Skills at Work in the East Midlands, 1997 to 2006

A survey report for *emda*

Alan Felstead, Cardiff School of Social Sciences, and Francis Green, the University of Kent

2007

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Skills at Work in the East Midlands, 1997 to 2006

Alan Felstead
Francis Green

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ABOUT THE AUTHORS

Alan Felstead is Research Professor at the Cardiff School of Social Sciences, Cardiff University. His research focuses on: non-standard forms of employment; the spaces and places of work; and training, skills and learning. He has given expert advice on these matters to policy-makers, including DfES, DfT, EOC, Sector Skills Councils, RDAs, CEDEFOP and several private sector organisations.

Francis Green is Professor of Economics at the University of Kent. His publications focus on labour economics, especially on skills, training, job quality and employment relations; and he provides periodic advice on these issues to the UK Government, to the European Commission and to the OECD.

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EXECUTIVE SUMMARY

Raising work skills continues to attract the interest of policy makers and researchers alike. However, evidence on work skills in the East Midlands has often been gathered from UK-wide surveys which lack a specific East Midlands focus. This Report presents evidence on work skills in the East Midlands drawn from data collected for the 2006 Skills Survey which contained an East Midlands boost. The survey generated a high quality, and reasonably large, representative sample of working individuals living in the East Midlands aged 20-65. The sample consisted of 1,101 respondents. The survey's aim was to gather information on the *skills used at work via questions directed at workers themselves*.

This Report explains how several different aspects of work skill can be measured using the information gathered and examines the distribution of job skills among those in work. The Report also describes changes that have taken place over the last decade, by making comparisons across three separate, but comparable, surveys carried out in 1997, 2001 and 2006. The Report also compares work skills in the East Midlands with those found in England as a whole.

The Report focuses on the distribution and trends in the following:

- **broad skill** measures including the qualification level required on entry into jobs, the training time for the type of work individuals carry out and the learning time needed to do jobs well (Chapter 3);
- the use of **computer skills** and their level of sophistication (Chapter 4);
- the use of other **generic skills**, such as problem-solving and communication skills (Chapter 5);
- **employee task discretion**, that is the level of control employees have over the detailed execution of work tasks and hence the extent to which employees' judgement and skill is required (Chapter 6);
- **employee attitudes** to work and skill development, the opportunities for training and learning, and the consequences of and reasons for employee development (Chapter 7).

The main findings are as follows:

The Pattern of Broad Skills

- Around a quarter (25.9%) of the jobs in the East Midlands in 2006 required a level 4 or above qualification for entry. However, around three out of ten jobs (29.1%) required no qualifications on entry. A similar polarisation of jobs is reflected in the training times respondents reported for their current type of work – over half of jobs in the East Midlands (58.6%) were reported as requiring less than three months' training time, while a quarter (25.8%) reported training times of over two years. Similarly, some jobs took a long time to do well, while others

were picked up relatively quickly – over a quarter of jobs (28.8%) could only be done well after spending more than two years in post, but around a fifth (20.1%) could be learnt in under a month.

- The East Midlands has a slightly lower proportion than the UK of people with level 4 or above qualifications – 29.6% as opposed to 32.8%. The demand for these qualifications is correspondingly lower by around three percentage points, so that the gap in the over-supply of level 4 qualifications in the East Midlands and the UK is broadly comparable. This is repeated for most other qualification levels. However, the gap is a little larger for lower level qualifications. For example, the East Midlands economy has proportionately more jobs than the UK that require no qualifications to enter, although it has a similar proportion of unqualified people from which to draw. The discrepancy between demand for no qualification jobs and supply of unqualified labour is therefore proportionately larger in the East Midlands than in the country as a whole.

The Pattern of Computing Skills

- Computers are used in 73.9% of jobs in the East Midlands. In 42.2% of jobs, computer usage is 'essential' for the job, and in 17.3% of jobs it involves using computers in ways defined as 'complex' (e.g. use of spreadsheets) or 'advanced' (e.g. programming). In 41.4% of jobs use of the internet is either 'essential' or 'very important'.
- Broadly speaking, computer skills in the East Midlands and in England as a whole are at quite similar levels. However, there are some small differences, even within industries, with skills generally being somewhat more used in England as a whole. For example, computer use is 'essential' for 47.7% of jobs across England as a whole, as compared with the figure of 42.2% for the East Midlands.
- In the East Midlands, women are more likely than men to report that computers are 'essential' for their jobs (48.3% compared with 36.8%), but are less likely to be using computers in 'complex' or 'advanced' ways (15.1% of jobs compared with 19.2%). Among women the differences are also striking: computers are 'essential' in the jobs of 26.0% of part-time workers, as against 52.1% of the jobs of full-time workers.

The Pattern of Other Generic Skills

- There are differences between the generic skills utilised by men and women, with women typically found in jobs requiring more communication skills, and more emotional and aesthetic skills. Among women, those in full-time jobs exercise considerably greater levels of generic skills in most domains than those in part-time jobs.
- Generic skills vary across sectors and occupations in expected ways: for example, influence skills are strongest in the public sector, and in 'Managerial', 'Professional' and 'Associate Professional' occupations, and are on average

considered less than 'fairly important' in other occupations. Aesthetic and emotional skills are both considerably more important in 'Service' industries than in 'Production' industries.

- There are only small differences between the generic skills (other than computing) deployed in the East Midlands, as compared with jobs in England as a whole. In two skill domains, what we have called physical skills and technical know-how, jobs in the East Midlands require higher skill levels than in England as a whole.

Skill Trends

- Jobs in the East Midlands have seen an increase in their skill content over time. For example, jobs requiring degrees for entry have rose from one in ten (10.4%) in 1997 to around one in six (16.9%) in 2006. Similarly, the proportion of jobs requiring more than two years' training for the current type of work rose from over a fifth (21.9%) 1997 to around a quarter (25.5%) in 2006. Skill change in England over the last decade has been more modest. Nevertheless, there is nothing – according to these skill measures – to suggest that the level of skills exercised in jobs in the East Midlands is any different to skills level of jobs in England as a whole.
- Despite a decade of modest change in the skills content of jobs, women living in England as a whole have seen their skills rise significantly. However, this pattern of change does not extend to women working in the East Midlands. Their skills have also risen but at a slower rate and at rates falling short of statistical significance. This suggests that skills advances made by women, and in particular women who work part-time, has not taken place in the East Midlands.
- In 2006, almost two-fifths (39.1%) of respondents in the East Midlands reported that their highest qualification was above that required for entry (defined here as 'over-qualification'). This represents a rise from the figure reported in 1997 when around one in three respondents (31.7%) reported being 'over-qualified'. The East Midlands experience is remarkably similar to that of England as a whole, where 'over-qualification' also rose by around eight percentage points.
- There has been a remarkable growth over the last decade in the use of computers in the East Midlands, for those aged 20 to 60. For example, the proportion of workplaces in which computers were judged 'essential' rose from 29.9% in 1997 to 42.8% in 2006. Nevertheless, the East Midlands region has lagged a little behind England as a whole in the growth of computing skills.
- Other generic skills have also shown a small increase, but the use in the East Midlands of several generic skills has not changed over the last decade. In the East Midlands, six out of the ten generic skills have risen: literacy skills, number skills, influence skills, planning skills, client communication skills, and horizontal communication skills. For the other four generic skills, the changes have been negligible (and statistically insignificant). By contrast, elsewhere in England all but physical skills are statistically higher now than they were nine years ago.

Discretion at Work

- In the East Midlands, 52.7% of respondents claimed to have 'a great deal' of influence over their work effort and 53.6% claimed to have a similar level of influence over the quality standards of their work. Smaller but sizeable proportions claimed to exercise 'a great deal' of influence over what tasks are to be done and how (30.3% and 46.3%).
- Notably, comparisons with England suggest that employees in the East Midlands exercise fractionally more autonomy at work. For example, the task discretion index stands at 2.22 for the East Midlands compared to 2.19 for England. However, this difference falls just short of statistical significance.
- There is no gendering of the level of autonomy enjoyed by men and women in the East Midlands and in England. According to this evidence, men enjoy the same level of autonomy as women (with an identical task discretion score in the East Midlands of 2.22). Moreover, the disadvantage part-time women workers face is non-existent in the East Midlands but it remains pronounced in England. The task discretion index is not significantly different for women full-timers and women part-timers in the East Midlands, but in England the disadvantage is both large and statistically significant.
- For the East Midlands, autonomy levels have remained more or less than same over the last nine years. However, over the same period levels of autonomy in England as a whole have fallen. The 1997-2006 period also saw the gender gap disappear in the East Midlands, while in England gender parity was simply maintained.
- In 1997 almost six out of ten (61.4%) employees in the East Midlands said that they themselves had an important say in how hard they worked. By 2006 this had fallen by around five percentage points (56.3%). A similar pattern emerges for England. The importance of peer pressure also fell over the nine year period. In the East Midlands it fell in importance by eleven percentage points (falling from 59.6% in 1997 to 48.6% in 2006). It fell a little more sharply in England but the magnitude of the fall was similar.

Training and Learning

- Many job features are important to people's work orientations, but 'good training provision' does not appear one of them. It was ranked ninth out of fifteen job features in both the East Midlands and England as a whole. Nevertheless, it was rated as 'essential' by a fifth of job-holders in the East Midlands about the same proportion as employees who worked elsewhere in the UK.
- Six out of ten (59.5%) respondents in the East Midlands who did not receive training also said that they 'did not want any training' and around a sixth (15.5%) said that their 'employer was not willing to provide additional training, even

though I wanted it'. Furthermore, two-thirds (68.2%) regarded such activity was not needed.

- Nevertheless, the lack of training may be considered an obstacle to improved work performance. However, this does not appear to be the case. Over three-quarters (76.8%) of respondents in the East Midlands who did not receive training thought that their lack of training would not harm them in keeping up with changes in the job and even more thought that it would not hinder their career opportunities. This figure is similar to the English average and therefore suggests that the lack of training is not much of a drawback for employees in either the East Midlands or England in general.

- When training is undertaken it is often at the behest of the employer: whereas only two-fifths of trainee respondents in the East Midlands claimed personal responsibility, around two-thirds claimed that training had been initiated by their employer. The pattern was very similar among men and women, although only a quarter of female part-time employees received training as a result of their own initiative.

- The impact of training on work performance was high. For example, nine out of ten East Midlands respondents said that: it was important for keeping up-to-date with developments in the job (90.7%); it had helped them to improve their work practices (88.7%); and it had improved their skills (91.6%).

- On-the-job learning through experience and experimentation as well as learning from others is buoyant. Around a third (33.6%) of East Midlands respondents strongly agreed that the job itself requires learning and just over a quarter (26.4%) strongly agreed that they are able to learn from work colleagues. There was also strong agreement that job-holders have a teaching role in helping others learn – nearly a third (31.1%) of East Midlands respondents took such a position. The East Midlands results were mirrored by those in England as a whole.

- Overall, a quarter (25.9%) of East Midlands respondents registered a strong desire for future training. Furthermore, they were more optimistic than those living in England as a whole that they would get training in the future – around a quarter (23.7%) of East Midlanders 'strongly agreed' that they would get future training opportunities compared to less than a fifth (19.1%) of those living in England as a whole.

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The analysis reported here is the responsibility of the authors alone and cannot be attributed to either the sponsoring organisations or their representatives.

CHAPTER 1
INTRODUCTION

1.1 Issues to be Addressed

There is considerable interest, from both the policy-maker's and the academic researcher's perspectives, in measuring the stock of skills in the economy: its distribution, how it is changing and whether there are differences between the skills across nations. Substantial evidence about the links between skills and economic performance can be called upon to justify this interest. In the 1990s a stream of articles from the National Institute for Economic and Social Research (NIESR) in particular highlighted Britain's relatively lowly ranking in the world skills league – as measured by qualifications of a comparable standard. This, it was argued, hinders labour productivity and weakens Britain's economic performance (DfES, 2001; HM Treasury, 2002; Mason and Finegold, 1995; Mason *et al*., 1992). The argument and the evidence persist (Campbell and Porter, 2006), and understanding skills continues to be at the forefront of practical research.

This research evidence prompted a flurry of policy interest in Britain which intensified with the election of the Labour government in 1997. An up-to-date understanding of the distribution of skills is, therefore, an important underpinning for the policy agenda of enhancing the East Midlands' economic performance and promoting greater social inclusion. Similarly, evidence on the changing use of skills is warranted, if we are to understand the direction in which East Midlands workplaces are headed. However, these issues pose some basic prior questions, including 'which skills are relevant?', and 'how can they be measured?'. Given answers to these questions, one can then examine how the different skills are distributed across workplaces, which are growing and which are declining. It is also useful to find out what workers, as well as employers, think about the prospects for acquiring skills at work. Answers to these questions can be of interest both to scholars who wish to test theories of the modern workplace and to policy-makers concerned to use skills if possible to improve economic performance.

This Report tries to answer a number of questions concerning skills utilisation in the East Midlands, using information derived from the people actually exercising those skills. The report looks at several skills domains and asks which groups deploy which skills, and to what extent, and how much are the skills deployed changing. In each skills domain, it also examines whether the East Midlands deploys more or less skills than are used in England as a whole. The report stands in contrast to, and complementary with, reports on skill shortages and other skills-related variables that are based on data collected from employers. The Report presents results from the 2006 Skills Survey, a survey of work skills in Britain based on interviews with individuals in their homes concerning their jobs. A large sub-sample of respondents to the survey are in the East Midlands, and results are compared across different groups in the East Midlands, and between the East Midlands and England as a whole.

1.2 The 2006 Skills Survey in the East Midlands

The 2006 Skills Survey is a survey of jobs, where the main features of the jobs are reported by the individuals themselves who carry them out. It is supported by a consortium formed by the Economic and Social Research Council (ESRC) and several government agencies: the Department for Education and Skills, the Department for Trade and Industry, the Learning and Skills Council, the Sector Skills Development Agency, Scottish Enterprise and Future Skills Wales. This consortium is supplemented by the East Midlands Development Agency, Highlands & Islands Enterprise and the Department for Employment and Learning (Northern Ireland) who have funded additional regional samples. East Midlands Development Agency supported the funding of a target of 700 additional interviews within the region.

The survey is part of a long-running series. The first substantial study which aimed to find valid measures of the skill requirements of jobs and to measure the distribution of broad skills in Britain was carried out as part of the ESRC's Social Change and Economic Life Initiative surveys in 1986. Its focus was on the skills required of employees in their jobs. The Employment in Britain Survey in 1992 (which was funded by an Industrial consortium, the Employment Department, the Employment Service and the Leverhulme Trust) included the same measures together with much more extensive information on job quality, thereby giving us the first rigorous evidence on trends over time (Gallie *et al*., 1998).

The first Skills Survey, carried out in 1997 as part of the ESRC's 'Learning Society' programme of research, was designed to extend the evidence about trends over time in 'broad skills' such as the qualifications required for job entry, the length of time it takes to train and the period taken to learn to do a job well. In addition, the survey also provided us with much more detailed knowledge about the importance of a wide range of activities carried out at work. These data were collected by adapting the methods of job analysis for the purposes of social survey. The outcome of this approach was that it enabled the measurement of ten generic skills and in addition computing skills.

The 2001 Skills Survey was a partial repeat survey, this time funded by the Department for Education and Skills. All the key questions on job analyses and skill requirements were repeated identically. The survey thereby enabled an updating of the picture of the distribution and trend of broad skill requirements, and for the first time gave measures of the trends in utilisation of generic skills. The survey extended the work of the 1997 survey by including a richer set of measures of other aspects of job quality that allowed comparisons with the 1992 Employment in Britain Survey.

Up till 2001 these earlier surveys, with their varying funding sources, were not originally planned as part of a series. They had a mix of objectives driven by academic issues in social science and by the concerns of policy-makers. Yet, as funding has become available researchers have been able to construct a series by designing continuity into questionnaire design where possible. The same principle has driven the design of the current survey. Together, the surveys provide a unique picture of change in British workplaces as reported by individual jobholders.[1]

1.3 Objectives of the 2006 Skills Survey in the East Midlands

[1] For a list of publications based on the three Skills Surveys and some related ones based on the earlier surveys, see http://www.kent.ac.uk/economics/staff/gfg/2006skillssurvey.htm or http://www.cf.ac.uk/socsi/contactsandpeople/academicstaff/E-F/professor-alan-felstead-overview.html

The overarching objective of the 2006 Skills Survey, East Midlands sample, is to provide a resource for analysing skill and job requirements in the East Midlands economy in the middle part of the current decade, providing continuity with the previous sequence of surveys, and a benchmark for comparison with potential future surveys, and with other parts of the United Kingdom. Within this overarching aim, there are five main objectives which informed the design of the questionnaire:

1: to provide information on the level and distribution of skills being utilised in workplaces in 2006. Data on important skills-related variables is also collected, including task discretion, team-working, the requirement for learning, and skills mismatches.

2: to provide a picture of recent trends in broad and generic skills.

3: to enable us to update our knowledge of the valuation of skills, and of the association of skills usage with other worker rewards and indicators of well-being, and of how skills are related to the evolution of inequality.

4: to provide a description of the work preferences and work motivation of those in employment, and to make possible a systematic analysis of how preferences and motivation relate to the skill development that people experience in their jobs.

5: to enable us to further our knowledge about the relationship between employers' human resource practices, the competitive environment in which they operate, other job characteristics, and the level and development of their employees' skills.

6: to provide analyses of job skills utilisation within and between the regions and nations of the United Kingdom.

1.4 Objectives of the Report

This Report relates to objectives 1,2 4 and 6. It describes the findings of the research team in respect of the distribution and trends in skills, task discretion, and the experience of skills acquisition in the East Midlands, and compares where possible with findings for England as a whole.

We begin in Chapter 2, however, by setting the methods used in the survey in the context of a general discussion about skills measurement in national populations. Chapter 2 also provides a summary description of the survey methods and outcomes, which are described in detail in the Technical Annexe (available separately).

Our findings on the distribution and trends of 'broad' skills – the qualification, learning and training requirements of jobs – are presented in Chapter 3. Included in this chapter is a description of how we generate the measures of the skills from the raw data. We focus on how the skills are spread across jobs, and across genders, part-time and full-time workers, occupations, industries within the East Midlands, and examine the balance between the supply of qualifications at various levels in the population and employers' use of qualifications as perceived by jobholders. This chapter also reports on the trend in broad skills in the East Midlands and England as a whole.

Chapter 4 is focused entirely on computing skills, looking both at the distribution and at the trends in the exercise of computing skills over the years in the East Midlands, and

makes comparisons with the trend elsewhere in Britain. Chapter 5 focuses on several other types of generic skill, where by the term 'generic skill' we mean a skill that is used in varying degrees across a spectrum of occupations.

In Chapter 6 we turn to the distribution of task discretion, and examine how this measure has changed in recent years and over the long term in the East Midlands. Chapter 7 examines workers' motivations and attitudes towards skills acquisition and related variables. Chapter 8 concludes with a brief review of some important themes that have emerged from the analysis.

CHAPTER 2
METHODOLOGY

The previous chapter has stated the purpose of, and motivation for, measuring skills used in East Midlands workplaces in 2006. Before considering the detailed structure of the new survey, it will be useful to review various approaches to skills measurement that have been adopted in previous literature, in order to set the current study in context. This chapter will then describe the innovations made in the 2006 Skills Survey, outline the questionnaire, and summarise the sampling and data collection procedures and outcomes.[2]

2.1 Approaches to Skills Measurement

Several approaches have been used to assess skills among national or sub-national populations, and it is useful to begin by considering the general advantages and disadvantages of each. The five main approaches base their measures on, respectively: educational attainment, occupational classification, skill tests, self-assessment and job requirements.[3] The 2006 Skills Survey, like its predecessors, is largely based on individuals' reports of job requirements. The usefulness of each approach, whether for academic or policy-making purposes, depends on the concept of skill which is the object of the study, as well as on the issues of reliability and feasibility. A broad judgement about each approach is summarised in Table 2.1.[4]

[2] The first part of this chapter uses material prepared in common for the overall survey (Felstead et al., 2007).

[3] For the sake of completeness it may be worth mentioning two indirect approaches which are occasionally resorted to by economists, for lack of other data: the ideas that skills could be proxied by wages or by indicators of work experience. Thus, high wage jobs are typically thought of as high-skilled jobs; and the 'returns' to work experience are thought to capture the acquisition of workplace skills.

[4] This section extends the discussions contained in Borghans *et al*. (2001), which looked just at the issue of skills in economic analysis, in Green (2004) and in Felstead *et al*. (2002).

Table 2.1 Ways of Measuring Skills in the Adult Population

Approach	Example(s)	Advantages	Disadvantages
1a. Qualifications The proportions at each level (sometimes limited to degree-level and below)	Steedman and Murray (2001)	Objective; long-term trends available	Loose connection of academic qualifications with job skills
1b. Education Length Average years of schooling, or proportions with at least x years	Barro and Lee (1996; 2001)	Objective; long-term trends available; internationally comparable	Variable quality of education, and loose link with job skills
2. Occupation The proportions in higher-skilled occupations	Machin and Van Reenen (1998); Gregory *et al*. (2001)	Easily available from labour force surveys or censuses; sometimes internationally comparable	Skills change within occupations; the hierarchy of skill among occupations is contestable and changing
3. Tests Scores from literacy and numeracy tests, such as the Skills for Life Survey	OECD *et al*. (1997); Freeman and Schettkatt (2001)	Objective; international comparisons sometimes possible	Narrow range of skills; expensive to administer.
4. Self-Assessment Survey-based individual reports about themselves	Bynner (1994)	Wide range of skills	Subjective, and skill assessment associated with self-esteem
5. Job requirements Sourced from commercial job analyses, expert assessments of occupations, or surveys of individuals or employers	Cappelli (1993); Holzer (1998); Howell and Wolff (1991); Ashton *et al*.(1999); Felstead *et al*. (2002); Autor *et al*. (2003a); Handel (2000)	Wide range of skills; intimately connected to jobs	Job skill requirement could differ from person skill; subjective; does not measure skills of non-employed people.

Source: Adapted from Green (2006).

Educational attainment, and qualifications gained, are probably the most commonly used measures of the skills of populations. The basic idea is to measure, through survey methods (or where possible through administrative data collection), the proportions of the adult population who have achieved certain education or qualification levels, such as possession of a bachelor's degree or equivalent. Conversely, one might measure the proportions of the population who are not in possession of any academic or vocational qualifications. Educational attainment, as measured by the stage reached (e.g. 'completed high school') or by the number of years' schooling, is closely related to qualifications achievement, though not quite the same. A measure of the number of years' schooling has the particular advantage of being most easily utilised in an international comparative

measure of human capital, as for example in the series of studies by Barro and Lee (2001, 1996).

The main advantage of this approach is that the measures obtained are normally 'objective', in the sense that the measure of skill is determined by some external authority (the examining body) or by some externally verifiable datum. Educational measures should also, in principle, be consistent. If the proportion of people holding a degree rises from x% to y% over time, one would infer that the skills base has increased, providing that one has confidence that the standard of the degree qualification has not been lowered in the meantime. Objective comparisons across countries are more constrained because the extent to which the qualifications of different educational systems are equivalent has only been established in relatively few cases, and even then the equivalence is never very precise. The ISCED classification system is one way of measuring broad attainment levels, but the attribution of individuals to ISCED levels sometimes requires contestable judgements. Where, however, the comparison is of years of schooling the measures are more obviously internationally commensurate (Barro and Lee, 1996, 2001), although there can be international differences in the quantity of educational inputs per year, and in their quality.

