
Health professionals	1.2	1.6	0.8	1.0	0.8	1.1	0.8	0.9	0.8	1.0	0.9	1.2	0.9	1.1	0.9	1.0	1.2	1.6	0.9	1.2
Teaching/research prof.	5.1	6.1	4.4	4.7	4.1	4.7	5.2	6.2	4.6	5.2	4.3	4.9	4.5	4.9	5.4	6.4	4.8	5.2	4.7	5.4
Public service prof.	4.8	5.6	2.9	3.1	2.5	2.7	2.3	2.4	2.1	2.3	2.3	2.6	2.3	2.5	2.2	2.2	2.0	2.1	2.8	3.1
Science associate prof.	2.0	2.1	2.2	2.2	2.1	2.2	1.9	2.0	1.9	2.1	1.9	2.1	2.0	2.3	2.1	2.4	2.2	2.5	2.0	2.2
Health associate prof.	4.0	4.7	3.2	3.0	3.0	2.9	3.4	3.3	3.5	3.7	3.4	3.4	3.2	3.0	3.7	3.7	4.1	4.4	3.5	3.6
Protective service occs	1.5	1.4	1.4	1.4	1.2	1.2	0.9	0.8	1.2	1.2	1.1	1.1	1.4	1.4	1.4	1.2	1.7	1.6	1.3	1.3
Culture/media/sport occs	4.1	5.2	2.4	2.7	2.2	2.7	2.0	2.5	1.7	2.0	1.5	1.8	1.5	1.7	1.7	1.8	1.3	1.3	2.3	2.7
Bus./public serv. assoc prof.	7.2	8.0	5.8	6.0	5.3	5.5	4.9	5.1	4.8	5.1	4.6	4.9	4.4	4.5	4.6	4.7	3.9	3.7	5.3	5.6
Admin & clerical occupations	9.4	6.9	9.3	8.2	9.3	8.6	9.0	8.0	9.6	9.9	8.7	8.2	9.5	9.8	10.1	10.2	9.5	9.3	9.4	8.6
Secretarial & related occs	3.5	2.0	3.6	2.5	3.5	2.6	2.9	2.0	2.9	2.3	2.7	2.0	2.8	2.2	2.9	2.2	2.4	1.9	3.2	2.2
Skilled agricultural trades	0.5	0.5	1.2	1.4	1.2	1.3	1.7	1.9	1.5	1.5	1.4	1.6	1.3	1.5	1.0	1.1	1.3	1.2	1.1	1.3
Skilled metal/elec. trades	3.2	2.3	3.9	2.8	4.2	3.0	4.2	3.0	5.5	3.7	4.7	3.2	4.4	3.0	4.3	3.0	4.7	3.3	4.2	2.9
Skilled construct. trades	3.1	3.5	3.7	4.4	4.2	4.8	4.6	5.5	4.2	4.8	3.9	4.1	4.3	4.9	3.5	4.2	4.1	5.0	3.9	4.4
Other skilled trades	1.9	1.5	1.9	1.6	2.1	1.8	2.2	1.9	2.0	1.6	2.2	1.7	2.3	1.9	2.3	1.9	2.1	1.7	2.1	1.7
Caring personal service occs	4.1	4.4	5.3	6.4	5.3	6.4	6.3	7.6	6.2	7.9	6.7	8.2	6.0	7.2	6.1	7.3	6.0	6.4	5.6	6.6
Leisure/other pers. serv. occs	1.8	1.6	1.9	2.1	1.9	1.9	1.8	1.9	1.7	1.8	1.8	1.9	1.8	1.9	1.9	1.9	1.9	2.0	1.8	1.9
Sales occupations	5.1	5.5	6.4	7.0	6.7	7.0	7.5	8.3	6.3	6.4	7.0	7.9	7.4	8.0	7.1	7.5	8.0	9.1	6.6	7.1
Customer service occupations	1.3	1.5	1.4	1.7	1.4	1.8	1.4	1.7	1.4	1.9	1.4	1.7	1.4	1.9	1.5	2.0	1.4	1.9	1.4	1.8
Process plant & mach. ops	1.6	0.8	2.9	1.9	3.9	2.7	4.0	2.8	6.0	4.3	5.9	4.5	5.6	4.3	4.6	3.1	5.5	4.6	4.0	2.8
Transport drivers and ops	3.1	3.5	3.2	3.8	3.6	4.0	3.3	3.8	4.0	4.6	4.0	4.5	4.4	4.9	4.3	4.9	4.0	4.5	3.7	4.2
Elementary: trades/plant/mach.	2.1	1.1	3.0	1.8	3.6	2.1	3.6	2.3	3.9	2.3	4.1	2.6	4.2	2.7	3.4	2.2	3.6	2.5	3.3	2.0
Elementary: clerical/service	7.8	6.5	7.5	6.8	7.6	6.7	7.9	6.7	7.0	5.6	7.2	5.7	7.6	6.0	8.0	6.4	9.0	7.7	7.7	6.4
All occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *Working Futures 2004–2014* (Wilson et al, 2006).

**Table 5.20: Changes in projected employment by Standard Occupational Classification sub-major group and region, 2004–2014.**

	London		South East		East of England		South West		West Midlands		East Midlands		Yorkshire and the Humber		North West		North East		England	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
Corporate managers	156	24.4	129	22.0	72	20.5	51	17.9	55	19.5	43	19.0	49	19.2	52	14.8	14	14.4	620	20.2
Managers and proprietors	-5	-2.9	-8	-4.8	-6	-5.4	-11	-10.9	-11	-13.7	-6	-8.7	-6	-6.6	-13	-10.8	-1	-3.1	-67	-7.1
Science/tech. professionals	29	19.9	24	14.4	17	17.0	12	15.0	18	22.5	15	24.1	16	24.9	22	19.8	5	17.7	158	18.9
Health professionals	21	38.4	9	25.4	8	36.6	5	23.8	5	25.3	5	28.2	6	27.0	6	19.9	5	37.6	71	29.8
Teaching/research prof.	63	27.6	29	15.9	22	19.8	32	23.8	21	17.3	14	15.9	15	13.5	39	21.6	6	10.7	241	19.9
Public service prof.	53	24.5	18	15.1	9	13.1	6	10.9	6	11.7	7	14.3	8	14.0	5	6.9	1	5.2	114	15.9
Science associate prof.	9	9.8	8	8.3	6	9.9	5	9.4	7	13.8	6	14.4	10	20.7	10	14.4	4	16.3	63	12.2
Health associate prof.	42	23.5	4	2.6	2	2.2	0	0.1	10	11.6	3	5.1	-2	-2.3	4	3.6	4	8.1	68	7.7
Protective service occs	-2	-2.7	4	7.4	2	5.2	-2	-8.5	1	3.4	1	4.9	2	4.8	-3	-6.6	0	-0.9	3	0.8
Culture/media/sport occs	63	34.5	21	20.7	17	27.3	14	27.5	9	20.1	6	20.6	5	12.5	7	12.0	0	2.7	142	24.5
Bus./public serv. assoc prof.	57	17.7	25	10.0	13	8.7	10	8.1	12	9.5	7	7.3	6	5.5	7	4.3	0	-1.0	136	10.0
Admin & clerical occupations	-92	-21.9	-23	-5.8	-7	-2.9	-15	-6.7	16	6.5	-6	-3.6	15	6.4	13	4.0	0	-0.1	-100	-4.2
Secretarial & related occs	-63	-39.9	-40	-25.9	-21	-22.3	-20	-27.1	-15	-20.2	-13	-24.6	-13	-18.5	-21	-21.4	-6	-20.7	-212	-26.4
Skilled agricultural trades	5	22.0	15	30.4	6	19.5	8	18.0	3	6.9	4	14.2	5	16.9	5	15.7	-1	-3.9	50	17.3
Skilled metal/elec. trades	-34	-24.2	-39	-23.8	-29	-25.1	-29	-26.9	-42	-29.2	-28	-29.6	-31	-28.7	-40	-27.3	-14	-26.9	-285	-26.7
Skilled construct. trades	29	20.8	40	25.5	22	18.6	29	24.8	19	17.4	7	9.1	18	17.6	25	20.8	11	23.8	199	20.2
Other skilled trades	-16	-18.2	-9	-10.6	-8	-12.8	-8	-13.4	-9	-16.4	-9	-20.3	-7	-13.4	-10	-13.5	-4	-17.6	-79	-14.7
Caring personal service occs	25	13.3	62	27.2	39	26.7	42	26.0	49	30.4	35	26.1	34	23.4	48	23.3	7	10.5	340	23.8
Leisure/other pers. serv. occs	-2	-2.6	13	16.1	5	9.7	3	6.8	3	6.8	3	7.7	5	10.4	4	5.6	1	4.3	34	7.3
Sales occupations	36	15.7	46	17.1	18	9.8	29	15.0	10	6.2	23	16.4	21	11.4	21	9.0	15	16.8	218	13.0
Customer service occupations	9	15.3	18	29.6	12	31.1	10	29.5	15	39.7	8	29.8	14	41.3	20	38.9	6	39.4	113	31.3
Process plant & mach. ops	-36	-50.1	-36	-29.2	-28	-26.2	-27	-26.8	-40	-25.5	-27	-22.3	-26	-19.1	-45	-29.1	-9	-15.0	-274	-26.6
Transport drivers and ops	24	16.8	34	24.7	18	18.8	15	17.5	18	16.7	12	15.2	19	17.6	27	19.2	7	16.3	174	18.5
Elementary: trades/plant/mach.	-43	-44.9	-46	-36.5	-38	-39.1	-32	-35.0	-39	-38.8	-30	-36.2	-35	-33.4	-38	-32.6	-11	-28.9	-312	-36.6
Elementary: clerical/service	-39	-11.1	-11	-3.4	-16	-7.6	-23	-11.4	-32	-17.5	-29	-19.9	-32	-17.5	-46	-17.1	-12	-12.3	-240	-12.2
All occupations	289	6.4	287	6.8	134	4.9	101	4.0	90	3.5	52	2.6	96	3.9	101	3.0	27	2.5	1,176	4.6