The disadvantages of using qualifications or educational attainment as a measure of job skills are, however, well-known. Qualifications gained in schools and colleges are only loose measures of the skills actually used in workplaces, and by the same token of the productivity of workers. This is as it should be: education is for life, not just for the workplace. Equal years of schooling can lead to differing workplace skills, according to the varying emphasis and quality of the education process, and according to individual characteristics. Most qualifications assess academic competence, not workplace skills. Many of the skills necessary for high levels of productivity are acquired at work, either formally through training or informally through a practical learning environment. Organisational change is found especially to be a trigger for the acquisition and utilisation of higher and new workplace skills (Green *et al.*, 2001; Caroli and Van Reenen, 2001; Felstead and Gallie, 2004). Sometimes a positive learning environment is consciously fostered by employers, for example, through the use of continuous improvement groups ('quality circles').

Occupational classification is another commonly used method of skills measurement. Quite commonly the rise in proportions of higher status occupational groups such as managers and professionals, for example, is given as evidence of rising skills demand. In economic analyses requiring detailed multi-country data on skill, for lack of anything better a particularly simple classification is sometimes adopted, namely the proportion of workers in non-manual occupations (Machin and Van Reenen, 1998). The major advantage of using occupational classification is that this measure is relatively easily available, certainly at national level, using labour force surveys or census data.

International comparisons using anything other than the manual/non-manual ratios are unfortunately much harder, owing to the lack of widespread conformity of international occupation classification standards. Moreover, there are two other serious problems with this method. First, there is likely to be imperfect agreement over the skills hierarchy of occupations, which may be grouped according to other criteria such as pay or social esteem, which may not coincide with skill. In any case, any such ranking is likely only to be partial: many occupations have to be grouped together as equally skilled. Moreover, a single skills hierarchy would not distinguish between different types of generic skills, which can be ranked differently across the occupations. A second problem of using

occupation as the measure of skill is that jobs change within occupations. The overall skill structure of nations may grow partly because of compositional changes in occupations and industries, but partly also because of the transformation of jobs. The changing roles of managers is a case in point; another is the widespread diffusion of requirements for computing skills. In an earlier study we estimated that the changing occupational structure in Britain could account for no more than half of the skills changes observed using direct measures of job skill requirements (Green *et al*., 2003).

The third method of measuring the stock of skills in the adult population is through the use of skills tests. The International Adult Literacy Surveys pioneered in the 1990s by the OECD have had a considerable influence on both academic research and on research for policy-makers. Other tests have been developed in a similar vein, such as the Information et Vie Quotidienne (IVQ) in France, and the UK Skills for Life Survey. The focus of these tests, carried out usually in people's homes and supported by a regular survey collecting demographic and workplace data, has largely been on numeracy and literacy. IT skills have been examined but with mixed success so far. Some analytical skills are also tested in the more recent Adult Literacy and Life Skills Survey, in which Britain, like many other major industrial countries, did not take part. The advantages of the testing approach to skills measurement are self-evident: if done properly they provide objective measures. However, tests have some important disadvantages if one wants regular assessments of a wide range of skills in a work context. Skills tests have hitherto only been able to tap a relatively narrow range of skills, primarily the basic academic ones. There are likely to be some skills, which are thought to be of distinct value in the labour market, which would be hard to measure using a testing methodology. Communication skills may be a case in point. Tests are also especially expensive to administer. Persuading a representative sample of adults to sit tests in their own homes is a non-trivial task. Given finite resources this limits the scope of accompanying surveys. A third potential disadvantage is that the tests may not capture the usage of skills in the context of the workplace. An example is problem-solving: though a generic skill, the capacity to transfer problem-solving skills in analytical exercises performed in the home under test conditions to the needs of the workplace is itself problematic.

Self-assessment of skills has been used in some survey contexts, such as the National Child Development Study (Bynner *et al*., 1997). The advantage of this method is that it allows one to investigate an especially wide range of competences. The disadvantage, however, is that self-assessment is potentially subject to considerable social esteem biases, and also to measurement error if people are unable to judge for themselves how good they are. Comparisons of self-assessed competences between groups – for example, between males and females – do carry significant information, and have been found to be related to economic performance. But one cannot safely attribute such effects to the skills *per se* rather than to the individual's self-confidence and other character traits.

Finally, the approach to skills measurement based on job requirements has its origins in the commercial practice of job analysis developed by occupational psychologists. In the early 1990s a selection of path-breaking skills studies were made through retrospective analyses of commercial files (measures of broad skills were first used in Britain in the SCELI survey carried out in 1986). These studies were able to examine skills change in particular occupations, but not with respect to the aggregate workforce.

More recently, there has been the development of survey-based measures of job skills adapted from the general principles of job analysis. This approach, which has been

termed the 'job requirements approach', underpins the 1997 Skills Survey and the 2001 Skills Survey (see Ashton *et al*., 1999; Felstead *et al*., 2002).

The advantages and disadvantages of the job requirements approach are both shown in the following three assumptions which underpin this approach. First, suppose that the objective is to measure the work skills of the employed population. It could be assumed that measures of skills in use in jobs are a reasonable proxy for the skills of the jobholder. If an individual is using a computer for advanced programming, for example, it is assumed that he/she has the relevant skills, or would not have survived in the job. Nevertheless, discrepancies between jobholders' skills and job requirements are possible and supplementary questions need to be asked to ascertain subjective views about skills mismatches. Some individuals may have an excess supply of some skills, and not be using them fully on the job; others may have insufficient skills for the job they are doing, and may survive despite the consequent poor performance. These mismatches are dynamic: they can appear and disappear as both jobs and people change. While data on job skill requirements is useful in its own right, any inferences from the job requirements about workers' skills will need to be qualified by this first assumption. An alternative response to this issue is simply to regard and make use of the data as direct measures of job skills, that is, the skills required and used in jobs. For the most part, this latter position is the approach taken in this study.

A second assumption is that the individual is a well-informed person to report about the job he/she is doing. All jobs differ, even within quite narrowly categorised occupations, and one would normally (but not always) expect the jobholder to know best. In highly skilled jobs this is more likely to be true, as workers adapt jobs to their own abilities and tastes. In less skilled jobs, and where the jobholder has been only a short time in post, the assumption might be questioned in some cases. Still, on balance it seems reasonable to assume that the individual is generally the best informant about the job he/she is doing.

The third assumption is that the individual reports these activities in an unbiased way. This assumption is also arguable: individuals might talk up their jobs, to boost their self-esteem. But, it is maintained by occupational psychologists that reportage of behaviour (something that is grounded in activity) is more reliable than reportage of capabilities. A validation study of a limited selection of the skills measures used in the 1997 survey is reported in Green and James (2003).

If, following the second assumption, individuals are the best-placed informants about their own jobs, and if social esteem bias is reduced as far as possible through careful phrasing of questions about grounded activities, measurement error is likely to be minimised.

Also using the job requirements approach, the US Government's Occupational Information Network (ONET) data collection program has derived job skill measures for the large majority of US occupations. The ONET approach itself has its origins in the skills measures allocated to the Dictionary of Occupation Titles (DOT), which ONET replaced; the DOT measures were decided by expert panels at certain points in time, and the changes in the skills of the American workforce could be traced by examining the changing occupation structure (Howell and Wolff, 1991). The value of the DOT measures was, however, limited by the dependence on the judgements of the panel, and on the irregular and infrequent timing of those judgements, and on the incomplete representativeness of the jobs assessed. By contrast ONET derives information from surveys of employees in representatives samples of establishments, with respondents being asked to describe a typical job in his/her occupation.

2.2 An Outline of the Main Features of the British Skills Surveys

2.2.1 Conceptual Approach

The British Skills Surveys have all adopted a broad conceptual approach, comprising intellectual ability, interpersonal skills, physical ability, knowledge base, and working environment. A more detailed account is given in the introduction to the Report on the 1997 Skills Survey (Ashton *et al*., 1999: 25); while the introduction to the Report on the 2001 Skills Survey provides a comparison of skill definitions among different social science disciplines – economics, sociology and psychology (Felstead *et al.*, 2002). Only a few items of motivation are included, but a good deal of information is collected about the context in which skills are exercised (working conditions, work organisation, responsibility, autonomy and so on).

2.2.2 Skills Assessed

In addition to the conventional measures of occupation and educational qualifications, the British Skills Surveys measure utilised skills in two ways.

First, the surveys generate very many items describing generic activities involved in doing the job. The choice of items is informed by theories of skill and the practices of commercial psychology; but to reduce the multiple items to a smaller and more meaningful set of 'generic skills', statistical techniques are used to generate several generic skill indicators from the responses on these items. The skills captured in this way are: literacy, numeracy, technical know-how, high-level communication skills, planning skills, client communication skills, horizontal communication skills, problem-solving, checking skills and physical skills; and there are two measures of the importance and sophistication of computer use in jobs. Measures are also obtained of a small number of generic management skills, taken just from those identified as managers in the sample. In the 2006 survey, emotional and aesthetic skills have been added.

Second, there are three indicators of the 'broad skills' required in the job, measured in terms of the total training time required to do the job, the time spent learning on the job in order to become fully competent, and the qualification level required by employers for new recruits to the job. Instruments were included that were identical to those used in earlier surveys in SCELI in 1986 and in Employment in Britain in 1992.

In addition, the survey captures other measures of skill such as workers' own qualifications and prior training and length of work experience as well as other job and worker characteristics that are not directly connected to skill.

The measures of skills do not encompass measures of motivations and attitudes of respondents, with the exception that some investigation of skills expectations is included. Also, the surveys have only loose measures of the extent to which jobs use occupation-specific technical skills. Intermediate technical skills relevant to particular jobs have been picked up only approximately through the role of required technical qualifications, and

through some items in the job requirements part of the questionnaire. Occupation-specific technical skills may be very important in certain jobs.

2.2.3 Unit of Analysis

The basic method of measurement is through of a social survey, with multiple questions about the requirements and activities of respondents' jobs. Nationally representative surveys are conducted using random sampling methods. The sample is drawn from postcode addresses, from which eligible individuals are selected. Individuals are interviewed in their homes, rather than at their place of work. Thus the unit of analysis is the person-job. The analytical output consists of measures of skills that can be held to be statistically acceptable measures for the population of employed people aged between 20 and 60 (65 for the 2006 survey).

2.2.4 The Range and the Level of Generic Skills

In addition to the desire to capture a wide range of skills, it must also be noted that certain skills appear at a number of different levels. For example, writing a signpost requires one to be able to spell and form sentences; and these same skills are needed to write a long report for clients. Nevertheless, writing a long report needs a much wider range of writing skills, deploying, for example, analytical capabilities and involving complex constructions. These are additional skills, that require the spelling and grammatical skills needed for sign-writing as a foundation. An alternative is to think of long-report writing as deploying the same skill as that needed for writing a signpost, but at a higher level. Whether we think of long-report writing as a different skill, or whether we think of different levels of writing skill, any survey of generic skills needs to capture such skill hierarchies where they are important. In the case of the British Skills surveys, hierarchies in the use of literacy skills (both reading and writing) and numerical skills are captured by asking sequentially about activities of increasing complexity and sophistication. For most other activities, no attempt is made to subdivide them into hierarchies. This decision is driven in part by survey time limitations, in part by consideration of the skills themselves and the purposes of the overall project. In many cases, the significant aspect is whether or not the activity is part of the job, and how central or important that activity is to the job.

2.2.5 Response Scales for the Importance of Skills

The skill used in the job is captured by asking respondents to reply on a conventional importance scale. (We say 'conventional' because this is what is used widely and successfully in occupational psychology in commercial practice). Responses on these scales form the core of the measures of generic skills. The scale is: 'not at all important/does not apply, not very important, fairly important, very important, essential'. This scale employs the device of skewing the language, so that the mid-point is not neutral; this was deliberate, following pilot testing, as otherwise respondents tended to bunch at the top of the scale. Comparisons between people rely ultimately on an

assumption that there is a common understanding of the notion of 'importance' among respondents and between respondents and researchers.

2.3 Innovations in the 2006 Skills Survey

There are five main ways in which the 2006 survey makes innovations compared with the 2001 survey.

First, the new questionnaire includes some questions on individuals' motivations and attitudes. The issues of the centrality of work in people's lives, their motivation at work and their preferences with respect to jobs and careers have been of core interest in the social science literature for several decades. Through the light they shed on barriers to social mobility, they are also of central importance for policy concern with the factors affecting social integration and social cohesion. But progress has been very severely hampered by lack of adequate data and by the failure to connect these issues properly to the changing nature of work. The new survey makes it possible to take a major step forward in understanding these issues.

Second, the range of skill domains included in the job requirements analysis has been extended, to include aesthetic and emotional skills. This extension reflects a number of case studies and theoretical arguments within sociology that suggest that these skills have become especially important in service industries, and may have a bearing on gender disparities at the workplace (Nickson *et al*., 2003; Korczynski, 2005; Payne, 2006).

Third, the questions on training have been altered to focus on training that took place in the year leading up to interview, and questions surrounding the motivation for this training have been included for the first time. The intention is to gain more thorough information about the extent and forms of skill acquisition currently taking place in respondents' jobs.

A fourth innovation is that the target sample has been expanded to include all those in employment aged between 20 and 65. The previous surveys had restricted the sample to those between 20 and 60. It was felt that now, with pressure for all people to retire later, and especially women, it was important to gain a picture of the sorts of jobs being done by people in their early sixties. This innovation means that the trend analyses in this Report, involving comparisons with earlier surveys, are confined to those aged 20 to 60, while the distributional picture in 2006 includes the whole age range 20 to 65.

Last but not least, the sampling procedures included provision to over-sample in five areas: Scotland, the Highlands & Islands in particular, Wales, the East Midlands and Northern Ireland. In previous surveys, these areas had either been excluded (in the case of Northern Ireland and the Highlands & Islands), or simply included as part of the main sample which meant that the achieved sample sizes available for analyses were too restrictive to permit disaggregated analyses within areas. Moreover, in these 'boost sample' regions, the sampling in the 2006 survey has been designed to generate representative overall samples when taken together with the 'core' sample respondents. In previous years, samples were designed to be representative for Britain as a whole, but not necessarily within particular regions or countries. As will be seen below, this has meant that it is potentially unreliable to compare across time for particular regions (see below).

2.4 Questionnaire Content

The broad outline of the topics covered in the questionnaire is as follows:

BLOCK A: Checking Eligibility (age and whether in paid work in the last 7 days)

BLOCK B: Broad Questions about the Job

BLOCK C: Detailed Job Analysis Questions

BLOCK D: Computing Skills and Qualifications Questions

BLOCK F: Work Attitudes

BLOCK E: The Organisation

BLOCK G: Pay Questions

BLOCK H: The Job Five Years Ago

BLOCK J: Recent Training, Skill Changes and Future Perspectives

BLOCK K: Personal Details and Measures of Well-Being at Work

BLOCK Q: Details of Employing Organisation and Conclusion

The ordering above, with Block F coming before Block E, comes from a design preference about question ordering, combined with the requirement for continuity in variable names with earlier surveys to aid analysis.

2.5 Survey Methods and Outcomes

The 2006 Skills Survey replicated many aspects of the two previous Skills Surveys in the series carried out in 1997 and 2001. Replication with the 2001 survey included the methods of sample selection and the main elements of the questionnaire. By these means comparability between the three surveys was maximised.

At the same time as maintaining a strong element of comparability between surveys, we were also keen to introduce new themes including individuals' work motivations and attitudes, aesthetic and emotional skills, and the usefulness of training in skill acquisition. Many of these questions have not been used before and so we cognitively tested 12 key questions on a sample of employees (see BMRB, 2006: Appendix B). As a result, these questions were either confirmed as conveying the meaning intended by the research team, adapted or, in some cases, abandoned as likely to generate misleading responses. These cognitive interviews were followed by a pilot survey of 60 respondents, which tested the procedures of the survey and led to further refinements of the questions.

The fieldwork for the 2006 Skills Survey was conducted through computer-aided personal interview (CAPI). Sample selection was based on a conventional multi-stage

design with addresses eventually being drawn from a random start point within each of the 297 geographical boundaries selected (in most cases, postcode sectors). Sampling was carried out in two stages. First, a 'core' sample was selected, designed to form a representative sample of eligible persons in Britain, excluding those living north of the Caledonian Canal. The aim was to generate a sample that would be comparable to that obtained in the previous surveys. Second, a 'boost' sample was selected, which would increase the number of achieved interviews in Scotland, Wales and the East Midlands, and also generate data points in the Highlands & Islands and in Northern Ireland. The additional sampling points selected for each of the boost areas were designed so that the aggregate sample ('core' plus 'boost') would be representative within each of the boost areas. The interviews in the East Midlands were carried out between March 2006 and February 2007, with all the 'core' sample interviews being completed by 4 October.

Considerable effort was devoted to maximising the response rate, including the re-issuing of 6,674 addresses across the UK which initially failed to produce an interview. A total of 7,787 productive interviews with individuals aged 20-65 years old and in work were conducted. There were 1,101 interviews in the East Midlands. These cases comprised 379 cases in the 'core' sample (which were used for analyses in Felstead *et al*. (2007), and 722 cases in the boost sample. Across the UK this achieved number of interviews gave a 'net response rate' of 56%, and a 'gross response rate' of 62%, the difference depending on the assumptions made about the eligibility of households that could not be screened. Within the boost sample, the net and gross response rates were, respectively, 56% and 65%, in the East Midlands. These response rates are lower than those achieved for the 2001 Skills Survey. However, the decline is in line with falling response rates to similar surveys such as the Labour Force Survey.

Weights were computed to take into account the differential probabilities of sample selection according to the number of dwelling units at each issued address, the number of eligible interview respondents (Kish weight), and the oversampling of the boost areas. Further analysis was carried out on the representativeness of the achieved sample. The distribution of the achieved sample was compared with the Labour Force Survey for the UK as a whole and separately for the East Midlands (see Techincal Annexe), according to sex, age, ethnicity, working time, occupation and industry, and found to be acceptably close. However, sex and age weights were added to the sample weights in order to correct for a slight under-representation in the sample of men and those in their twenties. With this correction, the result is a high quality, randomly drawn, data set, with an achieved sample that is representative both for the East Midlands and for the UK as a whole.[5]

It should be noted while that an achieved sample of 1,101 respondents allows us to make robust comparisons with the skill levels reported for England as a whole, cell sizes shrink rapidly when industrial, age and local area comparisons are also sought. In these cases, the sampling errors grow and the precision of the results is reduced.

[5] We also added a small correction to the weight for the East Midlands cases in the 2001 Skills Survey, in order to correct for an over-representation of males in that survey and region; this correction is only relevant in respect of the findings on trends reported below.

CHAPTER 3:
BROAD SKILLS

3.1 Introduction

In this chapter, we examine the distribution of and trends in 'broad skills' using data from the Skills Survey data series. The chapter is divided into three substantive sections. First, we outline the instruments used to gauge the ability level and capacities required by those in employment. We refer to these as 'broad skills' since they are proxies rather than direct measures. Our measure of 'generic skills', on the other hand, is designed to collect data on activities actually carried out by individuals at work (see Chapter 5). The second section of the chapter examines the distribution of broad skills in the East Midlands in 2006 in order to highlight the relative skill position of groups of workers, occupations or industries. The third section of the chapter extends this analysis by comparing the 2006 results with the results from earlier surveys carried out in 1997 and 2001. This allows us to plot the changes in broad skills in the East Midlands over nearly a decade. In addition, the section compares the skill trend for the East Midlands with trajectory of skill change experienced elsewhere in England over the same period. The chapter ends with a short summary of our findings.

3.2 Measuring Broad Skills

A common way of measuring skills is to examine the stock of qualifications held by the workforce. Data sets such as the Labour Force Survey and their equivalents in other countries make this type of analysis possible on a regular basis. One aspect of the skills debate, therefore, has been to compare the qualifications of the British workforce with those of competitor nations. While this is a complex and difficult task since adjustments have to be made which take into account different qualification standards, norms and scope between nations, several studies have adopted such an approach (e.g. DfEE and Cabinet Office, 1996; HM Treasury, 2005). This type of research identifies the strengths and weaknesses of the British educational system. Its strength lies in the production of graduates – approaching a quarter of the population now have qualifications above National Vocational Qualification (NVQ) level 3, a proportion which has more than doubled over the last decade. However, the UK has proportionately more people with low qualification levels than many of its major comparators and is ranked 18th across the Organisation for Economic Co-operation and Development (OECD) on this measure. Five million people have no formal qualifications at all (HM Treasury, 2005: 40). It also has a smaller than average proportion of people with intermediate-level qualifications which puts it 20th out of the 30 countries in the OECD (HM Treasury, 2005: 43).

However, such an approach is focused exclusively on the supply of skills as proxied by qualifications. Although it is possible to examine the qualifications held by those actually in employment, the match between the qualifications held by jobholder and the qualifications their employers and their jobs require is likely to be less than perfect. We therefore need accurate data on the qualifications that are required for each job. Moreover, an academic or a vocational qualification may be only a loose proxy for the

skills and abilities that an individual possesses. There is a need for other broad measures of job skills to supplement the measure derived from the qualifications needed to get jobs.

The Skills Survey series contains measures both of the qualifications held by jobholder, and of three separate measures of the broad skills required in the job. Collecting three broad measures of the skills required for jobs recognises that skills are acquired in different ways, and that it is important therefore to have a multi-dimensional picture rather than any single measure. The series therefore collected information on:

- the qualifications required to get the job;
- the length of training for the type of work undertaken;
- the time taken to learn to do the job well.

These broad skill measures have been successfully tested in previous surveys. By repeating the same questions (word-for-word and prompt-for-prompt) a firm basis from which to make comparisons over time was secured. In addition, when presenting the results in this chapter (and elsewhere) we are careful to compare samples with common eligibility thresholds. So, when the 2006 results are presented in isolation the data calculations are based on the 20-65 year old respondents who comprised the 2006 sample, whereas when the 2006 results are set alongside those for 1997 and 2001 our calculations are based on the 20-60 year old sample. Hence, the 2006 results differ according to whether the 61-65 year olds are included in the calculations or not.

The Skills Survey series collects data on three broad skill dimensions. First, each respondent to the surveys was asked to judge what qualifications would be required to get his or her current job in today's labour market. They were asked: 'If they were applying today, what qualifications, if any, would someone need to *get* the type of job you have now?' A range of qualification options was given. From this, the highest qualification level ranked by NVQ equivalents was derived. Hence, the responses were grouped into five categories, with the top category (level 4) further sub-divided into degrees and professional qualifications. As a summary measure of the entire scale, the Required Qualifications Index was derived ranging from zero to four, corresponding to the five qualification levels.

However, changes in required qualifications may also arise from the use of qualifications by employers to screen job applicants and hence might not reflect genuine changes in job demands. To assess this possibility, respondents were asked a follow-up question: 'How necessary do you think it is to possess *those* qualifications to *do* your job competently?' The responses to this question can be used to tease out the necessity of the qualifications required to carry out the work tasks involved in the job and has been used in some of the analysis that follows (see Table 3.10).

The estimates of the qualifications required to get jobs (as perceived by jobholders) can be compared with the supply of qualifications available in the labour market. Using evidence drawn from the contemporaneous spring and summer 2006 Labour Force Survey the profile of skills supply among the economically active can be mapped, the Vacancies Survey for the equivalent months can provide data on the level of unmet labour demand (ONS, 2006; Williams, 2004a) and data from the 2006 Skills Survey can be used to estimate the number of jobs requiring a particular level of qualification on entry (for more detail see Table 3.4). By restricting these three sources of data to the relevant 20-65 year old British population (however, the vacancy data cannot be

restricted in this way as vacancies are open to all irrespective of age), it is possible to identify at which levels in the qualification hierarchy the aggregate qualification requirements and qualifications supply are in equilibrium and where, if at all, they are out of step with one another. However, in these analyses it should be remembered that required qualifications are merely one aspect used in recruitment, and are only one measure of the complex skills needed in jobs. Other factors such as experience, natural ability and motivation also play a part and give further insights into the demands of the job.

A second broad skill measure is based on responses to a series of questions on the length of training time required for the particular type of work carried out by respondents. It is based on the premise that the training time required for different jobs reflects various ability levels and knowledge demanded by contrasting types of work. Respondents were asked: 'Since completing full-time education, have you ever had, or are you currently undertaking, training for the type of work that you currently do?' If 'yes', 'How long, in total, did (or will) that training last?' If training was still on-going respondents were asked to estimate how long it would take. For the purposes of presentation, we examine the proportions reporting 'short' (less than three months) and 'long' (over two years) training times i.e. the points at either end of the continuum. We also use a summary measure of the complete range of options allowed, ranging from zero to six, entitled the Training Time Index. We report the average Training Time Index for various groups.

The third broad skill measure is similarly constructed. Respondents were asked: 'How long did it take for you after you first started doing this type of job to learn to do it well?' If they answered 'still learning' they were asked: 'How long do you *think* it will take?' Again, for the purposes of presentation, we examine the proportions at either end of the continuum – 'short' learning time denoting less than one month and 'long' denoting over two years. The Learning Time Index is a summary measure of all the answers given ranging from one to six. Our basic expectation is that the more skilled jobs take longer to learn. Nevertheless, some ambiguity still remains. It might be the case, for example, that since a better-educated person could learn to do some jobs well more quickly than a person with less education, a high learning time may be a negative rather than a positive indicator of skill. Alternatively, if the job called for manual dexterity, then perhaps the better educated would be slower learners since they may have put more emphasis on the development of their cognitive abilities at the expense of manual skills. However, the analysis that follows confirms our basic expectation that learning time is positively correlated with other skills indicators and provides a reasonable indicator of the skill level demanded of those in work.

3.3 Distribution of Broad Skills in the East Midlands in 2006

Table 3.1 gives the distribution of broad skills according to the gender and job status of the jobholder, as measured in the three ways outlined above. This shows that around a quarter (25.9%) of the jobs in the East Midlands in 2006 required a level 4 or above qualification for entry – that is, a professional qualification such as SRN in nursing, or an undergraduate or post-graduate degree. However, around three out of ten jobs (29.1%) required no qualifications on entry. A similar polarisation of jobs is reflected in the training times respondents reported for their current type of work and the length of time it took to learn to do the job well. For example, over half of jobs in the East Midlands

(58.6%) were reported as requiring less than three months training time, while a quarter (25.8%) reported training times of over two years. Similarly, some jobs took a long time to do well, while others can be picked up relatively quickly. Over a quarter of jobs (28.8%) could only be done well after spending more than two years in post, but around a fifth (20.1%) could be learnt in under a month.

If anything, men are in more skilled jobs than women in the East Midlands, although the picture is not clear-cut. While men in the East Midlands occupy jobs which require significantly longer to learn to do well, the skill level of their jobs is not superior to women's according to the level of qualifications required on entry and training times associated with these jobs. According to these two broad skills measures, there are no significant differences between the sexes (in fact, women record higher scores on both of these measures).

The picture is much clearer when the jobs of women are examined in terms of the working time. Here, the differences are large and statistically significant across all three measures. The required qualification index for women full-timers, for example, is 2.41 compared to a figure of 1.46 for women who work part-time. This pattern is repeated for the other two broad skills indices and is evident in the component measures of the indices. Just over two out five (41.9%) of female part-timers, for example, report that they do not need a qualification for the job they currently occupy compared to just under a fifth (19.3%) of women who work full-time.

Job skills in the East Midlands are distributed in line with occupational expectations with those at the top of the hierarchy requiring more skills than those at the bottom (see Table 3.2). For example, 'Professionals' have the highest score across all three broad skills indices, whereas those in 'Elementary Occupations' scored the lowest. This means that, on average, 'Professionals' are in jobs that require a level 4 qualification, have a training period of 6-12 months and take 1-2 years to learn to do well. This compares to those in 'Elementary' jobs who, on average, do not need a qualification on entry, undergo training periods of less than one month and are in jobs which take less than three months to learn to do well.

Skills used at work also vary by industry, sector and size of establishment (see Table 3.3). The East Midlands results confirm this pattern. Jobs in smaller workplaces tend to be lower skilled than those where larger numbers of workers are employed. For example, there are considerable differences in the indices for required qualifications and training time according to workplace size. However, the size effect is absent when measured by the average time it takes to learn to do a job well.

Skill differences in the East Midlands are more pronounced when jobs are analysed according to whether they are in the private or public sector. Here, the gaps are considerable. For example, on average public sector jobs require qualifications a full level higher than jobs in the private sector (required qualification index of 2.69 versus 1.66). Similarly, average training times are over three months longer in the public sector compared to the private sector (training time index of 3.34 versus 1.88).

However, the 'Production' versus 'Service' industries distinction produces less clear-cut results. It suggests that on two out of three broad skill measures 'Service' industry jobs are higher skilled, but on one of the measures 'Production' jobs are more skilled. Moreover, in general the differences are relatively modest. It is therefore difficult to state with any certainty whether jobs in the 'Service' or 'Production' part of the East Midlands economy are the more skilled.

Table 3.4 presents estimates of the numbers of jobs including vacancies that require various levels of qualifications to get jobs, alongside the numbers of economically active people holding each level of qualification. We refer to the former as the 'demand' for qualifications, because it is an estimate of employers' demand for labour at each qualification level as perceived by current jobholders. We thus use the conventional assumption that, in a relatively flexible labour market, the actual number of jobs would not remain in the long term above employers' planned demand for qualified labour; and the inclusion of vacancies accounts for sectors where the demand exceeds the current number of jobs. In effect, 'demand' equates to the number of jobs occupied by level of qualification required by new entrants plus an estimate for unfilled posts at each of these levels.

The estimates of demand for qualifications are based on the 2006 Skills Survey evidence for the highest qualification required to get the job respondents occupied at the time of interview. These proportions are grossed up to the numbers of 20-65 year olds recorded to be in work in the East Midlands according to the spring and summer 2006 Labour Force Surveys. It should be remembered that these demand estimates derive from the jobholders' perceptions of the required qualifications, rather than their employers' perceptions. Evidence from elsewhere suggests that line managers' perceptions of the qualification requirements of jobs are on average not substantially different from the perceptions of their subordinates (Green and James, 2001). Nevertheless, it should be noted that qualifications are only loose measures of the demand for different skill levels.

The details of the calculation are as follows. In order to provide a complete picture of the demand for labour at each qualification level we need to take into account vacancies in the labour market and apportion these to each of the qualification levels. The numbers (shown in column 3, Table 3.4) are derived from two sources. The first source is the Vacancies Survey which is carried out every month and asks businesses (who have to take part in the survey by law) to report the number of 'unoccupied or soon to be vacated' posts for which recruitment activities – such as placing adverts or approaching potential recruits – have already taken place (Machin, 2003). We take a three-month rolling average covering the months April-September. To produce an East Midlands estimate we divide this figure (594,000) by the proportion of UK jobs held in the East Midlands (7.3% of jobs). Our second source of data is the 2006 Skills Survey. To approximate the qualification levels of these vacancies, we examine the required qualifications of the 2006 East Midlands respondents who were new appointees (i.e. job tenure of one year or less – this captures 123 respondents). These proportions are multiplied by the total number of vacancies available to produce estimates of vacancies by qualification level.

By adding the number of jobs and vacancies at each of the qualification levels, we estimate the total demand for labour in the East Midlands according to the level of certification required on entry. This is shown in column 4 in Table 3.4 and is headed 'Total demand'.

Estimates of the supply of qualifications are more straightforward. These are based on the spring and summer 2006 Labour Force Surveys and cover 20-65 year olds who were economically active in Britain at the time of interview. The table gives in column 5 a breakdown of the supply of individuals qualified at each level whether in, or actively

seeking, work. These data have been categorised in the same qualification groups as the demand data derived from the 2006 Skills Survey.[6]

Table 3.4 provides estimates of the numbers of jobs requiring qualifications ranging from level 4 or above to none against the numbers of people who report holding these qualifications. This provides a balance sheet of qualifications demand and qualifications supply. On this evidence, there are 87,000 more people with level 4 or above qualifications than there are jobs requiring this level of qualification on entry. The qualification demand-supply discrepancy is higher at level 3 and level 2 qualifications (159,000 and 117,000 more people than jobs respectively). On the other hand, the data suggest that there are many more people with qualifications of any level than there are jobs that require qualifications for entry. Estimates from the 2006 Skills Survey show that there are 580,000 jobs in the East Midlands that do not require qualifications on entry. However, there are only 189,000 people who possess no qualifications to their name. While this suggests that the educational system has been successful in increasing the qualification level of the economically active population, the demands of the economy have not kept pace with this success.

For comparative purposes, Table 3.5 presents the qualification demand and supply balance sheet for the UK as a whole. However, while comparison of the absolute figures may be of some interest, comparison of the percentage point differences are more meaningful since these results provide a comparative analysis which takes into account the different sizes of the East Midlands and UK economies. Table 3.6 presents these results. It shows that that the qualifications balance sheet in the East Midlands mirrors that of the UK as a whole. For example, while the East Midlands has a slightly lower proportion of people with level 4 or above qualifications – 29.6% as opposed to 32.8% in the UK as a whole – the demand for these qualifications is correspondingly lower by around three percentage points. The gap between the demand for and supply of level 4 qualifications in the East Midlands and the UK is therefore broadly comparable. This is repeated for most other qualification levels. However, the gap is a little larger for lower level qualifications. For example, the East Midlands economy does have proportionately more jobs that require no qualifications to enter than the UK, although it has a similar proportion of unqualified people from which to draw (see Table 3.6).

3.4 Changes in Broad Skills in the East Midlands and England, 1997-2006

Another key issue is how broad skills have changed over time and whether the East Midlands's skills trajectory is any different from England as a whole. Table 3.7 tracks how broad skills have changed in the East Midlands over the 1997 to 2006 period. It shows three data points with the figures for England as a whole in parentheses.

Overall, the data show that jobs in the East Midlands have seen an increase in their skill content over time. For example, jobs requiring degrees for entry have rose from one in ten (10.4%) in 1997 to around one in six (16.9%) in 2006. Similarly, the proportion of jobs requiring more than two years training for the current type of work rose from over a fifth (21.9%) 1997 to around a quarter (25.5%) in 2006.

[6] Details are given in the notes to Table 3.4. These supply and demand estimates do not take account of the supply of economically active people and the available jobs for people over 65 and below 20. Nor is account taken of the fact that a small proportion of people (around 6%) hold second jobs.

Skill change in England over the last decade has been more modest. The data presented in Table 3.7 suggest that the trajectory and pace of skill change in the East Midlands over the 1997-2006 period has been faster than that recorded for England as a whole. For example, the required qualification index (a summary measure of the level of qualifications required for job entry) rose in the East Midlands from 1.61 in 1997 to 2.01 in 2006, while in England it rose from 1.91 to 2.10. A similar pattern is evident for the learning time index which rose more steeply in the East Midlands than in England. Similarly, the training index rose more sharply in the East Midlands compared to its movement in England as a whole. Nevertheless, there is nothing – according to these skill measures – to suggest that the level of skills exercised in jobs in the East Midlands in 2006 is any different to skills level of jobs in England as a whole. For example, only the Training Index is significantly lower in the East Midlands than in the rest of England, the other two indices are on a par with one another.

Table 3.8 reports on whether these changes are statistically significant. Only the rise in the Required Qualification Index for jobs in the East Midlands as well as those in England taken as a whole is statistically significant – driven by a rise in the proportion of jobs requiring degrees on entry and a fall in the proportion requiring no qualifications on entry. Nevertheless, it is also noticeable that the absolute changes in the each of the three indices for the East Midlands are larger than the changes recorded for England as a whole.

Despite a decade of modest change in the skills content of jobs, women living in England as a whole have seen their skills rise significantly. These women have experienced significant increases over the 1997-2006 period in the skills they use at work. Moreover, the skills used by part-time women workers have risen most (cf. Ashton *et al.*, 1999; Felstead *et al*., 2000, 2001; Felstead and Gallie, 2004). However, this pattern of change does not extend to women working in the East Midlands. Their skills have also risen but at a slower rate and at rates falling short of statistical significance. This suggests that skills advances made by women and, in particular, women who work part-time has not taken place in the East Midlands. Nevertheless, one must bear in mind the relative sample sizes involved and larger standard errors for the smaller sample sizes for the East Midlands in 1997 and 2001 (the former made even smaller and the latter even larger by gender and working time disaggregation).

In 2006, almost two-fifths (39.1%) of respondents in the East Midlands reported that their highest qualification was above that required for entry (defined here as 'over-qualification'). This represents a rise from the figure reported in 1997 when around one in three respondents (31.7%) reported being 'over-qualified' (see Table 3.9). The East Midlands experience is remarkably similar to that of England as a whole, where 'over-qualification' also rose by around eight percentage points.

It is sometimes suggested that, while qualifications may be needed in order to get a job, they may not have been necessary in order to perform the job. This might be because the qualification acts as a signal of general ability, but that the skills acquired in gaining the qualification are not themselves needed to do the job. The usefulness of required qualifications for job performance, as opposed to recruitment, can be examined by analysing the highest qualification required data alongside the responses to the question 'How necessary do you think it is to possess *those* qualifications to *do* your job competently?' The changing responses over time can also be used to assess the extent to which rising qualification requirements – as indicated in Table 3.10 – are associated with credentialism on the part of employers. By 'credentialism' we mean a situation in which

employers raise the qualification requirements for jobs even though the skills of the jobs themselves have not risen commensurately. If, at any given qualification level, fewer respondents over time say that the qualifications requirements are necessary, we take this as an indicator that credentialism has taken place.

Overall, the results outlined in Table 3.10 provide reassurance that the qualifications that jobs require are useful in carrying out the work. The qualification necessity index (which summarises the importance of qualifications in doing the job with high scores indicating high levels of importance and vice versa), for example, fell only marginally from 3.10 in the East Midlands in 1997 to 3.04 in 2006. This compares to a similar picture for England suggesting that credentialism cannot explain the growth in the level of qualifications now required to get jobs (as reported by respondents). Instead, we can be reasonably assured that rising qualification requirements are reflective of a rise in the skill level of jobs in the East Midlands and England taken as a whole.

3.5 Summary of Main Findings

- Around a quarter (25.9%) of the jobs in the East Midlands in 2006 required a level 4 or above qualification for entry. However, around three out of ten jobs (29.1%) required no qualifications on entry. A similar polarisation of jobs is reflected in the training times respondents reported for their current type of work – over half of jobs in the East Midlands (58.6%) were reported as requiring less than three months training time, while a quarter (25.8%) reported training times of over two years. Similarly, some jobs took a long time to do well, while others can be picked up relatively quickly – over a quarter of jobs (28.8%) could only be done well after spending more than two years in post, but around a fifth (20.1%) could be learnt in under a month.
- If anything, men are in more skilled jobs than women in the East Midlands, although the picture is not clear-cut. While men in the East Midlands occupy jobs which require significantly longer to learn to do well, the skill level of their jobs is not superior to women's according to the level of qualifications required on entry and training times associated with these jobs. According to these two broad skills measures, there are no significant differences between the sexes.
- Job skills in the East Midlands are distributed in line with occupational expectations with those at the top of the hierarchy requiring more skills than those at the bottom. Jobs in smaller workplaces tend to be lower skilled than those where larger numbers of workers are employed, and those in the private sector tend to be lower skilled than those in the public sector.
- The East Midlands has a slightly lower proportion than the UK of people with level 4 or above qualifications – 29.6% as opposed to 32.8%. The demand for these qualifications is correspondingly lower by around three percentage points, so that the gap in the over-supply of level 4 qualifications in the East Midlands and the UK is therefore broadly comparable. This is repeated for most other qualification levels. However, the gap is a little larger for lower level qualifications. For example, the East Midlands economy has proportionately more jobs than the UK that require no qualifications to enter, although it has a similar proportion of unqualified people from which to draw. The discrepancy between

demand for no qualification jobs and supply of unqualified labour is therefore proportionately larger in the East Midlands than in the country as a whole.

- Jobs in the East Midlands have seen an increase in their skill content over time. For example, jobs requiring degrees for entry have rose from one in ten (10.4%) in 1997 to around one in six (16.9%) in 2006. Similarly, the proportion of jobs requiring more than two years training for the current type of work rose from over a fifth (21.9%) 1997 to around a quarter (25.5%) in 2006. Skill change in England over the last decade has been more modest. Nevertheless, there is nothing – according to these skill measures – to suggest that the level of skills exercised in jobs in the East Midlands is any different to skills level of jobs in England as a whole.
- Despite a decade of modest change in the skills content of jobs, women living in England as a whole have seen their skills rise significantly. However, this pattern of change does not extend to women working in the East Midlands. Their skills have also risen but at a slower rate and at rates falling short of statistical significance. This suggests that skills advances made by women, and in particular women who work part-time' has not taken place in the East Midlands.
- In 2006, almost two-fifths (39.1%) of respondents in the East Midlands reported that their highest qualification was above that required for entry (defined here as 'over-qualification'). This represents a rise from the figure reported in 1997 when around one in three respondents (31.7%) reported being 'over-qualified'. The East Midlands experience is remarkably to that of England as a whole, where 'over-qualification' also rose by around eight percentage points.

Table 3.1:
Distribution of Broad Skills by Gender and by Full-Time/Part-Time Status, East Midlands, 2006

Broad Skills[1]	All	Males	Females	Female Full-Time	Female Part-Time
	Sample Percentages/Scores				
(a) Highest Qualification Required[2]					
Degrees	18.9	18.3	15.3	21.8	5.5†
Professional qualifications	9.1	8.1	10.1	12.5	6.6†
Level 4	25.9	26.4	25.4	34.3	12.0†
Level 3	17.4	18.5	16.3	17.3	14.6
Level 2	17.3	12.4	22.7*	22.7	22.6
Level 1	10.3	12.9	7.4*	6.4	8.8
No qualifications	29.1	29.9	28.3	19.3	41.9†
Required Qualification Index	2.01	1.99	2.03	2.41	1.46†
(b) Training Time[3]					
> 2 years	25.8	25.7	25.8	28.7	21.4
< 3 months	58.6	61.1	55.7	50.4	63.8†
Training Index	2.37	2.25	2.50	2.78	2.07†
(c) Learning Time[4]					
> 2 years	28.8	33.4	23.8*	27.2	18.6†
< 1 month	20.1	17.9	22.6	15.7	33.2†
Learning Time Index	3.69	3.90	3.45*	3.71	3.05†

Notes:
* = a statistically significant difference between male and female workers ($p<0.05$)
† = a statistically significant difference between female full-time and female part-time workers ($p<0.05$)

1. The data reported here and throughout have been weighted by a factor that takes into account the slight over-representation of women and the under-representation of the 20-29 year old age group. In addition, the data has been weighted to take into account the variation in the number of eligible respondents at each address visited. All calculations exclude missing values. **The 2006 survey collected data on the 20-65 age group, whereas all the other surveys reported here focused on the 20-60 year age group. When the 2006 data are presented the entire age range is reported.** However, appropriate restrictions are made when making comparisons over time.

2. Respondents were asked: 'If they were applying today, what qualifications, if any, would someone need to *get* the type of job you have now?' A range of options was given. From this the highest qualification level, ranked by NVQ equivalents, was derived. The following qualification mapping was applied:

Level 4 or above = masters or PhD degree, university or CNAA degree, other professional (eg, law, medicine), teaching, nursing (eg SCM, RGN, SRN, SEN), NVQ level 4 (or SNVQ4) or HNC/HNC (or SHNC/SHNC); Degree = masters or PhD degree, university or CNAA degree; Professional qualifications = other professional (eg, law, medicine), teaching, nursing (eg SCM, RGN, SRN, SEN), NVQ level 4 (or SNVQ4) or HNC/HNC (or SHNC/SHNC);
Level 3 = GCE 'A' level or GNVQ advanced, SCE higher or SLC/SUPE higher, certificate of 6th year studies, university certificate/diploma (not degree), SCOTVEC national certificate, SCOTBEC/SCOTBEC certificate/diploma, completion of trade apprenticeship, NVQ level 3 (or SNVQ 3) or ONC/OND (or SNC/SND);
Level 2 = GCSE A*-C or GNVQ intermediate or GCE 'O' level or CSE grade 1 or school certificate of matriculation, SCE standard (1-3)/ordinary (A-C) or SLC/SUPE lower, clerical/commercial (eg typing or bookkeeping), professional qualification without sitting exam, NVQ level 2 (or SNVQ 2);
Level 1 = GCSE D-G or CSE (other than grade 1) or GNVQ foundation, other, NVQ level 1 (or SNVQ 1); No qualifications = none reported.

- The Required Qualifications Index was calculated from the responses: none=0; level 1=1; level 2=2; level 3 =3; and level 4 or above=4.

3. Respondents were asked: 'Since completing full-time education, have you ever had, or are you currently undertaking, training for the type of work that you currently do? Respondents answering 'yes' were then asked: 'How long, in total, did (or will) that training last?' A range of options was given.

- The Training Time Index was calculated from the responses: none=0; less than 1 month=1; 1=3 months=2; 3-6 months=3; 6-12 months=4; 1-2 years=5; and over 2 years=6.

4. Respondents were asked: 'How long did it take for you after you first started doing this type of job to learn to do it well?'.

- The Learning Time Index was calculated from the responses: less than 1 month=1; less than 3 months=2; 3-6 months=3; 6-12 months=4; 1-2 years=5; and over 2 years=6.

Table 3.2:
Distribution of Broad Skills by Occupation, East Midlands, 2006

Occupation[1]	Required Qualification Index	Training Time Index	Learning Time Index
Managers	2.87	2.87	4.45
Professionals	3.72	3.74	5.04
Associate Professionals	2.86	3.36	4.14
Administrative & Secretarial	2.16	2.03	3.30
Skilled Trades	1.90	2.44	4.44
Personal Service	1.82	3.56	3.64
Sales	0.73	1.02	2.37
Plant & Machinery Operatives	0.87	1.45	3.02
Elementary Occupations	0.29	0.56	2.10

Note:
1. Occupations are classified by SOC2000 Major Groups. The indices are derived as outlined in Table 3.1.