Source: *Working Futures 2004–2014* (Wilson et al, 2006).

Note: Shaded areas indicate projected employment decline.

**Table 5.21: Projected changes in occupational structure by region, 2004–2014.**

	London	South East	East of England	South West	West Midlands	East Midlands	Yorkshire and the Humber	North West	North East	England
11 Corporate managers	+	+	+							+
12 Managers and proprietors										
21 Science/tech. professionals					+	+	+			
22 Health professionals	+	+	+	+	+	+	+		+	+
23 Teaching/research prof.	+			+				+		
24 Business/public service prof.	+									
31 Science/tech. associate prof.							+			
32 Health associate prof.	+									
33 Protective service occs										
34 Culture/media/sport occs	+	+	+	+	+	+				+
35 Bus/public serv. assoc. prof.										
41 Administrative occupations	-									
42 Secretarial and related occs	-	-	-	-	-	-		-	-	-
51 Skilled agricultural trades	+	+								
52 Skilled metal/elec. trades	-	-	-	-	-	-	-	-	-	-
53 Skilled construct. trades	+	+		+				+	+	+
54 Other skilled trades						-				
61 Caring personal service occs		+	+	+	+	+	+	+		+
62 Leisure/oth. pers. serv. occs										
71 Sales occupations										
72 Customer service occupations		+	+	+	+	+	+	+	+	+
81 Process, plant and mach. ops	-	-	-	-	-	-		-		-
82 Transport drivers and ops		+								
91 Elementary: trades/plant/stor.	-	-	-	-	-	-	-	-	-	-
92 Elementary: admin./service										

	Level of employment in 2004 and/or 2014 is 100,000 or greater.
+	2004–2014 growth is forecast to be 20% or greater.
-	2004–2014 growth is forecast to be -20% or less.
	2004–2014 growth is forecast to be 10% or greater. Row and column titles only.
	2004–2014 growth is forecast to be -10% or less. Row and column titles only.

Source: *Working Futures 2004–2014* (Wilson et al, 2006).

- 5.137 Another group projected to have rapid employment growth (of some 25 per cent between 2004 and 2014) is culture, media and sports occupations (e.g. designers, media, sport and fitness occupations). Here regional variations are less marked. It is the South West and East of England that are projected to have the fastest increases.
- 5.138 There are also some regional variations in the patterns of declining occupations. The group expected to experience the most rapid decline nationally is elementary trades, where a decline of around 37 per cent is anticipated. Regional variations range from 45 per cent in London to below 30 per cent in the North East.
- 5.139 Secretarial and related occupations (e.g. typists and receptionists) are expected to decline by around 26 per cent. Some regional variations are apparent, however, with the largest and fastest losses being experienced in London (almost 40 per cent). Process, plant and machine operatives are expected to experience a similar rate of decline of around 27 per cent in England as a whole, but with very large variations being expected across the regions. As many as 50 per cent of such jobs are anticipated to be lost in London.