Table 3.3:
Distribution of Broad Skills by Industry, Sector and Size of Establishment, East Midlands, 2006

	Required Qualification Index[1]	Training Time Index	Learning Time Index
Industry			
Production Industries, Divisions A-F[2]	1.75	2.04	3.86
Service Industries, Divisions G-O[3]	2.10	2.50	3.62
Sector			
Private	1.66	1.88	3.33
Public	2.69	3.34	4.15
Size (no. of workers)			
Up to 24	1.80	2.25	3.69
25 and over	2.14	2.45	3.69

Notes:
1. The indices are derived as outlined in Table 3.1
2. Agriculture, Fishing, Mining, Manufacturing, Energy, Construction.
3. Wholesale & Retail, Transport & Storage, Real Estate & Business Services, Public Administration, Education, Health & Social Work, Personal Services

Table 3.4:
Qualifications Demand and Supply, East Midlands, 2006

	Demand			Supply
	Highest Qualification Required[1] Number of Jobs (%)			Highest Qualification Held[2] ('000s of people)
	Jobs	Vacancies	Total demand	
(1)	(2)	(3)	(4)	(5)
Level 4 or above	499,593 (25.9)	8,633 (19.9)	508,226 (25.8)	595,669 (29.6)
Degree	325,227 (16.9)	5,333 (12.3)	330,560 (16.8)	392,417 (19.5)
Professional qualifications	174,366 (9.1)	3,300 (7.6)	177,666 (9.1)	203,252 (10.1)
Level 3	335,823 (17.4)	6,743 (15.6)	342,566 (17.4)	501,086 (24.9)
Level 2	332,548 (17.3)	5,750 (13.3)	338,298 (17.2)	454,801 (22.6)
Level 1	198,065 (10.3)	3,370 (7.8)	201,435 (10.2)	273,385 (13.6)
No qualifications	560,669 (29.1)	18.867 (43.5)	579,536 (29.4)	189,165 (9.4)
Column totals	1,926,698	43,362	1,970,060	2,012,393

Notes:
* Due to rounding column totals and percentages do not always add up precisely.
1. Using the spring and summer 2006 Quarterly Labour Force Surveys, an estimate was derived of the total number of individuals aged 20-65 years old who were in paid work in the East Midlands. This figure was then multiplied by the percentage of respondents to the 2006 Skills Survey who reported that access to their jobs required qualifications at one of the levels shown in column 1. Column 2, then, comprises estimates of the number of jobs in the East Midlands that demand qualifications at various levels in the NVQ hierarchy. The analysis here is restricted to individuals' main job; secondary jobs are not included. In addition, vacancies represent the

number of posts for which employers are seeking recruits, hence column 3. These need to be added to the demand column of jobs filled (Williams, 2004a and 2004b). These data are taken from the Vacancy Survey for the months April-September 2006 (ONS, 2006: Table 21, downloaded 11 July 2007; Machin, 2003). The average monthly number of vacancies over this period – during which most of the East Midlands interviews were carried out – was 594,000. To derive an East Midlands estimate we divide this by the proportion of UK jobs held in the East Midlands (7.3% of jobs). These 43,362 vacancies are apportioned according to the qualifications required by those recently securing posts (i.e. job tenure of less than one year – this captures 123 respondents). These proportions are multiplied to produce estimates of vacancies in the labour market at each qualification level. Column 4 combines the jobs and vacancies columns to produce an estimate of total qualification demand at each level in the hierarchy.

2. Using the spring and summer 2006 Quarterly Labour Force Surveys, an estimate was also made of the total number of individuals who possess qualifications at each of these levels. To capture the complete supply of individuals available for work, we selected not only those in paid work – employees and the self-employed – but also those recorded as ILO unemployed (using the INECAC05 derived variable). For comparability with evidence from the 2006 Skills Survey, we restrict the analysis to those aged 20-65 years old living in East Midlands. The figures in column 5, then, provide estimates of the numbers of individuals qualified to particular levels in the NVQ hierarchy. The LFS proportions are multiplied by the total number of individuals available for work. To maximise comparability with the 2006 Skills Survey qualifications mapping protocols, the highest qualification variable, HIQUAL5, was categorised as follows:

- Level 4 or above = higher degree, NVQ level 5, first/foundation degree, other degree, NVQ level 4, diploma in higher education, HNC/HND, BTEC higher etc, teaching – further education, teaching – secondary, teaching – primary, teaching – foundation stage, teaching – level not stated, nursing etc, RSA higher diploma, other higher education below degree level;
- Degree = higher degree, first/foundation degree, other degree;
- Professional qualifications = NVQ level 5, NVQ level 4, diploma in higher education, HNC/HND, BTEC higher etc, teaching – further education, teaching – secondary, teaching – primary, teaching – foundation stage, teaching – level not stated, nursing etc, RSA higher diploma, other higher education below degree level;
- Level 3 = A level or equivalent, RSA advanced diploma, OND/ONC, BTEC/SCOTVEC national, City and Guilds advanced craft/part1, Scottish 6th year certificate (CSYS), SCE higher or equivalent, access qualifications, AS level or equivalent, trade apprenticeship;
- Level 2 = NVQ level 2 or equivalent, intermediate Welsh baccalaureate, GNVQ intermediate, RSA diploma, City and Guilds craft/part 2, BTEC/SCOTVEC first or general diploma, O level, GCSE grade A-C or equivalent;
- Level 1 = NVQ level 1 or equivalent, GNVQ/GSVQ foundation level, CSE below grade 1, GCSE below grade C, BTEC/SCOTVEC first or general certificate, SCOTVEC modules, RSA other, City and Guilds other, YT/YTP certificate, key skills qualification, basic skills qualification, entry level qualification, other qualifications;
- No qualifications = none reported.

Table 3.5:
Qualifications Demand and Supply, UK, 2006

	Demand			Supply
	Highest Qualification Required[1] ('000s)			Highest Qualification Held[2] ('000s of people)
	Jobs	Vacancies	Total demand	
Level 4 or above	7,868 (29.8)	143 (23.8)	8,011 (29.7)	9,079 (32.8)
Degree	4,938 (18.7)	100 (16.7)	5,038 (18.7)	6,311 (22.8)
Professional qualifications	2,931 (11.1)	43 (7.2)	2,974 (11.0)	2,768 (10.0)
Level 3	4,145 (15.7)	88 (14.7)	4,233 (15.7)	6,588 (23.8)
Level 2	3,934 (14.9)	91 (15.2)	4,025 (14.9)	5,924 (21.4)
Level 1	3,036 (11.5)	74 (12.4)	3,110 (11.5)	3,488 (12.6)
No qualifications	7,420 (28.1)	203 (33.9)	7,623 (28.2)	2,602 (9.4)
Column totals	26,404	600	27,004	27,680

Notes:
* Due to rounding column totals and percentages do not always add up precisely.

Table 3.6:
Patterns of Qualification Mismatch, East Midlands and UK, 2006

	Qualification Mismatch[1] (% Of Jobs Requiring Qualifications At Each Level Minus % Of Workforce Qualified At Each Level)	
	East Midlands	UK
Level 4 or above	-3.8	-3.1
Degree	-2.6	-4.1
Non-degree	-1.0	+1.0
Level 3	-7.5	-8.1
Level 2	-5.4	-6.5
Level 1	-3.4	-1.1
No qualifications	+20.0	+18.8

Note:
1. A positive figure indicates excess demand, while a negative figure indicates over-supply.

Table 3.7:
Trends in Broad Skills, East Midlands and England, 1997-2006

Broad Skills Indices	1997	2001	2006
	Sample Percentages/Scores (figures for England are in parentheses)		
Required qualification index[1,2]	1.61 (1.91)	1.90 (2.11)	2.01* (2.10*)
Training index	2.13 (2.52)	1.87 (2.31)	2.37 (2.59)
Learning index	3.49 (3.59)	3.80 (3.72)	3.68 (3.66)
Sample base: all in employment, aged 20-60	128 (2,065)	259 (3,767)	1,101 (4,882)

* = a statistically significant difference between 1997 and 2006 ($p<0.05$).

Notes:
1. The qualification coding frames in each of these surveys has been subject to only minor amendment. To further enhance comparability the same qualification mapping protocols have been applied to each data set reported here. For completeness this note details the qualification mapping used for 1992 and 1997. The 2006 map is outlined in Table 3,4. The 2006 figures in this table differ from those reported in Table 3.1 because they are restricted to 20-60 year olds for comparability with the other four surveys and they exclude those living north of the Caledonian Canal for comparability purposes.

- For 1992, the following qualification map was applied:

Level 4 or above = university or CNAA degree, other professional (eg law, medicine), teaching, nursing (eg SRN/SEN), HNC/HND or SHNC/SHND; Degrees = university or CNAA degree; Professional qualifications = other professional (eg law, medicine), teaching, nursing (eg SRN/SEN), HNC/HND or SHNC/SHND;
Level 3 = GCE 'A' level, SCE higher or SLC/SUPE higher grade, certificate of 6th year studies, ONC/OND (or SNC or SND), university certificate/diploma (not

degree), SCOTVEC national certificate, SCOTBEC/SCOTEC certificate/diploma, completion of trade apprenticeship;
Level 2 = GCE 'O' level or grade 1 CSE or school certificate of matriculation, SCE 'O' level or lower grade SLC or SUPE, City and Guilds, clerical and commercial (eg typing, shorthand or bookkeeping), professional qualification without sitting exam;
Level 1 = CSE (other than grade 1), other; No qualifications = none reported.

- For 1997, the following qualification map was applied:

Level 4 or above = university or CNAA degree, other professional (eg law, medicine), teaching, nursing (eg SRN/SEN), HNC/HND or SHNC/SHND; Degrees = university or CNAA degree; Professional qualifications = other professional (eg law, medicine), teaching, nursing (eg SRN/SEN), HNC/HND or SHNC/SHND or S/NVQ level 4;
Level 3 = GCE 'A' level or GNVQ advanced, SCE higher or SLC/SUPE higher grade or GNVQ advanced, certificate of 6th year studies, ONC/OND (or SNC or SND) or S/NVQ level 3, university certificate/diploma (not degree), SCOTVEC national certificate, SCOTBEC/SCOTEC certificate/diploma, completion of trade apprenticeship;
Level 2 = GCE 'O' level or grade 1 CSE or school certificate of matriculation or GNVQ intermediate, SCE 'O' level or lower grade SLC or SUPE or GNVQ intermediate, City and Guilds or S/NVQ level 2, clerical and commercial (eg typing, shorthand or bookkeeping), professional qualification without sitting exam;
Level 1 = CSE (other than grade 1), other; No qualifications = none reported.

- For 2001, the following qualification map was applied:

Level 4 or above = higher degree, NVQ level 5, first degree, other degree, NVQ level 4, diploma in higher education, HNC/HND, BTEC higher etc, teaching – further education, teaching – secondary, teaching – primary, teaching – level not stated, nursing etc, RSA higher diploma, other higher education below degree level;
Degree = higher degree, first degree, other degree; Professional qualifications = NVQ level 5, NVQ level 4, diploma in higher education, HNC/HND, BTEC higher etc, teaching – further education, teaching – secondary, teaching – primary, teaching – level not stated, nursing etc, RSA higher diploma, other higher education below degree level;
Level 3 = A level or equivalent, RSA advanced diploma, OND/ONC, BTEC/SCOTVEC national, City and Guilds advanced craft, Scottish 6th year certificate (CSYS), SCE higher or equivalent, AS level or equivalent, trade apprenticeship;
Level 2 = NVQ level 2, GNVQ intermediate, RSA diploma, City and Guilds craft, BTEC/SCOTVEC first or general diploma, O level, GCSE grade A-C or equivalent;
Level 1 = NVQ level 1, GNVQ/GSVQ foundation level, CSE below grade 1, GCSE below grade C, BTEC/SCOTVEC first or general certificate, SCOTVEC modules, RSA other, City and Guilds other, YT/YTP certificate, other qualifications; No qualifications = none reported.

2. The indices are derived as outlined in Table 3.1.

Table 3.8:
Pattern of Change in the Distribution of Broad Skills by Gender and Full-time/Part-time Status, East Midlands and England, 1997-2006

	Required Qualification Index[1]		Training Time Index		Learning Time Index	
	East Midlands	England	East Midlands	England	East Midlands	England
All	+0.41*	+0.19*	+0.23	+0.07	+0.19	+0.07
Males	+0.44*	+0.04	+0.05	-0.21	+0.15	-0.08
Females	+0.39	+0.37*	+0.42	+0.39*	+0.17	+0.29*
Female Full-Time	+0.88*	+0.27*	+0.42	+0.13	+0.18	+0.06
Female Part-Time	-0.33	+0.47*	+0.33	+0.72*	0.08	+0.56*

Notes:
1. A positive (negative) figure indicates a rise (fall) between the two sample points.
* = a statistically significant index change ($p<0.05$).

Table 3.9:
Trends in Proportions 'Over-Qualified' and 'Under-Qualified' for Their Jobs, East Midlands and England, 1992-2006

	1997	2001	2006
	Sample Percentages (figures for England are in parentheses)		
Percentage 'Over-Qualified'[1]	31.7 (31.4)	33.0 (35.6)	39.1 (39.4)

Notes:
1. An 'over-qualified' individual has a qualification at a higher level than that currently required to get the job he/she now holds.

Table 3.10:
Trends in Credentialism, East Midlands and England, 1997-2006

Highest Qualification Required	1997	2001	2006
	Percentage of Each Qualification Cohort (figures for England are in parentheses)		
Qualifications Necessity Index[1]			
All qualifications at whatever level	3.10 (3.07)	2.82 (2.98)	3.04 (3.04)
Level 4 or above	3.20 (3.13)	3.11 (3.13)	3.16 (3.14)
Level 3	3.20 (3.06)	2.82 (2.93)	3.07 (2.97)
Level 2	3.00 (2.97)	2.73 (2.89)	2.93 (2.90)
Level 1	3.11 (3.14)	2.39 (2.79)	2.90 (3.04)

Notes:
1. Respondents were asked to assess whether today's entry qualifications (see note 2 in Table 3.1) were 'essential', 'fairly necessary', 'not really necessary' or 'totally unnecessary' to do the job competently. As a summary measure, this panel presents the extent to which required qualifications are regarded as necessary to do the job. Here 4 = 'essential'; 3 = 'fairly necessary'; 2 = 'not really necessary' and 1 = 'totally unnecessary'.

CHAPTER 4
COMPUTING SKILLS

4.1 Introduction

It is widely held that the introduction of computer-based technologies has transformed the nature of employment in the modern era. Correspondingly, computing skills are considered to be the most far-reaching 'generic skill', that is, a skill that is used in various ways and levels in many different occupations. The last ten years has witnessed a major expansion in the use of ICT at work. Employers' investment in computer software reached 2% of UK GDP in 2002 after a 5-year period of rapid growth (Abramovsky and Griffith, 2007) and an accelerated expansion of overall ICT investment from £13 billion in 1992 to more than £35 billion in 2000 (National Statistics, 2007). The advent of computers has accompanied a fundamental re-alignment of the mix of skilled and unskilled workers (Bresnahan, 1999). In particular, the upskilling reported in British jobs between 1986 and 1997 has been shown to be strongly associated with the expansion of computer usage (Green *et al.*, 2003).[7] Rather than being confined to a relatively small sector of highly skilled information technology experts, the direct impact of computers has spread through a very diverse range of jobs. Policy in recent years has been developed to ensure that school and college students can all acquire sufficient computer skills, and there is also concern that adults should have sufficient access to this technology. Even so, the spread of ICT among the UK population as a whole was far from complete by 2005, with one in four 16-74 year olds professing not even basic computing skills, according to official European Union data (Demunter, 2005, 2006).

Yet there is a scarcity of information about just how widespread computer usage is in The East Midlands, how fast it is changing, how workers are coping with the changes and whether they are doing so adequately, and how the uptake in The East Midlands compares with England as a whole. There is, therefore, a strong need for accurate, representative data about computer usage at work. In this chapter, we plot the distribution of computing and internet skills in The East Midlands and compare with the distribution elsewhere in England.

4.2 Computing Skills in the East Midlands and in England, 2006

The 2006 Skills Survey collects data on the use of computing skills in four ways. It asks respondents whether computerised or automated equipment is used at work (participation), whether the use of a PC or other computerised equipment is 'essential' to their jobs (centrality), whether the use of this equipment is 'complex' or 'advanced' (complexity) and whether they regard the use of the internet as 'essential' or 'very important' to their job (internet usage). Table 4.1 presents the findings about the distribution of computing skills in The East Midlands in 2006.

Participation is our broadest indicator on the use of advanced technology in jobs. The question posed to employees is: 'Does your own job involve use of computerised or

[7] At the same time, some studies have also attributed to computers a substantive role in the changing distribution of wages, though this claim is contested and the evidence is mixed. We report some relevant findings in Chapter 7.

automated equipment?', to which respondents are Yes or No, and we refer to those who respond Yes as 'participating' in advanced technology use. The Table shows that The East Midlands is a very modest 1.6 percentage points behind England as a whole in the take-up of advanced technology (73.9% compared with 75.5%). The difference is not statistically significant, which means that we can say with confidence that the take-up of advanced technology is the same in The East Midlands as elsewhere in England.

However, computers are not central to the jobs of all of these workers. A further question helps to explore whether computing has not only come to affect a wide range of jobs, but also has become more important to the nature of the tasks carried out. The question asks how important is 'Using a computer, PC or other types of computerised equipment' was to their job. The overall use of computers can be measured as the sum of the responses ranging from 'essential' to 'fairly important'. This gives a similar estimate to the previous question, with 74.2% saying it was of importance in 2006. Looked at another way, there are 25.8% of jobs in The East Midlands for which computing skills are not at all important; this compares with 21.6% for England as a whole.

Taking those who said that the use of such equipment was 'essential' as an indicator of the 'centrality' of computer skills to the work task, we find that computer skills are central in this way to 42.2% of jobs in The East Midlands, which compares with 47.7% for England as a whole.

The measures of participation and centrality cover a wide range of tasks of very different levels of complexity. Our third indicator focuses on the level of sophistication with which computers are used. However, to what extent is computer use at simple levels as against more advanced use? To address this issue, those who used computers (i.e. excluding those who reported computer use as 'not at all important') were given a set of statements about possible types of use and asked which best characterised their own job. The four broad types of use given were: 'Simple' (for example, using a computer for straightforward routine procedures such as printing out an invoice in a shop); 'Moderate' (for example, using a computer for word-processing and/or spreadsheets or communicating with others by e-mail); 'Complex' (for example, using a computer for analysing information or design, including use of computer aided design or statistical analysis packages); and 'Advanced' (for example, using computer syntax and/or formulae for programming). We find that 17.3% of workers in The East Midlands were using computers at either 'complex' or 'advanced' levels. This compares with 22.2% of workers in England as a whole.

Another indicator of more complex use of computers is the importance and type of use of the internet. Accordingly, respondents were asked how important use of the internet was in their jobs. We find that 38.1% of workers in The East Midlands are in jobs where use of the internet is 'essential' or 'very important', compared with 41.4% of workers in England as a whole.

All four indicators thus record that computing skills are quite close to those used in The East Midlands jobs than elsewhere in England; however, the centrality and the complexity measures do provide a hint that computer skills are used to a somewhat lesser extent in East Midlands than in England as a whole. The question arises as to whether this difference arises because of the different industrial structures to be found in The East Midlands and elsewhere in England. Below, we shall record how computing skills vary across sectors in The East Midlands. Here, we simply note that computer skills use can vary considerably across regions, even within the same industry. In the Wholesale Industry, for example, it is found that computer use is 'Essential' in 30.9% of jobs in The

East Midlands; this compares with 43.4% of jobs in England as a whole. In the Health industry, by contrast, 'essential' use of computers is very similar in the East Midlands compared to its level in England as a whole (42.4% compared with 42.0%).

Finally in this section, we explore how computer users in The East Midlands use the internet, and whether this use differs from elsewhere. This question arises because the skills needed to use the internet are not perfectly captured by the importance of internet use to the job. They depend also on the types of activities that are required to be performed through the internet. Rather than assigning skill levels a priori to the different types of internet use, the survey asks respondents to list the activities that they use the internet for. Thus, Table 4.1 also delves a little deeper into the ways in which the internet is used by those who report that they use it at work.

The table shows that, among internet users, the type of internet use is quite similar in The East Midlands and elsewhere. Use of email is the most common usage, followed by gaining information about suppliers, delivering information to clients, and gaining information on one's own organisation. Delivering products to clients figures in approximately one in six jobs (15.5%) in The East Midlands. There are, however, some differences between internet use in The East Midlands and elsewhere. Most notably, by about 5 percentage points internet users in The East Midlands are somewhat less likely to use internal email than users in England as a whole, and there is a similar gap for external email.

4.3 Computing Skills Trends in the East Midlands and in England, 1997-2006

To examine trends over time, and simultaneously to see how the differences between the East Midlands and England as a whole have been changing over time, it is necessary to narrow the perspective somewhat. Eligibility for inclusion was restricted to those aged 20 to 60, as opposed to 20 to 65 for the 2006 survey. In Table 4.2, the figures presented are consistent, in that they are drawn from the 20 to 60 age group. Table 4.2 compares the use of computers between the East Midlands and England as a whole using data from surveys carried out in 1997, 2001 and 2006.

The table shows the remarkable growth of computer use in East Midlands workplaces. While the growth in participation in computer use is relatively modest over the 2001-2006 period, the other indicators show that computer use has been expanding fairly rapidly over the last decade and including in the 2001-2006 period. For example, the proportion of workplaces in which computers were judged 'essential' rose from 29.9% in 1997 to 32.3% in 2001 and again to 42.8% in 2006. The proportion of East Midlands workers using the internet expanded rapidly in the five years between 2001 and 2006, from 21.6% to 38.8%.

Notwithstanding this rapid growth in the East Midlands, the table shows that the region has lagged a little behind England as a whole in the accretion of computing job skills. For example, consider the proportion of jobs requiring 'complex' or 'advanced' computer use: this had spread to 17.9% of jobs in England as whole by 2001, but a similar spread (17.2%) was reached in the East Midlands in 2006. Except with respect to the participation measure, there are no obvious signs of convergence between East Midlands and elsewhere in England.

4.4 Distribution of Computing Skills Across Socio-Economic Groups in the East Midlands in 2006

Computer skills are a potential source of inequality and differentiation among workers in the modern economy. Hence there is also interest in how computing skills vary across groups of workers. Table 4.3 also shows how our four indicators of the use of computing skills varies according to gender, whether (for females) workers are working full-time or part-time, and age.

We find that the participation in computer use for women in The East Midlands is about 4 percentage points lower for men than it is for women (72.2% compared with 75.9%). Moreover, a much greater proportion of women than men report that computers are 'essential' for their job (48.3% compared with 36.8%); and use of the internet is also greater in women's jobs (41.7% compared with 35.0%). Conversely, 'complex' or 'advanced' use of computers is less common in women's jobs than in men's jobs (15.1% compared with 19.2%).

With all four indicators, there is more differentiation among women, according to whether they work full-time or part-time. Full-time workers' participation in computer use is 83.3%, compared with just 64.7% for part-timers. Moreover, 18.8% of full-time workers use computers in 'complex' or 'advanced' ways, as compared with just 9.5% of part-time workers. Similarly, 'essential' or 'very important' internet use is 52.1% for full-timers as compared with 26.0% for part-timers.

It is frequently assumed that computer use is found most frequently among younger sections of the population, who will have benefited from computer education in school, and perhaps have been more open than older workers to the use of new technologies. Nevertheless, the imperatives of modern working potentially affect all jobs, including those of older workers. In the event, as Table 4.3 shows, whether or not one uses a computer in The East Midlands depends only to a limited extent on age up to the age of 60, but all four measures drop off for those aged 61 to 65. For example, 61.1% of workers aged 61-65 participate in computer use, compared with 72.7% of workers in their fifties.

Table 4.4 examines how computers are used in different types of work as reflected by occupational group. Both participation and the relative importance of computerised equipment to the job were strongly affected by the type of work. For instance, 80.4% of 'Administrative & Secretarial' workers regarded it as 'essential' and this was also the case for approximately two-thirds (66.8%) of 'Professional' workers. By contrast, only 11.5% of 'Elementary' workers, 13.0% of 'Personal Services' workers and around 18.6% of those in 'Skilled Trades' reported the use of computers as 'essential' to their jobs.

The complexity of computer use was also strongly related to occupational group. Those in 'Professional' (37.2%) or 'Managerial' (29.8%) occupations were the most likely to be using computers at a 'complex' or 'advanced' level; while at the other end of the spectrum, 'complex' or 'advanced' use was virtually absent in 'Elementary' occupations. Internet use was also most likely to be 'essential' or 'very important' in 'Professional' and 'Managerial' occupations; even so, the internet was being used by more than half (53.2%) of those in 'Administrative & Secretarial' jobs.

Table 4.5 examines how far computer use varies across sectors and according to size of establishment in The East Midlands. The table shows that computer use is higher in the Service Industries than in the Production Industries, according to three out of the four

measures. For example, computers are essential in 45.1% of jobs in the Service Industries, compared with 33.9% of jobs in Production Industries; internet use is 'very important' or 'essential' for 41.1% of jobs in the Service Industries, compared with only a 30.0% of jobs in the Production Industries. The exception concerns the complexity of computer use, which is a small amount greater in the Production Industries than in the Service Industries.

In a similar way, there is a difference in computer use between public sector and private sector jobs. The former require more computing skills according to all four measures. For example, computer skills are essential in 61.3% of public sector jobs but only 35.0% of private sector jobs. Internet use is 'essential' or 'very important' in 58.0% of public sector jobs, compared with 30.5% of private sector jobs.

Finally, according to all four measures, computer use is considerably more prevalent in larger than smaller establishments. Thus, computers are used in four fifths (80.6%) of large establishments (with at least 25 workers), compared with less than two thirds (63.8%) of small establishments. Complex or advanced use of computers is prevalent in twice as many large as small establishments (21.7% compared with 10.5%).

4.5 Summary of Main Findings

- Computers are used in 73.9% of jobs in the East Midlands. In 42.2% of jobs, computer usage is 'essential' for the job, and in 17.3% of jobs it involves using computers in 'complex' (e.g. use of spreadsheets) or 'advanced' (e.g. programming) ways. In 41.4% of jobs use of the internet is either 'essential' or 'very important'.
- Broadly speaking, computer skills in the East Midlands and in England as a whole are at quite similar levels. However, there are some small differences, even within industries, with skills generally being somewhat more used in England as a whole. For example, computer use is 'essential' for 47.7% of jobs across England as a whole, as compared with the above figure of 42.2% for the East Midlands.
- Computing skills in the East Midlands has shown a rapid growth over the last decade. For example, the proportion of workplaces in which computers were judged 'essential' rose from 29.9% in 1997 to 42.8% in 2006.
- Nevertheless, the East Midlands region has lagged a little behind England as a whole in the growth of computing skills. For example, the proportion of jobs requiring 'complex' or 'advanced' computer use reached 17.9% of jobs in England as whole by 2001, but a similar spread (17.2%) was reached in the East Midlands in 2006.
- Women in the East Midlands are more likely than men to report that computers are 'essential' for their jobs (48.3% compared with 36.8%), but are less likely to be using computers in 'complex' or 'advanced' ways (15.1% of jobs compared with 19.2%).
- Among women the differences are also striking: computers were essential in the jobs of 26.0% of part-time workers, as against 52.1% of the jobs of full-time workers.

- All indicators of computer use are very considerably larger in ‘Managerial’, and ‘Professional’, ‘Associate Professional’, and in ‘Administrative and Secretarial’ occupations.
- Computer participation, the centrality of computing and the centrality of internet use are all greater in the ‘Service’ industries than in the ‘Production’ industries. All indicators of computing skills are substantially greater in the public than in the private sector, and greater in large than in small establishments.

Table 4.1:
Distribution of Computing Skills in England and East Midlands, 2006

	East Midlands	England
Whether uses Computerised or Automated Equipment	73.9	75.5
Importance of Use of PC or Other Types of Computerised Equipment to Job		
Not at all important	25.8	21.6
Not very important	7.7	5.3
Fairly important	9.8	11.3
Very important	14.5	14.1
Essential	42.2	47.7
Complexity of Use of Computers or Computerised Equipment		
Non-user	25.8	21.6
Simple	21.3	20.5
Moderate	35.6	35.8
Complex	13.2	16.0
Advanced	4.1	6.2
Importance of Use of the Internet in the Job		
Not at all important	44	38.6
Not very important	5.8	7.4
Fairly important	12	12.6
Very important	14	14.8
Essential	24.1	26.6
Type of Internet Use*		
Internal E-Mail	45.6	50.8
External E-Mail	41.2	46.1
Information on Own Organisation	28.7	32.6
Information on Suppliers	36.3	35.4
Delivering Information to Clients	29.9	33.6
Delivering Products to Clients	15.5	19
Buy/sell Products or Services	13.5	14.8
Update Web Pages	7.1	9.5
Design Web Pages	3	5
Other use	6.3	7.3

*Excludes those not using the internet.

Table 4.2:
Computing Skills in East Midlands and England, 1997-2006

		East Midlands	England
Whether Uses Computerised or Automated Equipment (%)			
	2001	65.5	72.2
	2006	74.6	75.8
Use of PC or Other Types of Computerised Equipment 'Essential' (%)			
	1997	29.9	31.8
	2001	32.3	40.3
	2006	42.8	47.9
Complex or Advanced Use of PC/ Computers (%)			
	1997	8.7	15.8
	2001	10.2	17.9
	2006	17.6	22.6
Use of Internet 'Essential' or 'Very Important' (%)			
	2001	21.6	25.0
	2006	38.8	42.0

Note:
Consistent sample over the years of those aged 20 to 60.

Table 4.3:
Distribution of Computing Skills by Gender and by Full-Time/Part-Time Status, 2006

	Whether Uses Computerised or Automated Equipment (%)	Use of PC or Other Types of Computerised Equipment 'Essential' (%)	Complex or Advanced Use of PC/ Computers (%)	Use of Internet 'Essential' or 'Very Important' (%)
All	73.9	42.2	17.3	38.2
Males	72.2	36.8	19.2	35
Females	75.9	48.3	15.1	41.7
Contract Status				
Females Full-Time Jobs	83.3	58.7	18.8	52.1
Females Part-time Jobs	64.7	32.5	9.5	26
Age				
20-29	72.1	37.9	20	32.1
30-39	77.4	44.9	17.5	39.7
40-49	75.6	43.9	17	45.9
50-60	72.7	44.1	15.8	35.7
61-65	61.1	30	11.1	26

Table 4.4
Distribution of Computing Skills by Occupation, 2006

	Whether Uses Computerised or Automated Equipment (%)	Use of PC or Other Types of Computerised Equipment 'Essential' (%)	Complex or Advanced Use of PC/ Computers (%)	Use of Internet 'Essential' or 'Very Important' (%)
Managers	94.6	64.3	29.8	65.8
Professionals	96.7	66.8	37.2	78.3
Associate Professionals	91	61.6	25.6	64.9
Administrative & Secretarial	96.2	80.4	26.2	53.2
Skilled Trades	52.9	18.6	10.8	12.3
Personal Service	46.9	13	0.6	18.2
Sales	81.8	28	0.9	17.2
Plant & Machine Operatives	56.2	13.2	6.2	6.6
Elementary	38	11.5	2.6	3.6

Table 4.5
Distribution of Computing Skills by Industry, Sector and Size, 2006

	Whether Uses Computerised or Automated Equipment (%)	Use of PC or Other Types of Computerised Equipment 'Essential' (%)	Complex or Advanced Use of PC/ Computers (%)	Use of Internet 'Essential' or 'Very Important' (%)
Industry				
Production Industries, Divisions A-F*	64.5	33.9	19.4	30
Service Industries, Divisions G-O**	77.2	45.1	16.2	41.1
Sector				
Private	68.7	35	15.7	30.5
Public	88	61.3	21.7	58
Size (no. of workers)				
Up to 24	63.8	26.3	10.5	30
25 or more	80.6	52.6	21.7	43.5

Notes:
*Agriculture, Fishing, Mining, Manufacturing, Energy, Construction.
**Wholesale & Retail, Transport & Storage, Real Estate & Business Services, Public Administration, Education, Health & Social Work, Personal Services

CHAPTER 5
OTHER GENERIC SKILLS

5.1 Introduction

Supplementing the importance commonly attached to the use of computing skills, many commentators, including employers' representatives, refer also to the requirement for other 'generic skills' in modern workplaces. Previous surveys in this series have pioneered the development of measures of the use of generic skills. The idea of a generic skill refers to a skill which is used across a wide range of occupations and industrial situations, in contrast to occupation-specific or firm-specific skills that are needed in particular jobs. A widely-cited example is the skill of communication, which is needed in many jobs, but to differing degrees and at varying levels. There is nothing new in this: communication has been necessary in many jobs since the dawn of cooperative working. The desire to measure generic skills arose in the 1990s, however, from the claim that there were certain identifiable skills that were growing in importance in modern workplaces, and for which employees were not always being well-prepared either at school or through training. In many countries, a policy focus on 'key skills' emerged, and these were entered in school and university curricula.

The measures of generic skills usage in 1997 and 2001 afforded the opportunity to test the proposition that the skills were indeed becoming more important in the workplace. The changes in the responses to the first two surveys revealed that most generic skills had become somewhat more important, even over that comparatively short period of only four years. Analyses of the 2006 Skills Survey for the whole of the UK showed that this rise in the importance of generic skills is being maintained in the current decade (Felstead *et al*., 2007).

The aims of this chapter are to describe how measures of generic skills are obtained from the survey responses, to examine how generic skills are distributed across jobs held by various socio-economic groups in The East Midlands, and to compare generic skills usage in The East Midlands with that elsewhere in England.

5.2 Measurement

The overall approach taken to devising measures of generic skills from the 2006 Skills Survey responses is similar in principle to that utilised in the previous surveys. In those surveys the 35 items involved were factor analysed and the scores on the 10 resulting factors were treated as the indices of generic skills. However, certain changes have been made with the current survey for two reasons. First, there were now some additional items to be included in the analysis. Second, it was felt that a new way of calculating skill indices would be beneficial if the interpretation of the indices were to be made somewhat more transparent than in previous surveys, and if the indices enabled the importance of the skills to be compared with each other.[8]

[8] Continuity is maintained, for the purposes of trend analyses, by recalculating indices for the previous surveys using the new method utilised here.

Four additional items were included in the generic skills section of the questionnaire. There are two questions concerning 'emotional skills', concerning how important it is for workers to manage their own feelings and handling the feelings of others. There are also two questions on 'aesthetic skills', concerning how important is for them to 'look the part' and to 'sound the part' in their jobs. These items were introduced into the survey because it has been argued that there are a number of jobs, particular in the service sector where it is common to interact with the public or with colleagues, where such skills are becoming especially important, particularly so for women (Nickson *et al*., 2003; Korczynski, 2005; Payne, 2006). On the basis of such studies, we expected to find that women utilise more emotional skills and more aesthetic skills than do men. If so, failing to collect information about these activities would give an incomplete picture of the differences between men's and women's jobs.

Initially a factor analysis similar to that used in previous surveys was conducted. This analysis, which is described in the next sub-section, had the purpose of exploring the structure of the data – that is to say, whether it was still correct to reduce the many individual items to a limited number of underlying generic skills in the same way as before. However, to improve the interpretability of the indices, it was decided not to use the factor scores as the skills indices. Rather, the factor analysis was used to specify how items would be combined (i.e. which items grouped together). The skill indices were then obtained by averaging across the items in each group.

Five additional items had been introduced in the 2001 Survey to capture various aspects of management skills. These items were only addressed to managers and supervisors, and therefore were not generic across all occupations.

5.2.1 Factor Analysis

This sub-section describes how the factor analysis was conducted. It follows closely the description of the factor analysis conducted in the 2001 and 1997 surveys Felstead *et al*. (2002: 33-4).

Respondents were asked a series of detailed questions about what their job comprises. The generic skills section of the questionnaire was prefaced by the following: 'You will be asked about different activities which may or may not be part of your job. At this stage we are only interested in finding out what types of activities your job involves and how important these are'. Respondents were asked: 'in your job, how important is [a particular job activity]'. The response scale offered was: 'essential', 'very important', 'fairly important', 'not very important' and 'not at all important or does not apply'. Examples of the activities included working with a team of people, working out the causes of problems or faults, making speeches or presentations and planning the activities of others. To maintain continuity with previous surveys the factor analysis focused on the 35 activities (other than computing) that were also covered in the earlier surveys.

The 35 items were first changed into 35 variables. We transformed the ordinal scale of 'importance' for each variable into an increasing cardinal scale, running from 0 (meaning 'not at all important') to 4 (meaning 'essential'). Factor analysis is a statistical technique which examines the hidden structure of a large number of variables, reducing them to a much more limited number of 'factors' whose covariance captures a large proportion of the overall covariance between the original items. The factors were chosen in such a way as to capture sub-sets of the 35 variables which vary closely together, and which conform

to theoretical concepts – in this case, to our concepts of generic skill types. We chose to extract ten factors because, after 'rotation', ten factors were consistent in this case with the accepted criteria for factor analyses, because the resulting factor scores were easily interpretable as skill types, and because these factors involved the same high loadings as had been found when factor analysing the 1997 and 2001 surveys. The same set of factors was found whether we used just males, just females or the whole sample.

5.2.2 Skills Indices

To calculate skills indices, we grouped the variables/items in the ways implied by the factor analysis. For each group an additive index is calculated, which is scaled to lie between 0 and 4, just as for the raw data items. We attributed labels to the index scores identical to the labels in the raw data. Thus, at point 4, we use the label 'essential', at point 3 'very important' and so on. If a person has a value of 3, in effect what this means is that the score of that person averaged across questions in that group is 3. At the bottom end we use the label 'not used', as a short-hand for 'not at all important/does not apply'.

The same approach was used to gain measures of the additional generic skills implied in our additional questions. A factor analysis implied that the variables loaded onto two distinct factors, which were easily interpreted as aesthetic skills and emotional skills. Two further additive indices were accordingly created in the same way as the previous ten.

Finally, we calculated an index of management skills from the five items addressed to managers and supervisors only. For this index, the base for calculations is much smaller than for the whole sample.

A brief description of the generic skill measures is as follows (with Cronbach's alpha statistic in parentheses):[9]

Literacy Skills: both reading and writing forms, notices, memos, signs, letters, short and long documents etc.. (0.90)

Physical Skills: the use of physical strength and/or stamina; skill in using one's hands. (0.78)

Number Skills: adding, subtracting, divisions, decimal point or fraction calculations etc., and/or more advanced maths or statistical procedures. (0.86)

Technical 'Know-How': knowing how to use tools or equipment or machinery, knowing about products and services, specialist knowledge and/or skill in using one's hands. (0.64)

Influence: persuading or influencing others, instructing, training or teaching people, making speeches or presentations, writing long reports, analysing complex problems in depth, and planning the activities of others. (0.84)

Planning: planning activities, organising one's own time and thinking ahead. (0.85)

[9] In a small number of cases it may be seen that the same variable figures in more than one skill index: an example is 'skill in using one's hands' which is part of both technical know-how and of physical skills. This grouping reflects the factor analysis, and is similar in practice to using the weighted combinations of variables that are the factor scores used with previous surveys.

Client Communication: selling a product or service, counselling or caring for customers or clients, dealing with people, knowing about products and services. (0.66)

Horizontal Communication: working with a team of people, listening carefully to colleagues. (0.76)

Problem-Solving: detecting, diagnosing, analysing and resolving problems. (0.88)

Checking Skills: noticing and checking for errors. (0.88)

Aesthetic Skills: looking and sounding the part. (0.79)

Emotional Skills: managing own and handling others' feelings. (0.75)

Management skills: motivating subordinate staff, controlling resources, coaching, developing careers, strategic decision-making (0.79).

Apart from management skills and the two new measures, the definitions of the skills thus closely followed the interpretation of the factors reported in Felstead *et al*. (2002). One difference is that we have named one generic skill 'influence skill', in contrast to previous surveys where we used the term 'high communication skill'. The new term is intended to convey the somewhat broader package of activities that, according to the data, tend to be combined in certain jobs.

5.3 Generic Skills in the East Midlands and Britain, 2006

The 2006 data also allow us to investigate differences between the East Midlands and England as a whole. Table 5.1 documents the differences in respect of all the generic skills indices.

It may be recalled that the analyses of the previous chapter revealed that computing skills were being used at slightly lower levels in jobs in The East Midlands, compared with England. Table 5.1 reveals the striking finding that, for most other generic skills, there is no substantive or significant difference in the level of usage between East Midlands and England as a whole. There are two exceptions: physical skills and technical know-how, and in both cases the level of usage is greater in the East Midlands than in England as a whole. Even these differences are relatively modest.

5.4 Generic Skills in the East Midlands and England, 1997-2006

Table 5.2 considers changes in the utilisation of generic skills in the East Midlands since 1997, and compares these with the pattern of change elsewhere in England. The table reveals only small differences between the East Midlands and England as a whole in the pattern of change. In the East Midlands six out of the ten generic skills are increasing in use: literacy skills, number skills, influence skills, planning skills, client communication skills, and horizontal communication skills. For the other four generic skills, there are no significant changes over time. By contrast, elsewhere in England all but physical skills are on the rise. This rise represents a continuation of the increase recorded in Britain-wide analyses of the 2001 survey (Felstead *et al*., 2002). It may also be noted that, apart from computing skills, the generic skill that increased the most (both in the East

Midlands and in England, though more in the former) was influence skill, which, along with computing skills, has been found to have a significant impact on pay levels (Green *et al*., 2007).

5.4 The Distribution of Generic Skills in the East Midlands, 2006

Table 5.3 gives figures for the average level of each generic skill in The East Midlands as a whole, and separately according to gender and to full-time/part-time status. In interpreting the indices, it can be recalled that an average score of 2 is associated with the response point 'fairly important', so that scores above 2 indicate that the generic skill is at least 'fairly important' on average across all jobs in the East Midlands. Reading along the first row, one can observe that all but one of the generic skills fall into this category. The exception is number skills, which appears to be used on average at relatively low levels. In addition, however, influence skills are only just above 2. We shall see, below, that the low average arises because these two skills are concentrated into a few occupational groups, rather than being used heavily in most occupations.

The second and third rows show that there are differences between the skills being used in men's and women's jobs in The East Midlands. Physical skills, number skills, technical know-how, influence skills and problem-solving skills are all more in demand in the jobs being done by men. Literacy, client communication skills, horizontal communication skills, checking skills, and emotional and aesthetic skills, however, are all more used in jobs done by women. These gender differences are consistent, we maintain, with a conventional perception of the gendered division of labour.

Among females there is a notable difference between those working in full-time and part-time jobs. The skills used in full-time jobs are greater in most domains. One exception is physical skills, and in the cases of technical know-how and client communication skills the differences are too small to be significant. This finding emphasises further the differences between part-time and full-time jobs, noted earlier in this Report with respect to our broad skills measures and to computing skills. Nearly 40% of female workers in The East Midlands are working part-time; our findings imply that they are generally being used in substantially lower-skilled jobs than full-timers. An illustration comes from the domain of literacy skills: in women's jobs, writing long documents is essential for 28.6% of full-time jobs, but for only 14.1% of part-time jobs.

Table 5.4 shows the distribution of generic skills by occupational group. It can be seen that, on the whole, occupations normally considered higher skilled show greater uses of most of the generic skills. Influence skills are strongest in 'Managerial', 'Professional' and 'Associate Professional' occupations, and are on average considered less than 'Fairly important' most other occupations. In addition, the variation across occupations is broadly what one might expect. For example, aesthetic skills are highest in 'Sales' occupations; literacy skills are highest for 'Professional' occupations, lowest in 'Elementary' occupations; physical skills and technical know-how are highest for those in 'Skilled Trades'; number skills are highest for 'Managers'; horizontal communication skills are greatest for 'Professionals'; problem-solving skills high for 'Managers' and 'Professionals' but also for 'Skilled Trades'; checking skills are high for all groups except 'Elementary' occupations; and emotional skills are at their highest in 'Personal Service' occupations.

Table 5.5 gives the distribution of generic skills separately for the Production and Service Industries. It can be seen that generic skills are used to some extent in both industrial sectors. There is, however, some cross-sector variation which conforms to expectations. Emotional and aesthetic skills, for example, are more important in the service industries, while technical know-how is more important in the Production sector.

In a similar way, there is a difference in generic skills use between public sector and private sector jobs. The former require more generic skills in most domains. For example, the index of literacy skills use is 2.92 in the public sector, but only 2.28 in the private sector. Similarly, the index of planning skills is 3.33 in the public sector, 3.01 in the private sector. An exception is Physical skills, which is more utilised in the private sector than in the public sector (2.12 compared with 1.68).

Finally, according to a number of skills domains, skill use is somewhat greater in larger establishments (with 25 or more workers) than in small establishments (with less than 25 workers). This ranking applies to literacy skills, influence skills, horizontal communication skills, problem-solving skills and checking skills. However, in respect of both physical skills and client communication skills usage is significantly greater in small establishments.

5.5 Summary of Main Findings

- The use of generic skills, other than computing, can be measured by asking questions about the importance of several particular activities in jobs, and calculating indices each of which is the average response to multiple items.
- There are only small differences between the generic skills (other than computing) deployed in the East Midlands, as compared with jobs in England as a whole. In two skill domains, what we have called physical skills and technical know-how, jobs in the East Midlands require higher skill levels than in England as a whole.
- There are differences between the generic skills utilised by men and women, with women typically found in jobs requiring more communication skills, and more emotional and aesthetic skills.
- Among females, those in full-time jobs exercise considerably greater levels of generic skills in most domains than those in part-time jobs. To illustrate, writing long documents, a constituent of the literacy domain, is essential for 29% of full-time jobs, but for only 14% of part-time jobs.
- Generic skills vary across sectors and occupations in expected ways: for example, influence skills are strongest in the public sector, and in 'Managerial', 'Professional' and 'Associate Professional' occupations, and are on average considered less than 'fairly important' in other occupations. Aesthetic and emotional skills are both considerably more important in 'Service' industries than in 'Production' industries.
- Literacy and horizontal communication skills are more important in large than in small establishments; by contrast, client communication skills are needed more in small than in large establishments.

Table 5.1
Distribution of Generic Skills in the East Midlands and England, 2006

	Literacy	Physical	Number	Technical Know-How	Influence	Planning	Client Communication	Horizontal Communication	Problem-Solving	Checking	Emotional	Aesthetic	Management
East Midlands	2.46	2.00‡	1.90	2.63*	2.03	3.09	2.69	3.18	2.97	3.19	2.94	2.63	2.86
England	2.49	1.85	1.87	2.56	2.05	3.06	2.68	3.14	3.01	3.25	2.95	2.65	2.79

Note:
1. The item scale ranges from 0 ('not at all important/does not apply') to 4 ('essential').
‡ indicates East Midlands and England as a whole differ significantly at the 5% level, * at the 10% level.