## Replacement Demands by Region

- 5.140 As noted earlier, projected changes in the level of employment may give a misleading impression of priorities for education and training. It is also important to consider replacement demands. Combining replacement demands with the projected expansion demand, an estimate of the overall requirement for each occupation within each region can be obtained.
- 5.141 In principle, replacement demands will vary across regions depending upon the gender and age structures of their workforces as well as variations in the rates of flows, including geographical and other mobility flows. In practice, measuring these is far from straightforward. Currently, the estimates of age structures and rates of flows are based on the LFS. While this is adequate to generate reasonably robust estimates at national level, the sample size is too small to produce meaningful estimates differentiated by sector or by region. The estimates here are therefore based on the same assumptions about age structures and flow rates as at national (UK) level. Nevertheless, such benchmark estimates are useful in emphasising that even for regions where quite sharp employment losses are projected, replacement demands are likely to be more than sufficient to outweigh these trends.
- 5.142 Results for each of the 25 occupational sub-major groups are set out in Table 5.22. Replacement demands outweigh the net projected decline in all occupations where job losses are expected. Between 2004 and 2014 there is expected to be an overall requirement of some 10.5 million new job openings. Retirements from the workforce are the main component of replacement demands.
- 5.143 Even in occupations such as administrative and clerical occupations, secretarial and related occupations, skilled metal and electrical trades (as well as other skilled trades), process plant and machine operatives and elementary occupations, total requirements are strongly positive despite negative expansion demand. In other cases, expected retirements will add to positive expansion demand to create even higher overall requirements for new entrants to these occupations.
- 5.144 The regional results highlight the fact that employment is projected to fall in nearly all regions for occupational groups such as: SOC 4, administrative,

clerical and secretarial; SOC 5, skilled trades; SOC 8, transport and machine operatives; and SOC 9, elementary occupations. Replacement demands are substantial for all these groups, more than offsetting such negative trends. In every region total requirements are positive for all the SOC major groups. There will therefore be important education and training needs for people to enter such occupations, despite the fact that the overall numbers are projected to decline.

- 5.145 Surveys of employers such as NESS suggest that employers expect that the main problems in the future will relate to various key and generic skills including communication, customer handling, team working and management skills. IT skills are also expected to be critical.

**Table 5.22: Replacement demand by occupation and region, 2004–2014.**

a) Expansion demand											000s
	SOC major group									All	
	1	2	3	4	5	6	7	8	9		
London	151	167	170	-156	-17	23	45	-13	-81	289	
South East	121	80	61	-63	8	75	64	-2	-57	287	
East of England	66	57	39	-29	-9	44	30	-10	-54	134	
South West	40	54	27	-35	0	45	39	-13	-55	101	
West Midlands	43	51	39	1	-28	52	25	-22	-71	90	
East Midlands	37	41	23	-20	-25	38	31	-14	-59	52	
Yorks and the Humber	43	45	20	2	-15	39	35	-7	-67	96	
North West	39	72	25	-7	-20	52	41	-17	-84	101	
North East	13	17	7	-6	-8	8	21	-2	-24	27	
England	553	584	412	-312	-114	374	331	-100	-551	1,176	

b) Replacement demand										
	SOC major group									All
	1	2	3	4	5	6	7	8	9	
London	297	240	284	231	126	105	96	76	158	1,614
South East	272	183	211	222	150	123	115	91	161	1,528
East of England	166	111	127	143	107	79	79	72	112	995
South West	140	107	113	122	108	83	81	65	107	925
West Midlands	131	102	114	132	113	84	71	91	103	940
East Midlands	109	79	85	93	80	68	60	69	83	726
Yorks and the Humber	125	94	101	121	99	77	77	85	104	883
North West	169	146	151	174	123	108	102	104	140	1,217
North East	50	44	48	52	44	35	37	36	50	396
England	1,458	1,106	1,235	1,289	951	763	718	689	1,018	9,225

c) Overall requirement										
	SOC major group									All
	1	2	3	4	5	6	7	8	9	
London	448	406	454	75	110	128	141	64	77	1,903
South East	393	263	272	160	158	198	179	89	104	1,815
East of England	232	168	166	114	98	123	109	62	58	1,129
South West	180	162	140	87	107	128	120	53	51	1,027
West Midlands	174	153	153	132	85	136	96	68	32	1,030
East Midlands	146	120	108	73	55	106	91	55	24	778
Yorks and the Humber	168	139	122	123	85	116	112	77	37	979
North West	208	217	177	167	103	160	143	87	56	1,318
North East	63	61	56	47	36	42	58	34	27	423
England	2,011	1,689	1,647	977	836	1,137	1,049	589	467	10,402

**Source:** *Working Futures 2004–2014* (Wilson et al, 2006).

**Notes:**

a) These estimates do not allow for any losses due to occupational or geographical mobility.

b) Shaded areas show projected employment declines.

c) Occupational groups:

- |                                 |                                   |                                    |
|---------------------------------|-----------------------------------|------------------------------------|
| 1 Managers and senior officials | 4 Admin, clerical and secretarial | 7 Sales and customer service       |
| 2 Professional                  | 5 Skilled trades                  | 8 Machine and transport operatives |
| 3 Associate prof. and technical | 6 Personal service                | 9 Elementary                       |

# Annex: Sector Skills Councils by Standard Industrial Classification

**Table A: Defining sector skills councils in terms of Standard Industrial Classification 2003.**

SSCs	SIC2003
1 Lantra	01, 02, 05.02, 85.2, 92.53
2 Cogent	11, 23, 24.11–24.2, 24.41–24.63, 24.65,24.66, 25.13–25.24, 50.5
3 Proskills UK	10, 12–14, 21, 22.2, 24.3, 26.1, 26.26, 26.4–26.8, 40.3
4 Improve Ltd	15.11–15.91, 15.93–15.98, 51.38
5 Skillfast-UK	17–19, 24.7, 51.16, 51.24, 51.41, 51.42, 52.71, 93.01
6 SEMTA	25.11, 25.12, 27.4–28.3, 28.5–28.7, 29–35
7 Energy & Utility Skills	37, 40.1, 40.2, 41, 51.54, 51.55, 60.3, 90
8 ConstructionSkills	45.1, 45.2, 45.32, 45.34, 45.4, 45.5, 71.32, 74.2
9 SummitSkills	45.31, 45.33, 52.72
10 Automotive Skills	50.1–50.4, 71.1
11 Skillsmart Retail	52.1–52.6
12 People 1st	55.1, 55.21, 55.23, 55.3–55.5, 63.3, 92.33, 92.71
13 GoSkills	60.1, 60.21–60.23, 61, 62.1, 62.2, 63.2, 80.41
14 Skills for Logistics	60.24, 63.1, 63.4, 64.1
15 Financial Services Skills Council	65–67
16 Asset Skills	70, 74.7
17 e-skills UK	22.33, 64.2, 72, 74.86
18 Central Government	75.1, 75.21, 75.22, 75.25, 75.3
19 Skills for Justice	75.23, 75.24
20 Lifelong Learning UK	80.22, 80.3, 80.42, 92.51
21 Skills for Health	85.1
22 Skills for Care & Development	85.3
23 Skillset	22.32, 24.64, 74.81, 92.1, 92.2
24 Creative & Cultural Skills	22.14, 22.31, 36.3, 74.4, 92.31, 92.32, 92.34, 92.4, 92.52
25 SkillsActive	55.22, 92.6, 93.04
26 Non-SSC employers (primary)	05.01, 15.92, 16, 20, 22.11–22.13, 22.15, 26.21–26.25, 26.3, 27.1–27.3, 28.4, 36.1, 36.2, 36.4–36.6
27 Non-SSC employers (wholesale or retail)	51.11–51.15, 51.17–51.23, 51.25–51.37, 51.39, 51.43–51.53, 51.56–51.90, 52.73, 52.74
28 Non-SSC employers (business services or public services)	62.3, 71.2, 71.31, 71.33, 71.34, 71.4, 73, 74.1, 74.3, 74.5, 74.6, 74.82, 74.85, 74.87, 80.10, 80.21, 91, 92.72, 93.02, 93.03, 93.05

#### **Related publications**

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*Skills in England 2005 Volume 1: Key Messages*

Publication reference: LSC-P-NAT-060308

*Skills in England 2005 Volume 3: Regional and Local Evidence*

Publication reference: LSC-P-NAT-060310

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