Table 5.2
Pattern of Change in the Distribution of Generic Skills in the East Midlands and England, 1997-2006

	Literacy	Physical	Number	Technical Know-How	Influence	Planning	Client Communication	Horizontal Communication	Problem-Solving	Checking
East Midlands	0.38‡	-0.06	0.35‡	0.07	0.44‡	0.34‡	0.18*	0.21‡	-0.05	0.06
England	0.23‡	0.03	0.15‡	0.1‡	0.28‡	0.2‡	0.13‡	0.2‡	0.09‡	0.15‡

‡ indicates the change over 1997-2006 is statistically significant at the 5% level, * at the 10% level.

Table 5.3
Distribution of Generic Skills in the East Midlands by Gender and by Full-Time/Part-Time Status, 2006

	Literacy	Physical	Number	Technical Know-How	Influence	Planning	Client Communication	Horizontal Communication	Problem-Solving	Checking	Emotional	Aesthetic	Management
All	2.46	2	1.9	2.63	2.03	3.09	2.69	3.18	2.97	3.19	2.94	2.63	2.86
Males	2.4	2.17	2.08	2.78	2.08	3.11	2.63	3.08	3.1	3.2	2.77	2.51	2.85
Females	2.51	1.8	1.71	2.46	1.97	3.08	2.76	3.29	2.83	3.19	3.14	2.77	2.87
Females Full-Time Jobs	2.76	1.69	1.89	2.46	2.2	3.27	2.78	3.36	2.97	3.32	3.18	2.81	2.87
Females Part-time Jobs	2.14	1.96	1.43	2.44	1.62	2.78	2.74	3.19	2.62	2.98	3.06	2.72	-

Notes:
The generic skills indices are the average scores of the items in each index, derived from the 2006 data. The item scale ranges from 0 ('not at all important/does not apply') to 4 ('essential'). Only those cells shown where sample size exceeds 100.

Table 5.4
Distribution of Generic Skills in East Midlands by Occupation, 2006

	Literacy	Physical	Number	Technical Know-How	Influence	Planning	Client Communication	Horizontal Communication	Problem-Solving	Checking	Emotional	Aesthetic
Managers	2.92	1.37	2.57	2.52	2.77	3.56	3.17	3.38	3.34	3.29	3.1	2.94
Professionals	3.2	1.31	2.41	2.33	2.89	3.56	2.75	3.46	3.27	3.32	3.22	2.77
Associate Professionals	2.98	1.63	1.94	2.61	2.46	3.47	2.84	3.37	3.05	3.4	3.28	2.9
Administrative & Secretarial	2.51	1.15	2.04	2.18	1.64	3.14	2.52	3.2	2.79	3.44	2.93	2.77
Skilled Trades	2.23	3	2.11	3.4	1.69	3.04	2.5	2.91	3.3	3.35	2.65	2.07
Personal Service	2.57	2.52	1.23	2.83	2.09	3	2.85	3.48	2.86	3.12	3.45	2.92
Sales	1.9	2.15	1.82	2.66	1.56	2.62	3.47	3.25	2.63	2.98	2.93	3.15
Plant & Machine Operatives	1.93	2.67	1.45	2.83	1.49	2.71	2.14	2.8	2.87	3.05	2.5	2.08
Elementary	1.54	2.58	1.16	2.39	1.29	2.39	2.19	2.83	2.37	2.64	2.54	2.29

Note: Occupations are classified by SOC2000 Major Group. The generic skills indices are the average scores of the items in each index, derived from the 2006 data. The item scale ranges from 0 ('not at all important/does not apply') to 4 ('essential'). Only those cells shown where sample size exceeds 100. Management skills were not included, owing to small cell sizes.

Table 5.5
Distribution of Generic Skills in East Midlands by Industry, Sector and Size, 2006

	Literacy	Physical	Number	Technical Know-How	Influence	Planning	Client Communication	Horizontal Communication	Problem-Solving	Checking	Emotional	Aesthetic
Production Industries, Divisions A-F*	2.26	2.38	2.1	2.92	1.84	2.96	2.41	3.03	3.14	3.21	2.59	2.11
Service Industries, Divisions G-O**	2.53	1.85	1.83	2.51	2.1	3.14	2.8	3.23	2.91	3.19	3.07	2.82
Sector												
Private‡	2.28	2.12	1.9	2.68	1.89	3.01	2.7	3.06	2.95	3.16	2.8	2.55
Public	2.92	1.68	1.93	2.48	2.39	3.33	2.68	3.49	3.03	3.28	3.31	2.84
Workplace Size (no. of workers)												
Up to 24	2.28	2.22	1.87	2.7	1.88	3.09	2.84	2.96	2.93	3.1	2.92	2.67
25 or more	2.57	1.85	1.93	2.58	2.13	3.1	2.59	3.32	3	3.25	2.96	2.61

*Agriculture, Fishing, Mining, Manufacturing, Energy, Construction. **Wholesale & Retail, Transport & Storage, Real Estate & Business Services, Public Administration, Education, Health & Social Work, Personal Services; ‡ Non-profit organisations classified with private sector.
Note: The generic skills indices are the average scores of the items in each index, derived from the 2006 data. The item scale ranges from 0 ('not at all important/does not apply') to 4 ('essential'). Management skills were not included, owing to small cell sizes.

CHAPTER 6
EMPLOYEE TASK DISCRETION

6.1 Introduction

It has been seen in earlier parts of the Report that skills – as measured by what is required to get and do jobs – have risen relatively quickly in the East Midlands over the last decade, although computing skill levels in jobs still lag behind the English average. In this chapter, we examine whether there has been a corresponding change in the autonomy workers are allowed to do the job. It is often argued that skills are closely linked to levels of task discretion for employees – that is to say greater control over the detailed execution of the job. This is thought to reflect the need to motivate employees who are carrying out more complex work and greater difficulties in externally monitoring more skilled work. Discretion offers the potential productive advantages of flexibility, together with better use of employees' judgement and skill. The connection between task discretion and skill has been assumed or proposed by writers from diverse social scientific traditions (e.g. Blauner, 1964; Braverman, 1973; Zuboff, 1988). Furthermore, in recent years, management theorists have also argued that workers should be 'empowered', as their skills and responsibilities are broadened. Recent research showed that employee task discretion indeed increased in some European countries (e.g., Sweden and Germany) over the 1990s (Gallie, 2007); while an earlier increase was also recorded for Finland (Lehto and Sutela, 1999). In contrast, previous research showed that in Britain as a whole there has been a decline in choice and discretion at work (Gallie *et al*., 2004).

The chapter therefore proceeds as follows. It begins by outlining how employee task discretion is measured in the Skills Survey data series. It then goes to examine whether East Midlands jobs allow workers more or less discretion in way they carry out their jobs than those elsewhere in the UK. We then plot how discretion levels have changed in the East Midlands over the 1997-2006 period and compare this pattern with the picture for jobs in England as a whole. The chapter ends with a short summary of our findings.

6.2 Measuring Employee Task Discretion

The Skills Survey data series includes four questions that assess how much personal influence people have over specific aspects of their work. Respondents were asked: 'How much influence do *you personally* have on how hard you work?' The options were: 'a great deal'; 'a fair amount'; 'not much'; and 'none at all'. The same question format was used to determine employee influence on: 'deciding what tasks you are to do'; 'deciding on how you are to do the task'; and 'deciding the quality standards to which you work'. These questions were asked of the entire sample, but in this chapter we report only on the results for employees since they, by definition, have less control over their working environment.

By asking these questions in an identical way in the 1997, 2001 and 2006 Skills Survey we have a common benchmark on which to make comparisons over time. To provide an overall picture from the different items measuring task discretion, a summary index was constructed by giving a score ranging from 0 (no influence at all) to 3 (a great deal of influence) and then taking the average of the summed scores. Statistical tests confirm that the resulting measure captures a reasonable proportion of the inter-correlation between the four-item index (the Cronbach's alpha is 0.78). In what follows, we use the raw responses to the four items and the summary index to examine the pattern of task discretion among jobs in the East Midlands, make comparisons with the situation elsewhere in the country and track changes over time.

6.3 Employee Task Discretion in the East Midlands, 2006

The questions on task discretion are designed to provide a picture of the extent of influence that employees had over specific aspects of their work task. It is clear that influence was felt to be highest with respect to work effort and quality standards, where around half of employees thought they had a great deal of influence in 2006, and lowest with respect to decisions about which tasks were to be done and how to do the task (see Table 6.1). In the East Midlands, 52.7% of respondents claimed to have 'a great deal' of influence over their work effort and 53.6% claimed to have a similar level of influence over the quality standards of their work. Smaller but sizeable proportions claimed to exercise 'a great deal' of influence over what tasks are to be done and how (30.3% and 46.3%).

Notably, comparisons with England suggest that employees in the East Midlands exercise fractionally more autonomy at work. For example, the task discretion index stands at 2.22 for the East Midlands compared to 2.19 for England. However, this difference falls just short of statistical significance ($p=0.104$). It translates into slight variations in the proportions of respondents reporting 'a great deal' of influence over these four aspects of jobs. The proportion of respondents in the East Midlands reporting that they have 'a great deal' of influence over how tasks are to be done is three percentage points higher than in England. Similarly, those in the East Midlands are around two percentage points ahead those working in England in terms of being able to exercise 'a great deal' of influence over deciding what tasks are to be done and to what quality standards.

However, this picture may change when the data are disaggregated by gender, working time and occupation. Table 6.2 presents of the results of this analysis. The most striking finding is the fact that there is no gendering of the level of autonomy enjoyed by men and women in the East Midlands and in England. According to this evidence, men enjoy the same level of autonomy as women (with an identical task discretion score in the East Midlands of 2.22). Moreover, the disadvantage part-time women workers face is non-existent in the East Midlands but it remains pronounced in England. The task discretion index is not significantly different for women full-timers and women part-timers in the East Midlands, but in England the disadvantage is both large and statistically significant ($p<0.01$).

Job control is strongly related to occupational group. For instance, in 2006, the Task Discretion Index in the East Midlands was 2.51 among 'Managers', compared to 1.99 among 'Operatives' and 1.89 among 'Elementary' workers. The picture for jobs elsewhere in England was similar, if a little more pronounced. The Task Discretion Index ranged from 2.52 at the top of the occupational hierarchy to 1.82 at the bottom for jobs in England compared to a slightly narrower range of 2.51 to 1.89 for jobs within the East Midlands. However, these differences are modest.

6.4 Changes in Task Discretion in the East Midlands and England, 1997-2006

The Skills Survey data series also allows us to examine how the pattern of task discretion has changed in the East Midlands over the 1997-2006 period and to compare this with the pattern of change experienced by employees who work in other parts of the country. Table 6.3 shows the Task Discretion Index and analyses the aggregate results by sex and working time.[10]

For the East Midlands, autonomy levels have remained more or less than same over the last nine years. However, over the same period levels of autonomy in England as a whole have fallen. The summary index, for example, has remained virtually unchanged in the East Midlands, standing at 2.22 in 1997, 2.22 in 2001 and 2.21 in 2006. While in England it has fallen from 2.25 in 1997 to 2.18 nine years later.

Nevertheless, the 1997-2006 period saw the gender gap in the East Midlands narrow considerably, whereas in England gender parity has a much longer history. In England, men's and women's level of autonomy fell at the same rate from more or less the same starting point. The figures for the sexes tracked one another very closely with no gender gap evident at the beginning or end of the decade. In the East Midlands, on the other hand, a gender gap was evident at the beginning of the decade but by the end of the decade it had disappeared – narrowing from 2.30 for men and 2.17 for women in 1997 to 2.20 for men and 2.22 for women in 2006. Therefore, like England as a whole, where jobs are not gendered according to the level of autonomy job-holders are able to exercise, men and women in the East Midlands now enjoy similar levels of autonomy.

In addition to individuals' own control over the job task, the Skills Survey data series also collected information on the types of external control used by employers. To collect these data, respondents were asked which of a range of factors were 'important in determining how hard you work in your job'. These included a machine or assembly line; clients or customers; a supervisor or boss; own discretion; pay incentives; and reports and appraisals. They were asked to choose as many factors as were relevant. Table 6.4 presents the results for the East Midlands and England as a whole with data for 1997, 2001 and 2006.

In 1997 almost six out of ten (61.4%) employees in the East Midlands said that they themselves had an important say in how hard they worked. By 2006 this had fallen by

[10] The figures differ from Table 6.1 because stand-alone reporting of the 2006 sample includes those aged 20-65 years old inclusive, whereas trend analysis is restricted to those aged 20-60 years old.

around five percentage points (56.3%). A similar pattern emerges for England. The importance of peer pressure also fell over the nine year period. In the East Midlands it fell in importance by eleven percentage points (falling from 59.6% in 1997 to 48.6% in 2006). It fell a little more sharply in England but the magnitude of the fall was similar. All but one source of control fell during the 1997-2006 period. Overall, the most important determinants of work effort were the job-holder themselves (56.3%) followed by clients (53.8%). Around two out of five respondents mentioned line managers and colleagues as having an important influence, and around a quarter mentioned monitoring through appraisals and pay rises. Machine pacing, on the other hand, was relatively uncommon and getting more uncommon over time.

6.5 Summary of Main Findings

- In the East Midlands, 52.7% of respondents claimed to have 'a great deal' of influence over their work effort and 53.6% claimed to have a similar level of influence over the quality standards of their work. Smaller but sizeable proportions claimed to exercise 'a great deal' of influence over what tasks are to be done and how (30.3% and 46.3%).
- Notably, comparisons with England suggest that employees in the East Midlands exercise fractionally more autonomy at work. For example, the task discretion index stands at 2.22 for the East Midlands compared to 2.19 for England. However, this difference falls short of statistical significance (although the East Midlands versus rest of England comparison is significant at the 10% level).
- There is no gendering of the level of autonomy enjoyed by men and women in the East Midlands and in England. According to this evidence, men enjoy the same level of autonomy as women (with an identical task discretion score in the East Midlands of 2.22). Moreover, the disadvantage part-time women workers face is non-existent in the East Midlands but it remains pronounced in England. The task discretion index is not significantly different for women full-timers and women part-timers in the East Midlands, but in England the disadvantage is both large and statistically significant.
- For the East Midlands, autonomy levels have remained more or less than same over the last nine years. However, over the same period levels of autonomy in England as a whole have fallen. The 1997-2006 period also saw the gender gap disappear in the East Midlands, while in England gender parity was simply maintained.
- In 1997 almost six out of ten (61.4%) employees in the East Midlands said that they themselves had an important say in how hard they worked. By 2006 this had fallen by around five percentage points (56.3%). A similar pattern emerges for England. The importance of peer pressure also fell over the nine year period. In the East Midlands it fell in importance by eleven percentage points (falling from 59.6% in 1997 to 48.6% in 2006). It fell a little more sharply in England but the magnitude of the fall was similar.

Table 6.1:
Individual Task Discretion at Work, East Midlands and England, 2006

Dimensions of Individual Task Discretion	East Midlands	England
Influence Over How Hard To Work[1]		
A great deal	52.7	52.9
A fair amount	38.2	37.9
Not much	7.1	6.9
None at all	2.0	2.3
Influence Over What Tasks Are Done[2]		
A great deal	30.3	28.8
A fair amount	37.0	37.7
Not much	23.5	22.9
None at all	9.2	10.7
Influence Over How To Do Task[3]		
A great deal	46.3	43.2
A fair amount	37.5	39.5
Not much	12.0	12.1
None at all	4.2	5.3
Influence Over Quality Standards[4]		
A great deal	53.6	52.0
A fair amount	30.5	30.3
Not much	9.3	11.5
None at all	6.5	6.2
Individual Task Discretion Index[5]	2.22	2.19

Notes:
1. Respondents were asked: 'How much influence do *you personally* have on how hard you work?' The options were: 'a great deal'; 'a fair amount'; 'not much'; and 'none at all'.
2. Respondents were asked: 'And how much influence do *you personally* have on deciding what tasks you are to do? 'The options were: 'a great deal'; 'a fair amount'; 'not much'; and 'none at all'.
3. Respondents were asked: '(And how much influence do *you personally* have on deciding how you are to do the task?' The options were: 'a great deal'; 'a fair amount'; 'not much'; and 'none at all'.
4. Respondents were asked: '(And how much influence do *you personally* have on deciding the quality standards to which you work?' The options were: 'a great deal'; 'a fair amount'; 'not much'; and 'none at all'.
5. The Individual Task Discretion Index allocates scores of 3, 2, 1 and 0 to the responses 'a great deal', 'a fair amount', 'not much' and 'none at all' respectively. This are summed and average is taken produce this Index with a range of 0 to 3.

Table 6.2:
Individual Task Discretion Index, East Midlands and England, 2006

Characteristic	Individual Task Discretion Index[1]	
	East Midlands	England
All	2.22	2.19
Sex		
Male	2.22	2.19
Female	2.22	2.18
Working Time		
Female Full-time	2.24	2.23
Female Part-time	2.19	2.11
Occupation		
Managers	2.51	2.52
Professionals	2.35	2.28
Associate Professionals	2.30	2.26
Administrative & Secretarial	2.17	2.20
Skilled Trades	2.34	2.26
Personal Service	2.24	2.21
Sales	2.11	1.96
Plant & Machinery Operatives	1.99	1.86
Elementary Occupations	1.89	1.82
Industry		
Production Industries, Divisions A-F[2]	2.18	2.19
Service Industries, Divisions G-O[3]	2.23	2.18
Sector		
Private	2.19	2.18
Public	2.28	2.20
Size (no. of workers)		
Up to 24	2.29	2.23
25 and over	2.18	2.16

Notes:
1. See Table 6.1, footnote 5.
2. Agriculture, Fishing, Mining, Manufacturing, Energy, Construction.
3. Wholesale & Retail, Transport & Storage, Real Estate & Business Services, Public Administration, Education, Health & Social Work, Personal Services.

Table 6.3:
Individual Task Discretion at Work by Gender and Working Time, East Midlands and England, 1997-2006

	1997	2001	2006
	Overall Task Discretion Index (figures for England are in parentheses)		
All	2.22 (2.25)	2.22 (2.19)	2.21 (2.18)
Gender			
Men	2.30 (2.25)	2.27 (2.20)	2.20 (2.18)
Women	2.17 (2.26)	2.15 (2.19)	2.22 (2.18)
Working Time			
Female Full-timers	2.10 (2.33)	2.27 (2.26)	2.25 (2.23)
Female Part-timers	2.26 (2.15)	1.99 (2.08)	2.17 (2.10)

Table 6.4:
Forms of Control over Work Effort of Employees, East Midlands and England, 1997-2006

	1997	2001	2006
	Sample Percentages (figures for England are in parentheses)		
Own Discretion	61.4 (67.9)	63.9 (61.7)	56.3 (57.4)
Clients	59.8 (54.0)	59.2 (57.0)	53.8 (54.8)
Supervisor	45.5 (41.3)	31.7 (41.8)	43.3 (40.2)
Fellow Workers	59.6 (57.9)	44.9 (48.9)	48.6 (43.4)
Reports/ Appraisals	27.4 (24.1)	26.2 (29.9)	28.1 (28.3)
Pay	35.7 (30.5)	31.7 (26.9)	22.1 (22.3)
Machine	12.7 (10.0)	4.6 (5.6)	6.1 (5.0)

Notes:
1. Respondents were asked: 'Which, if any, of the things on this card are important in determining how hard you work in your job?'. Multiple responses were allowed; the responses are shown in the left hand column of the table.

CHAPTER 7:

EXPERIENCES OF AND ATTITUDES TOWARDS SKILL ACQUISITION AT WORK

7.1 Introduction

An important aspect of the 2006 Skills Survey was the addition of a set of questions designed to uncover more about the routes through which employees acquire the skills they use at work. While we have a lot of data on the incidence and intensity of training activities through surveys such as the Labour Force Survey, we know comparatively little about the reasons for training take-up by employees, its consequences for their performance at work and their future training prospects. We know even less about those who do not receive training and the consequences this has for their skill development and work performance. The 2006 Skills Survey was also designed to shed light on other sources of skill development such as learning from others while at work, learning opportunities embedded in the job and teaching others how to do the job more effectively. However, employees' attitudes to skill development will be affected by their underlying values about work – the extent to which their job preferences reflect a concern for the intrinsic characteristics of work, such as the opportunity to make use of skills and initiative in a job, or are primarily related to the extrinsic benefits of a job, for instance its pay level.

This chapter considers the results produced by these new questions. Throughout the chapter the East Midlands results are compared to the results for England as a whole, but in the absence of comparable questions carried in earlier surveys this chapter is restricted to 2006. The chapter proceeds as follows. The chapter begins by examining the extent to which training and the opportunity to use one's abilities are important for employees in their jobs. It then goes onto examine the reasons why training was not undertaken, and the consequences this had for job performance and career development. Correspondingly, the chapter also contains a section which focuses on those who reported undertaking training for the job in the last year. We present data on who instigated the training and the consequences it had for job performance and career development. As well as benefits, training also incurs costs in terms of fees paid, time spent and reductions in pay. The chapter reports on who bears these costs. Skills can also be acquired in less formal ways such as daily work experience and learning from other colleagues as the work is carried out. In addition, jobs may also require employees to help others learn, so that workers take on more of teaching role in the workplace. The 2006 data set contains information on these important aspects of workplace learning. These findings are reported in Section 7.6. Section 7.7 focuses on the training desires and expectations of employees.

7.2 Role of Training and Skill Development in Job Orientations in the East Midlands, 2006

In order to gauge the importance of training and skill development in people's job orientations, we asked a question designed to investigate the importance of the intrinsic features of work (the qualities of the job task such as training prospects) compared to the more extrinsic (in particular, the financial rewards of work). Respondents were informed: 'I am going to read out a list of some of the things people may look for in a job and I would like you to tell me how important you feel each is for you'. They were asked for each characteristic whether they regarded it as 'essential', 'very important', 'quite important' or 'not very important'. The list of job features was as follows:

- Good promotion prospects
- Good pay
- Good relations with your supervisor or manager
- A secure job
- A job where you can use your initiative
- Work you like doing
- Convenient hours of work
- Choice in your hours of work
- The opportunity to use your abilities
- Good fringe benefits
- An easy work load
- Good training provision
- Good physical working conditions
- A lot of variety in the type of work
- Friendly people to work with

Table 7.1 shows the proportions of all employees who regarded each job feature as 'essential'. In the East Midlands, the three most important aspects of a job were: 'work you like doing' (49.7%), 'a secure job' (41.3%), and 'friendly people to work with' (35.8%). The same features figured in the top four job facets reported by those working in England as a whole. The strength of feeling towards these job features was remarkably similar in the East Midlands and in England as a whole.

It is also noteworthy that 'good training provision' was ranked fairly lowly in the East Midlands. It was ranked ninth out of fifteen job features. Nevertheless, it was rated as 'essential' by approaching a quarter (23.2%) of job-holders in the East Midlands, a figure once again on a par with the proportion in England as a whole.

On the other hand, some job aspects are not rated highly at all by respondents. Table 7.2 presents four of these features. Over two-fifths (43.2%) of respondents in the East

Mildands reported that having a job with 'an easy work load' was an unimportant feature of a job. Other 'not very important' job aspects were: good promotion prospects (22.4%); good fringe benefits (22.1%); and choice in the hours of work (16.7%). The pattern of responses in England as a whole was very similar.

7.3 Reasons for and Costs of Not Receiving in the East Midlands, 2006

Respondents in the 2006 Skills Survey were asked: 'In the last year (that is since [Month] 2005), have you done any of these types of training or education connected with your *current* job?' The card of options included the following: 'received instruction or training from someone which took you away from your normal job' (off-the-job); 'received instruction whilst performing your normal job' (on-the-job); 'taught yourself from a book/manual/video/computer/cassette' (self taught); 'followed a correspondence or Internet course (such as Open University (at a distance)'; 'taken an evening class' (out of hours class); 'done some other work-related training' (other work related); and 'none of these'. Using this information we can split the sample into two groups: those who undertook training (as defined in these terms); and those who did not. Two-thirds (66.2%) of East Midlands employees received some form of training in the last year (see Table 7.3).

However, a third (33.8%) of employees said they received no training at all during the previous year. Among female part-timers this proportion rose to around two out of five (38.0%). Non-trainees also varied by occupation with three out of ten (60.0%) of those in 'Elementary' jobs falling into this category, while only one in six (16.5%) of 'Professionals' reported that they had received no training over the last year.

Non-trainees were asked a series of questions designed to uncover why that had not received training and what effect it had on their work activities. They were asked: 'You have said that you have not received any training over the last year in your current job. Which of the following statements apply?' Respondents were asked whether they agreed or disagreed with the statements presented. This section reports on some of these results.

One of the statements respondents were presented with was: 'I did not want any training'. This was designed to uncover employee resistance to undertaking training. Six out of ten (59.5%) non-trainees in the East Midlands agreed with this statement (see Table 7.4). This was a little higher than the equivalent figure for those in England as a whole where it was six percentage points lower.

Those who reported that they had undertaken no training during the last year were also asked whether they had wanted training but had not been given it by their employer. This information was gathered from asking respondents whether they agreed or disagreed with the statement that: 'My employer was not willing to provide additional training, even though I wanted it'. Respondents agreeing with this statement might be regarded as frustrated would-be trainees. Around a sixth (15.5%) of non-trainees in the East Midlands fell into this category putting it on a par with the figure for England as a whole.

Another possibility is that respondents who do not undertake training do so for rational reasons such as it is not necessary to carry out the job or improve work performance. To

capture this eventuality, respondents were asked whether they agreed or disagreed with the statement that: 'I did not need any additional training for my current job'. The responses to this question are shown in the third column in Table 7.4. According to this evidence two-thirds (68.2%) of East Midlands respondents who did not undertake training in the past twelve months regarded such activity as irrelevant to the job. Again, the picture for England as a whole is remarkably similar.

The 2006 Skills Survey questioned non-trainees further in an attempt to uncover what consequences their lack of additional training might have for their work performance. One consequence is that these individuals will fail to keep up with developments in the job and hence their job performance will suffer. We therefore asked those who had not undertaken additional training in the last year: 'Was there any time over the last year in your current job when training would have been useful for keeping up to date with the skills required?' Table 7.5 presents the results of those who said 'no'. Over three-quarters (76.8%) of non-trainees in the East Midlands thought that their lack of training would not harm them in keeping up with job-related changes. This figure is similar to the English average and therefore suggests that the lack of training is not much of a drawback for employees in either the East Midlands or England in general.

Furthermore, the lack of training did not appear to hold respondents back in terms of career progression either. Non-trainees were asked whether they agreed or disagreed with the statement that: 'Lack of training damaged my career opportunities'. Almost nine out of ten (89.6%) respondents in the East Midlands who had not undertaken training in the twelve months prior to interview disagreed with this statement. The figure for England is of a similar order of magnitude.

7.4 Reasons for and Benefits of Receiving Training in the East Midlands, 2006

The 2006 Skills Survey also allows us to examine the reasons for and consequences of training for those who received it in the year before they were interviewed. Around two-thirds (66.2%) of East Midlands respondents fell into this category (cf. Table 7.3). These individuals were asked a specific set of questions about the reasons why they trained and the consequences this had for their work performance. In this section, we will present some of these results.

One of the key issues is whether the initiative for training came from the individual or from the employer. The survey asked all those who had received training in their current job over the previous year whether the following two statements were applicable or not: 'I got the training because I asked my employer for it'; and 'It was my employer that first suggested the training'. Since a person may have received more than one type of training over the period, it was in principle possible to respond positively to both. The findings presented in Table 7.6, however, show that this situation was relatively rare. Taking all employees, it is clear that the most common situation was for employers to take the initiative rather than employees themselves: whereas only two-fifths (39.5%) of East Midlands trainee respondents claimed personal responsibility, around two-thirds (64.3%) mentioned that training had been initiated on the suggestion of their employer.

If respondents had had training in the twelve months before being interviewed for the 2006 Skills Survey, there were asked a series of follow-up questions that were designed to trace the consequences of their doing so. Table 7.7 reports some of these results. For example, they were asked: 'Was the training you received over the last year in your current job adequate for keeping up to date with the skills required?' Over nine out of ten East Midlands respondents (90.7%) answered 'yes' to this question. This was a little higher than the proportions agreeing to the statement in England as a whole. This suggests that when it is undertaken training is sufficient in nine times out of ten cases. However, it should also be remembered that a third of East Midlands employees did not receive any training in the year before interview.

Trainees were also asked whether it improved the way they carried out their work. Most respondents (88.7%) agreed that 'the training has helped me improve the way I work in my job' (see Table 7.7). Similarly, the consequences of training for skills improvement were overwhelmingly positive. Over ninety percent (91.6%) of East Midlands respondents reported that the training they had received in the twelve months before being interviewed had increased their skills 'a lot' or 'a little' (see Table 7.7). Variations in this response were negligible with the picture for the East Midlands and England as a whole being very close.

7.5 Informal Learning at Work in the East Midlands, 2006

It is increasingly becoming recognised that learning can take on many forms at the workplace well beyond traditional training events and activities. This includes other forms of learning activity – such as watching, listening and learning from others – which can only be undertaken on an on-going basis as an active participant in the workplace (Felstead *et al*., 2005; Boreham *et al*., 2002; Fuller and Unwin, 2003). To gauge this form of learning respondents were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with a number of statements. These included: 'My job requires that I keep learning new things'; 'My job requires that I help my colleagues to learn new things'; and 'I am able to learn new skills through working with other members of my work group'. Table 7.8 presents the results of these questions for the East Midlands and England as a whole. It shows strong levels of agreement for on-the-job learning through experience and experimentation as well as learning from others. Around a third (33.6%) of East Midlands respondents strongly agreed that the job itself requires learning and just over a quarter (26.4%) strongly agreed that they are able to learn from work colleagues. Interestingly, there was also strong agreement that job-holders have a teaching role in helping others learn – nearly a third (31.1%) of East Midlands respondents took such a position. The East Midlands results were mirrored by those in England as a whole.

7.6 Future Training Prospects in the East Midlands, 2006

Given the benefits of training for enhanced work performance, the 2006 Skills Survey asked employees about their future intentions to undertake training and their chances of

doing so. Table 7.9 summarises the results. First, we gathered data on employees' training desires. This information was generated by asking respondents: 'How much do you want to get any training in the future?'. They were given the following options from which to choose: 'very much'; 'a fair amount'; 'not much'; and 'not at all'. For simplicity, Table 7.9 reports the proportion who registered the strongest desire to get training. Overall, a quarter (25.9%) of respondents in the East Midlands came into this category, a proportion similar to the English average.

However, wants for future training may, of course, be frustrated by lack of sufficient opportunities. To capture the latter we asked respondents to what extent they agreed or disagreed with the statement: 'I will have many opportunities to get training in the future'. Those strongly agreeing accounted for almost a quarter (23.7%) of the East Midlands sample. In this respect, those in the East Midlands reported were more optimistic that they would get future training opportunities than those in England as a whole – here, only around a fifth (19.1%) of respondents 'strongly agreed' that they would get training in the future.

7.7 Summary of Main Findings

- Many job features are important to people's work orientations, but 'good training provision' does not appear one of them. It was ranked ninth out of fifteen job features in both the East Midlands and England as a whole. Nevertheless, it was rated as 'essential' by approaching a quarter (23.2%) of job-holders in the East Midlands, a figure once again on a par with the proportion in England as a whole.
- Six out of ten (59.5%) respondents in the East Midlands who did not receive training also said that they 'did not want any training' and around a sixth (15.5%) said that their 'employer was not willing to provide additional training, even though I wanted it'. Furthermore, two-thirds (68.2%) regarded such activity was not needed.
- Nevertheless, the lack of training may be considered an obstacle to improved work performance. However, this does not appear to be the case. Over three-quarters (76.8%) of respondents in the East Midlands who did not receive training thought that their lack of training would not harm them in keeping up with changes in the job and even more thought that it would not hinder their career opportunities. This figure is similar to the English average and therefore suggests that the lack of training is not much of a drawback for employees in either the East Midlands or England in general.
- When training is undertaken it is often at the behest of the employer: whereas only two-fifths (39.5%) of trainee respondents in the East Midlands claimed personal responsibility, around two-thirds (64.3%) claimed that training had been initiated by their employer.

- The impact of training on work performance was high. For example, nine out of ten East Midlands respondents said that: it was important for keeping up-to-date with developments in the job (90.7%); it had helped them to improve their work practices (88.7%); and it had improved their skills (91.6%).

- On-the-job learning through experience and experimentation as well as learning from others is buoyant. Around a third (33.6%) of East Midlands respondents strongly agreed that the job itself requires learning and just over a quarter (26.4%) strongly agreed that they are able to learn from work colleagues. There was also strong agreement that job-holders have a teaching role in helping others learn – nearly a third (31.1%) of East Midlands respondents took such a position. The East Midlands results were mirrored by those in England as a whole.

- Overall, a quarter (25.9%) of East Midlands respondents registered a strong desire for future training. Furthermore, they were more optimistic than those living in England as a whole that they would get training in the future – around a quarter (23.7%) of East Midlanders 'strongly agreed' that they would get future training opportunities compared to less than a fifth (19.1%) of those living in England as a whole.

Table 7.1:
Essential Job Features, East Midlands and England, 2006

	Essential Job Features[1] (%)	
	East Midlands	England
Work you like doing	49.7	48.5
Secure job	41.3	36.7
Friendly people to work with	35.8	34.5
The opportunity to use your abilities	34.7	35.6
Good pay	33.0	34.8
Good relationship with supervisor or manager	31.7	32.1
A job where you can use your initiative	29.6	31.9
Convenient hours of work	23.7	20.5
Good training provision	23.2	22.5
Good physical working conditions	21.6	24.2
A lot of variety in the type of work	22.1	22.0

Note:
1. Respondents were asked: 'I am going to read out a list of some of the things people may look for in a job and I would like you to tell me how important you feel each is for you'. Respondents were given a card listing the options – only the first option is shown in this table because of the small sample sizes involved for the sample for the other options.

Table 7.2:
Unimportant Job Features, East Midlands and England, 2006

	Not Very Important Job Features[1] (%)	
	East Midlands	England
Choice in your hours of work	16.7	17.1
Good fringe benefits	22.1	21.4
Good promotion prospects	22.4	22.2
An easy work load	43.2	43.6

Note:
1. Respondents were asked: 'I am going to read out a list of some of the things people may look for in a job and I would like you to tell me how important you feel each is for you'. Respondents were given a card listing the options – only the fourth option is shown in this table because of the small sample sizes involved for the sample for the other options.

Table 7.3:
Training Provision, East Midlands and England, 2006

	Training Undertaken (%)	
	East Midlands	England
All	66.2	66.9
Sex		
Male	65.2	65.8
Female	67.3	68.2
Working Time		
Female Full-time	70.7	72.4
Female Part-time	62.0	61.6
Occupation		
Managers, Professionals and Associate Professionals	83.5	80.5
Admin & Secretarial, Skilled Trades, Personal Service, and Sales Occupations	65.6	63.8
Plant & Machine Operatives and Elementary Occupations	40.0	43.3
Industry		
Production Industries, Divisions A-F	60.8	58.0
Service Industries, Divisions G-O	68.4	69.6
Sector		
Private	59.2	61.1
Public	80.9	77.7
Size (no. of workers)		
Up to 24	56.3	57.4
25 and over	71.3	71.7

Note:
1. Respondents were asked: 'In the last year (that is since [Month] 2005), have you done any of these types of training or education connected with your *current* job?' The card of options included the following: 'received instruction or training from someone which took you away from your normal job' (off-the-job); 'received instruction whilst performing your normal job' (on-the-job); 'taught yourself from a book/manual/video/computer/cassette' (self taught); 'followed a correspondence or Internet course (such as Open University (at a distance)'; 'taken an evening class' (out of hours class); and 'done some other work-related training' (other work related).

Table 7.4:
Reasons for the Lack of Training, East Midlands and England, 2006

Reasons for Lack of Training	Sample Percentages	
	East Midlands	England
Did not want[1]	59.5	53.2
Wanted but not given[2]	15.5	16.9
Did not need[3]	68.2	69.4

Notes:
1. Respondents were asked: 'You have said that you have not received any training over the last year in your current job. Which of the following statements apply?' Respondents were asked whether they agreed or disagreed with the statements presented. For this column, we report the percentage who agreed with the statement: 'I did not want any training'.
2. For this column, we report the percentage who agreed with the statement: 'My employer was not willing to provide additional training, even though I wanted it'
3. For this column, we report the percentage who agreed with the statement: 'I did not need any additional training for my current job'.

Table 7.5:
Consequences of the Lack of Training, East Midlands and England, 2006

Consequences	Sample Percentages	
	East Midlands	England
Does not result in a failure to keep up-to-date[1]	76.8	77.1
Does not result in damage to career[2]	89.6	90.9

Notes:
1, Respondents who undertook no training during the year before interview were asked: 'Was there any time over the last year in your current job when training would have been useful for keeping up to date with the skills required?' The table presents the results of those who said 'no'.
2. These respondents were also asked whether they agreed or disagreed with the statement that: 'Lack of training damaged my career opportunities'. The table reports the proportion disagreeing with the statement.

Table 7.6:
Reasons for Training, East Midlands and England, 2006

Reasons	Sample Percentages	
	East Midlands	England
Employee request [1]	39.5	40.5
Employer suggestion [2]	64.3	62.9

Notes:
1. Respondents were asked: 'Still thinking about the training you received over the last year in your current job, which of the following statements apply?' Respondents were asked whether they agreed or disagreed with the statements presented. For this column, we report the percentage who agreed with the statement: 'I got the training because I asked my employer for it'.
2. For this column, we report the percentage who agreed with the statement: 'It was my employer that first suggested the training'.

Table 7.7:
Consequences of Training, East Midlands and England, 2006

Consequences	Sample Percentages	
	East Midlands	England
Adequate for keeping up-to-date[1]	90.7	88.7
Improving working practices[2]	88.7	86.3
Improving skills 'a little' or 'a lot'[3]	91.6	91.5

Notes:
1. Respondents were asked: 'Was the training you received over the last year in your current job adequate for keeping up to date with the skills required?'
2. For this column, we report the percentage who agreed with the statement: 'The training has helped me improve the way I work in my job'.
3. For this column, we report the percentage who responded 'a lot' or 'a little' to the question: 'Would you say that this training or education has improved your skills…' (the other alternative response was 'not at all').

Table 7.8:
Learning at Work, East Midlands and England, 2006

Consequences	Sample Percentages	
	East Midlands	England
Job Requires Learning[1]		
Strongly agree	33.6	33.5
Agree	50.1	47.7
Job Requires That Others Are Helped To Learn[2]		
Strongly agree	31.1	31.2
Agree	51.5	49.7
Learning From Team Members[3]		
Strongly agree	26.4	27.7
Agree	57.1	56.3
Training Is Integral To Job[4]		
Has written career or training plan that sets out future job-related learning, training or education	24.8	24.4

Notes:
1. Responses taken from the question: 'My job requires that I keep learning new things'.
2. Responses taken from the question: 'My job requires that I help my colleagues to learn new things'.
3. Responses taken from the question: 'I am able to learn new skills through working with other members of my work group?'. This question is only asked of those who work in a group or team.
4 Responses taken from the question: 'Do you have a written career or training plan at work, that is, a written document which sets out your future job-related learning, training or education?'

Table 7.9:
Desire for Future Training Desires and Expectations, East Midlands and England, 2006

	Sample Percentages	
	East Midlands	England
Future Training Wants[1] (% very much)	25.9	25.0
Expectation of Many Training Opportunities[2] (% strongly agreeing)	23.7	19.1

Notes:
1. Respondents were asked: 'How much do you want to get any training in the future?'. They were given the following options from which to choose: 'very much'; 'a fair amount'; 'not much'; and 'not at all'.
2. Respondents were asked: 'How much do you agree or disagree with the following statement - I will have many opportunities to get training in the future?' They were given the following options from which to choose: 'strongly agree'; 'agree'; 'disagree'; and 'strongly disagree'.

CHAPTER 8
CONCLUSION

8.1 Introduction

The Skills Survey series – carried out in Britain in 1997 and 2001 and for the whole of the UK in 2006 – offers a unique insight into the type and level of skills exercised by workers. Before 2006 the number of East Midlands respondents to the survey was in line with the proportion of jobs and people living in the East Midlands. Cell sizes were therefore small, standard errors large and East Midlands-specific analyses were inevitably limited as a result. However, the 2006 Skills Survey contained an East Midlands boost which added an additional 722 respondents to the 379 respondents contained in the British sample. This Report is therefore based on the results emerging from a sample of 1,101 respondents living in the East Midlands in 2006. These findings are set against results for England as a whole which comprises a sample of 4,882 respondents. We also compare these results with those emerging from previous Skills Surveys carried out in 1997 and 2001. However, these comparisons should be treated with caution since the findings are based on relatively small numbers of respondents – 128 in 1997 and 259 in 2001. Our trend analysis has therefore been restricted to aggregate changes only.

This Report has outlined how the skill content of East Midlands jobs varies by gender, working time, occupation, industry and establishment size. It has also compared these patterns with the English average and – in so far as is possible given the limited number of East Midlands respondents to previous surveys – tracked how this picture has changed over the last decade. The Report therefore complements other sources which mainly give the perspective of employers such as the National Employers Skills Surveys (Shury *et al*., 2006) and the WERS/WIRS series (Kersley *et al*., 2006).

While the Report has presented several key trends and described the current distribution of skills in 2006, it remains in a sense the 'first findings' from the latest survey. Several skills-related issues are still to be investigated in greater depth, and the data offer considerable scope for empirical testing of modern theories about the evolution of employment and work. In this final chapter, we briefly recap some themes that have emerged from this first examination of the 2006 survey data in the hope that this Report – and the data sets on which it is based – will prompt a further round of research which is of particular interest to researchers and policy-makers in the East Midlands.

8.2 Emerging Themes

8.2.1 Upskilling and the Sources of Learning

One of the most striking findings to emerge from this analysis is the similarity in 2006 in the skill level of jobs – as measured by qualifications required, training time and learning time for the job – based in the East Midlands as compared to those in England as a whole. However, it is also the case that over the last decade or so, the gap between the skill level of jobs in the East Midlands and England as a whole has shrunk as skill levels in the former rose a little more quickly than those in the latter.

Among the various skill domains, computing skills is the area where most upskilling is observed. Computing skills now feature in an increasing proportion of jobs. Their centrality has increased and the sophistication of computing skill use has risen. However, jobs in the East Midlands still lag behind those in England as a whole in the use of computers. Since the digital revolution is spreading to most jobs in most industries throughout the country, it will continue to be important in future for jobs in the East Midlands to keep pace with this new pervasive technology.

Other generic skills have also shown a small increase, but the use in the East Midlands of several generic skills has not changed over the last decade. In the East Midlands, six out of the ten generic skills are increasing in use: literacy skills, number skills, influence skills, planning skills, client communication skills, and horizontal communication skills. For the other four generic skills, the changes have been negligible (and statistically insignificant). By contrast, elsewhere in England all but physical skills are statistically higher now than nine years ago.

Another area of difference is the relationship between the supply of qualifications and the demand for them as perceived by individual respondents. The East Midlands has a slightly lower proportion than the UK of people with level 4 or above qualifications – 29.6% as opposed to 32.8%. The demand for these qualifications is correspondingly lower by around three percentage points, so that the gap over-supply of level 4 qualifications in the East Midlands and the UK is therefore broadly comparable. This is repeated for most other qualification levels. However, the gap is a little larger for lower level qualifications. For example, the East Midlands economy has proportionately more jobs than the UK that require no qualifications to enter, although it has a similar proportion of unqualified people from which to draw. The discrepancy between demand for no qualification jobs and supply of unqualified labour is therefore proportionately larger in the East Midlands than in the country as a whole.

As far as training and learning experiences are concerned, the contrasts between the East Midlands and England as a whole are noticeable by their absence. For example, training comes low on a list of important job features both in the East Midlands and in England as a whole, and when it is undertaken it is the result of the employer's rather than employee's wishes. However, non-receipt of training need not be detrimental to job performance – relatively few thought that it would make it difficult to keep up-to-date with developments in the job and even fewer thought that it would hinder their career opportunities. On the other hand, those in receipt of training rated the experience highly in terms of being able to keep up-to-date, improving work practices and enhancing skills.

8.2.2 Areas for Improvement and Further Research

In the light of these first findings, we can identify a number of potential areas for further research and for policy to focus upon, if improvement is to be brought about in the quality of jobs in the East Midlands. Most immediately, the above findings suggest that both the supply and demand for computing skills needs to be reinforced on a continual basis. Other skills known to be valuable in the workplace (especially influence skills) also deserve attention. Government is in a position to influence the supply of computing skills through the school curriculum and through its lifelong learning policies. It is less straightforward to affect the take-up of computing skills in workplaces, and it would be interesting to investigate further the reasons why computers are being used somewhat less in the East Midlands, even within the same industries.

Another potential focal point for further research and policy attention concerns the distribution of skills use according to gender. Women living in England have benefited most from rising skill levels. They have seen the skills they use at work rise significantly over the 1997-2006 period. Moreover, the skills used by part-time women workers have risen most. However, this pattern of change does not extend to women working in the East Midlands where gender differences remain pronounced. This Report has merely drawn attention to this pattern. To consider how to ameliorate these gender differences, it would be of interest to investigate further the reasons for the different usages of skills by women and men in the East Midlands, by comparison with the rest of the UK, either through qualitative or quantitative research. It might be expected that part of the difference is associated with patterns of gender-based segmentation and segregation among occupations.

On the other hand, there is no gendering of the level of autonomy enjoyed by men and women in the East Midlands and in England. According to the 2006 survey, men enjoy the same level of autonomy as women. Moreover, the disadvantage part-time women workers face is non-existent in the East Midlands but it remains pronounced in England. Autonomy levels are not significantly different for women full-timers and women part-timers in the East Midlands, but in England the disadvantage is both large and statistically significant. Since this aspect of gender differentiation has improved in the East Midlands, it may be tempting to allow further improvement to take place rather than attempt to intervene, which is hard to achieve when often autonomy is associated with management cultures that are beyond the reach of government policies. Nevertheless, the importance of discretion and autonomy, both for well-being and for economic performance, is such that, at the very least, a continuous watching brief on the levels of autonomy in East Midlands jobs is warranted.

In addition to the above issues, which have arisen because of observed differences between the East Midlands and England as a whole, there are a number of UK-wide research questions which are being pursued. These include: the consequences of 'over-education' for the economy, employers and individuals; the role of learning in the context of teamworking; the attitudes that workers have towards training and skill acquisition; and the role that employers' human resource policies have in promoting training and learning at work. Moreover, it is our hope that this Report will prompt other researchers – especially in the East Midlands context given that we now have rich skills data on 2,000 East Midlands respondents – to consider how their particular interests can be pursued

using this rich and unique data series. For this purpose, the data will be deposited in the UK Data Archive in 2008.

TECHNICAL ANNEXE

A1. Sample Design

A1.1 Structure

The sample comprised two elements: the core sample - a nationally representative sample of people in paid employment in Britain south of the Caledonian Canal; and a number of regional or country boosts, all but two of which were in areas covered within the core sample, the exceptions being a sample of interviews in the Highlands & Islands area and Northern Ireland.

The following sample sizes were required. Table A1 illustrates this breakdown graphically.

- Core sample n = 4,750
- East Midlands boost n = 700
- Wales boost n = 200
- Scottish Enterprise boost n = 1,000
- Highlands & Islands boost n = 500
- Northern Ireland boost n = 500

Table A1 Breakdown of Required Sample Sizes

	Core sample	Boost sample	Total
Great Britain (excluding Highlands & Islands)	Great Britain (4,750)	East Midlands (700)	6,650
		Wales (200)	
		Scottish Enterprise (1,000)	
Highlands & Islands		Highlands & Islands (500)	500
Northern Ireland		Northern Ireland (500)	500
Total	4,750	2,900	7,650

The design essentially replicated the approach used for the 2001 Skills Survey. However, the area boosts needed to be incorporated into the design so as to ensure representative samples from the core samples and the regional/country samples. The Northern Ireland sample was selected separately as fieldwork began at a later date compared with all other areas. Section A1.5 describes the selection process for the Northern Ireland sample.

For the purposes of selecting primary sampling units (postcode sectors), the core sample and boost samples in core sample areas (i.e. excluding Highlands & Islands) were treated as a single survey sample (with a target achieved sample size of 6,650). Sampling then proceeded as envisaged for the core sample, but with differential sampling fractions applied at a regional/country level to ensure selection of the appropriate number of sampling points in each region/country. Once the postcode sectors had been selected, the stratified list of sectors were then divided on a systematic (i.e. 1 in *n)* basis into core and boost sampling points. This approach yielded stratified core and boost samples in each of the relevant regions. The Highlands & Islands sample was selected separately (but following the same principles), as it did not form part of the core sample.

A1.2 Sampling population

The sample needed to be representative of people of working age and living in private households in Great Britain. The definition was people aged 20-65 inclusive, who were in paid employment at the time of selection. Paid employment was defined as doing at least one hour per week of paid work.

A1.3 Sampling frame

The small user Postcode Address File (PAF) was used as the sampling frame for the 2006 Skills Survey. The PAF was also used as the sampling frame in the 1997 and 2001 Surveys and is accepted in the social research field as being the best general population sampling frame in Britain. It has better coverage of both residential addresses and of the private household population of individuals than the Electoral Register (the only serious alternative to PAF), and what non-coverage it has is less concentrated in particular population sub-groups than is Electoral Register non-coverage[11].

A1.4 Stratification and selection

The sample design employed was a conventional multi-stage design, as used in many high quality face-to-face interview-based social surveys (e.g. the British Crime Survey), using postcode sectors or combinations of postcode sectors as primary sampling units (PSUs). The convention amongst most PAF-based probability sample designs are for sample points to be stratified prior to selection by one or more stratifiers that correlate or are expected to correlate with key survey variables, since stratification generally improves the precision of survey estimates. In the 2006 Skills Survey, the sample of postcode sectors in the whole of Great Britain was proportionately stratified, as follows:

[11] Foster, K. (1994). The coverage of the Postcode Address File as a sampling frame. *Survey Methodology Bulletin*, No. 34, OPCS

1, By Sub-Region (35 sub-regions). Definitions of sub-regions can be found in BMRB (2006: Appendix M).

2. Within sub-region, sectors were listed in increasing order by the percentage of Household Reference Persons in non-manual socio-economic groups (NS-SEC operational categories 1, 2, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 5, 6, 7.1, 7.2, 7.3, 8.1, 8.2, 12.1, 12.6). Cut-off points were then drawn approximately one third and two thirds (in terms of delivery points) down the ordered list, to create three bands of roughly equal size.

3. Within NS-SEC strata, sectors were sorted by the percentage of non-retired men 16-74 who are unemployed.

Postcode sectors were selected with probability proportional to address count within each sub-region, based on a random start and a fixed interval. Sampling intervals were set for each sub-region according to the boost requirements for that sub-region. Because the same number of addresses were issued in each sector, the design gave each sampled address the same probability of selection at a sub-region level.

Interviewer assignments within the core sample consisted of 52 addresses within 297 postcode sectors, so the issued core sample was 15,444 addresses. The 52 delivery points (DPs) were selected systematically from each sector. This was done by using an interval of M/52, with a random start between 1 and M/52, where M was the DP count for the PSU. Delivery point counts were based on PAFSOC (Postcode Address File Single Occupancy Count) in England and Wales and PAFMOC (Postcode Address File Multiple Occupancy Count) in Scotland.

Table A2 shows the number of postcode sectors and issued sample for each of the boost area samples.

Table A2 Issued Sample for Boost Areas

Boost area	No. of selected postcode sectors	No. of issued addresses
East Midlands	44	2288
Wales	13	676
Scottish Enterprise area	63	3276
Highlands & Islands	32	1664

The expectation was that just over half the addresses would be found to be eligible in meeting three criteria:

- residential and currently occupied,
- containing someone aged 20-65 years of age,
- and at least one person in paid work of one hour per week or more.

When the interviewer was faced with a choice about selection, the procedure was based on a 'Kish grid', a table of randomly-generated numbers individually prepared for each address. In aggregate, the effect of using a Kish grid is to give each eligible person an equal chance of selection. It is used both for selection of the dwelling unit, where the postal delivery point contains more than one, and, far more often, for selection of a single adult person, when the dwelling unit contained two or more eligible for selection. The process of selection was fully documented on an 'Address Contact Sheet' (ACS), a paper document used by the interviewer to record all attempts to contact those at the address. As a measure to protect the identity of sample members the ACS was returned by interviewers to the office, separately from the computer data file. A copy of the Address Contact Sheet used by interviewers is included as Appendix G.

Because there are differences in the probability of selecting each individual, depending on the number of dwelling units at the address and the number of adults in the selected dwelling unit, weights are used in the analysis. With the weights, the data file is representative of adults in Great Britain and each individual in the file had an equal chance of selection.

A1.5 Northern Ireland sampling approach

The sample for Northern Ireland was selected in a manner similar to the British sample, using a conventional multi-stage design. The small user NI Postcode Address File (PAF) was used as the sampling frame. A list of all postal sectors in Northern Ireland was generated and, before selection, was stratified as follows:

1. By region. The postal sectors were stratified by the five NUTS3 areas (Belfast, Outer Belfast, North, West & South, East).
2. Within region, sectors were listed in increasing order by the percentage of Household Reference Persons in non-manual socio-economic groups (NS-SEC operational categories 1, 2, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 5, 6, 7.1, 7.2, 7.3, 8.1, 8.2, 12.1, 12.6). Cut-off points were then drawn approximately one third and two thirds (in terms of delivery points) down the ordered list, to create three bands of roughly equal size.
3. Within each of the resulting 15 NS-SEC strata, sectors were sorted by the percentage of non-retired men 16-74 who are unemployed.

44 postcode sectors were selected with probability proportional to address count within each region, based on a random start and a fixed interval. The design gave each sampled address the same probability of selection at this level.

Interviewer assignments within the Northern Ireland sample consisted of 42 addresses within 44 postcode sectors, so the issued sample for Northern Ireland was 1,848 addresses. The 42 delivery points (DPs) were selected systematically from each sector. This was done by using an interval of M/42, with a random start between 1 and M/42, where M was the DP count for the PSU. A single dwelling unit was selected (in the same way as for the British sample using a 'Kish grid'), when the address contained two or more. A single adult person was selected when the dwelling unit contained two or more eligible for selection.

A1.6 Reserve sample

In order to maximise interview numbers in each of the survey areas, a reserve sample was selected. The reserve sample was not selected at the same time as the main stage sample.

The precise stratification and selection process taken at the main stage sampling stage was used by taking the **'mid-points'** between selected areas (allocated to the core and boost samples in the same way as was done for the main stage sample). For example, for the first midpoint for England, 11, the midpoint was taken between the number selected on the cumulative list for the 11th selected PSU and that for the 12th selected PSU in England. So, if the number selected on the cumulative list for the 11th selected PSU was 100,000 and the number for the 12th selected PSU was 220,000 then the PSU that corresponded to number 160,000 was taken.

The above process yielded a sample which was too large to be issued as a reserve sample (as the reserve sample did not need to be as big as the initial sample) and therefore an appropriate reserve sample was selected from this. The issued reserve core sample consisted of 1,248 addresses, bringing the total number of issued core sample for the survey to 16,692 addresses. Table A3 shows the amount of issued reserve sample for each of the boost areas, including Northern Ireland.

Table A3 Issued Reserve Sample for Boost Areas (including Northern Ireland)

Boost area	Amount of issued reserve addresses	Total amount of issued addresses
East Midlands	312	2600
Wales	104	780
Scottish Enterprise area	416	3692
Highlands & Islands	260	1924
Northern Ireland	84	1932

A2 Data Collection and Fieldwork Management

A2.1 Interviewer briefings

All interviewers working on the survey in Great Britain undertook a whole 'assignment' of 52 addresses. Interviewers working in Northern Ireland undertook 'assignments' of 42 addresses. All interviewers attended one of a series of briefing sessions on the survey, which were held at various locations around the country. These briefings were each conducted by one of BMRB's researchers, following an agreed briefing plan and using a common set of materials.

Personal briefings of interviewers play various roles and are critical to the success of the survey. Although much of the attention is devoted to practical aspects of a given survey, they have an important motivating function. By seeing that interviewers are aware of the purpose of the research, they are able to explain the study effectively to members of the sample. Standard procedures, such as reporting to the police in advance of interviewing, are also reinforced by attendance at briefings. Personal briefings are standard on most of BMRB's face-to-face random probability surveys.

Briefings were conducted in several stages. The first round of briefings started on 6 March and was completed on 16 March. A second round was held between 18 April and 21 April. A few ad-hoc briefings were also arranged in the summer months between June and September.

The briefings covered:

- the background to the study and its aims;
- the survey population, what constitutes 'paid work' to determine eligibility;
- introducing the survey to members of the public, use of the advance letter and leaflet;
- sample selection procedures, using some worked examples;
- questionnaire structure;
- survey administration (led by a fieldwork supervisor).

The definition of the target population (between 20 and 65 years of age inclusive and in paid work) was given particular attention at all of the briefing sessions to ensure that interviewers understood the eligibility criteria. Extra time was taken to clarify the 'paid work' definition and examples were worked through to prepare interviewers for a variety of situations that they could have encountered.

All interviewers were provided with a copy of the project instructions for the survey. A video briefing was also put together by BMRB researchers and sent out to interviewers who would be working on the survey, summarising the key points from the main face-to-face briefing.

A2.2 Dates of fieldwork

Interviewing started immediately after the first briefing session and continued to 15 October 2006 in order to maximise the response rate for the core sample. Boost sample fieldwork continued up to and including 7 March 2007. The Northern Ireland sample fieldwork started on 4 September 2006 and was completed on 20 March 2007. Allowing contacts to continue over a period of weeks is important to minimise non-contact with people who are often away from home or absent for a period of time. In some cases interviewers had an area in which a relatively high proportion of the addresses included someone who was eligible for interview. In these cases, the interviewing work needed to be spread across a number of weeks. Table A4 illustrates the breakdown of interviews over the seven months fieldwork period for the core sample. Table A5 illustrates the breakdown of interviews for all core and boost sample (including Northern Ireland).

Table A4 Month of Interview for Core Sample

Month of interview	Number of interviews	Percentage of total interviews (%)
March	427	9
April	1178	25
May	1070	22
June	729	15
July	654	14
August	358	7
September	298	6
October	86	2

Table A5 Month of Interview for Core and Boost Sample (including Northern Ireland)

Month of interview	Number of interviews (core and GB boost areas)	Number of interviews (Northern Ireland)	Percentage of total interviews (%)
March 2006	485	-	6
April	1337	-	17
May	1266	-	16
June	924	-	12
July	908	-	12
August	837	-	11
September	603	31	8
October	370	94	6
November	284	87	5

December	69	52	2
January 2007	104	128	3
February	87	73	2
March	15	33	1

A2.3 Re-issues

In addition to allocation of addresses to interviewers at the outset of the project, selected cases were 're-issued', usually to a very experienced interviewer, both to ensure that reasonable response rates were achieved in more difficult areas and to maximise the overall response rate. Feedback from the original issue determined whether it would be appropriate to re-issue those addresses again, using information collected on the contact sheet. Rather than quickly re-issuing individual outcomes to available interviewers, time was spent matching cases up to the more successful interviewers on the project. A small team of re-issue interviewers was utilised, conducting a far more targeted approach. The re-issue strategy involved assessing cases on a micro level to establish the anticipated success rate with the preferred choice of interviewer.

From the core sample, 4,610 addresses were re-issued and they resulted in an additional 926 interviews being achieved (20 per cent). Table A6 shows what the original outcome was for these re-issued cases. Table A7 shows what outcome was achieved after those addresses had been re-issued.

Table A6 Re-issued Cases (Core Sample) – Original Outcome

Outcome category	All cases	
	n	%
Base: Re-issued addresses from core sample	4,610	100
No Contact		
No contact with selected respondent	397	8.6
Unknown eligibility due to no contact	1,008	21.9
Refusals		
Refusal – respondent, proxy, office	1,620	35.1
Broken appointment	352	7.6
Unknown eligibility due to refusal	913	19.8
Other unproductive	320	6.9

Table A7 Re-issued Cases (Core Sample) – Final Outcome

Outcome category	n	%	%	%	%
Base: Re-issued addresses from core sample	4,610	100			
Out of scope addresses	149	3.2			

In-scope addresses	4,461	96.8	100		
Not screened	1,202		26.9		
Screened	3,259		73.1	100	
Screened ineligible	382			11.7	
Selected eligible respondent	2,877			88.3	100
No Contact	444				15.4
Refusals	1,310				45.5
Other unproductive	197				6.8
Productive outcomes	**926**				**32.2**

Tables A8 and A9 show what addresses were re-issued from the GB boost sample and what final outcome was achieved respectively. There was a similar proportion of cases in the core and boost sample which were reissued due to there being 'unknown eligibility due to no contact' – around one in five of the addresses that were re-issued were for this reason. However, in the boost sample there was a smaller proportion of re-issued cases which started out as 'unknown eligibility due to refusal'.

Comparing Tables A7 and A9, it appeared that re-issuing was more successful for the core sample than the boost sample with 20 per cent of re-issued cases being converted into a productive interview in the core, compared with only 15 per cent of re-issued cases being converted. Looking at the possible reasons for this, it could be seen that although the proportion of reissued cases which were due to no contact and refusal in the two samples were similar, nearly 60 per cent of the re-issued cases in the GB boost sample where an eligible respondent was selected ended up as a refusal, compared with only 46 per cent in the core sample.

Table A8 Re-issued Cases (GB Boost Sample) – Original Outcome

Outcome category	All cases	
	n	%
Base: Re-issued addresses from GB boost sample	2,064	100
No Contact		
No contact with selected respondent	231	11.2
Unknown eligibility due to no contact	432	20.9
Refusals		
Refusal – respondent, proxy, office	810	39.2
Broken appointment	192	9.3
Unknown eligibility due to refusal	258	12.5
Other unproductive	141	6.8

Table A9 Re-issued Cases (GB Boost Sample) – Final Outcome

Outcome category	n	%	%	%	%
Base: Re-issued addresses from GB boost sample	2,064	100			
Out of scope addresses	87	4.2			
In-scope addresses	1,977	95.8	100		
Not screened	328		16.6		
Screened	1,649		83.4	100	
Screened ineligible	183			11.1	
Selected eligible respondent	1,466			88.9	100
No Contact	92				6.3
Refusals	878				59.9
Other unproductive	180				12.3
Productive outcomes	**316**				**21.6**

For the Northern Ireland sample there was a slightly different approach adopted due to a different fieldwork agency handling the fieldwork operation (MB Ulster). Instead of wide-scale re-issuing of contacts, interviewers held onto contact sheets over an extended number of weeks, calling numerous times over regular intervals. Only in a handful of cases was it felt that reissuing the contact to a different interviewer would have a benefit, in which case it did occur.

A2.4 Household letter and leaflet

Owing to the wide range of sponsors of the 2006 Skills Survey advance letters were tailored with a letterhead appropriate to the country which that sponsor operated in. Therefore, for sampled addresses in England, letters on joint Department for Education and Skills and Department of Trade and Industry letterhead were prepared. For addresses in Scotland, letters were prepared on Scottish Executive letterhead. For Welsh addresses the letterhead was that of Futureskills Wales, whilst Northern Irish addresses were sent letters by the Department for Employment and Learning.

For each address, the interviewer also had an envelope, over-printed with the sponsor's logo. Interviewers were instructed to send these letters in batches which they could follow-up personally within a couple of days. It is felt that timely contact following a letter of this type is likely to contribute to a high response rate. The letters explained the purpose of the survey and the importance of taking part. It also mentioned whom to contact if the members of the household were unwilling to take part in the survey. A freephone number was provided at BMRB for any enquiries which members of the public wished to make.

Interviewers were also asked to send a leaflet along with the respondent letter in advance. This was prepared by BMRB and gave more details about some of the issues included in the questionnaire and referred to sources where further information could be found.

A2.5 Selected respondent letter

The initial letter was necessarily addressed to 'The Resident', as there was not a named person to interview at that stage. One of the innovative procedures implemented in the 2001 survey to try to maximise the response rate was a personally addressed letter to introduce the survey to the selected respondent. This procedure was used again for the 2006 Skills Survey. This letter was posted by the interviewer when the selected person had not been present at the time of selection. The idea behind this letter was that it would help to reinforce the importance of taking part in the survey, and would minimise possible problems of the interviewer's call not being mentioned to the person selected as respondent, or the purpose of the interview not being explained adequately.

A2.6 Refusal conversion letter

It is standard BMRB practice to re-issue any unproductive outcomes (e.g. refusals, non-contacts) to alternative interviewers. This can be a significant vehicle for boosting response and addresses are re-issued twice, sometimes three or four times. Tied in with the re-issue approach is the use of specially targeted letters to respondents who refused to participate in the survey. These letters are a useful way of re-introducing the survey to respondents and provide a starting point for the interviewer when they make their first re-issue visit.

A2.7 Introducing the survey and incentives

Interviewers were given guidelines on how best to introduce the survey and answer questions which the respondent may have. The survey initially offered no financial incentives for respondents to participate. However, they were introduced for the reserve sample and re-issued addresses from June 2006 onwards as another method of maximising response rates.

A £5 conditional incentive payable to the respondent on completion of the interview was employed. This was in the form of a £5 high street gift voucher. The advance letter and selected respondent letter were amended to make respondents aware of this incentive.

A2.8 Self-completion questions

Blocks C and K contained questions which respondents were encouraged to answer by self-completion, keying a numeric answer on the computer. The questions were suitable for this approach because they followed a simple pattern.

Of the total sample in Great Britain and Northern Ireland, four in five respondents (82 per cent) completed Block C on the computer, with this dropping to 81 per cent for Block K. This was an increase from the 2001 survey when 77 per cent of respondents completed Block C themselves.

A2.9 Length of interview

In estimating the workloads of interviewers, it was planned that interviews should have an average length of 55 minutes. Some variation in the length of interview was allowed for according to factors such as whether respondents had been working in the past, in which case they would qualify for additional questions (in Blocks H and J). In the event, the median length of interviews was 53 minutes. This was based on the time difference between the start and finishing times, as recorded on the interviewers' computers.

The distribution of interview lengths shows considerable variation around the median. Various timings for the core sample are presented in Table A10, broken down by respondent characteristics. Table A11 shows the same timings but for the whole of the UK sample.

Table A10 Length of Interview (Core Sample)

Type of interview	Mean length (minutes)	Median length (minutes)	Unweighted base
Full productive interviews	59	53	4,800
Time unavailable	-	-	16
11 to 29 minutes	26	28	91
30 to 44 minutes	39	40	1,152
45 to 59 minutes	52	52	1,924
60 to 74 minutes	65	65	978
75 minutes and over	116	89	639
Block C by respondent	60	53	3,910
Block C by interviewer	56	52	890
Respondent in same job 5/4/3 years ago	60	53	2,840
Respondent in different job 5/4/3 years ago	59	53	1,789
Respondent was not in work 5/4/3 years ago	55	49	171

Employed in Organisation	60	53	4,319
Not employed in Organisation	53	46	481

Table A11 Length of Interview (Core, GB Boost and Northern Ireland Sample)

Type of interview	Mean length (minutes)	Median length (minutes)	Unweighted base
Full productive interviews	58	53	7787
Time unavailable	-	-	24
11 to 29 minutes	25	27	168
30 to 44 minutes	39	39.5	1834
45 to 59 minutes	52	52	3123
60 to 74 minutes	66	65	1645
75 minutes and over	110	87	993
Block C by respondent	59	54	6363
Block C by interviewer	55	50	1424
Respondent in same job 5/4/3 years ago	59	53	4672[12]
Respondent in different job 5/4/3 years ago	58	53	2822
Respondent was not in work 5/4/3 years ago	54	48	291
Employed in Organisation	59	54	6963
Not employed in Organisation	52	47	824

From table A10, there did not appear to be much difference between respondent-completion and interviewer-completion of Block C on the average length of interview. The median interview length was 52 minutes for interviewer-completion and slightly longer for respondent-completion at 53 minutes. More telling were the combined timings from the whole UK sample in table A11. This more clearly indicated that interviewer-completion was quicker with a median time of 50 minutes compared with 54 minutes for respondent-completion. This was contrary to the way the survey was briefed: researchers briefed interviewers to try to encourage respondent-completion by stating its benefits of shortening the interview length and helping to break up the monotony of a long interview.

[12] Unweighted base sizes for respondent's employment status 5/4/3 years ago does not add up to the total base of 7787 (4672+2822+291=7785) due to there being two interviews where this information was not collected. Those interviews contained only partial data where respondents broke the interview off early before the relevant questions could be asked.

Looking at Tables A10 and A11, it can be seen that the average interview length was around 4-5 minutes shorter for those respondents who were not in work at least 3 years ago compared with those who were. This was to be expected as much of Blocks H and J of the questionnaire depended very much on this criterion.

Similarly, looking at the employment status variable from the two tables above indicated that, on average, those classed as being 'Employed in Organisation' took 7 minutes longer to complete the interview. Again, this was due to the filtering present in the questionnaire, particularly Block E.

Table A12 shows the average length of each section of the questionnaire from the whole of the UK sample.

Table A12 Length of Questionnaire Sections (Core, GB Boost and Northern Ireland Sample)

Block	Mean length (minutes:seconds)	Median length (minutes:seconds)
A: Checking Eligibility	1:28	0:25
B: Broad Questions about the Job	14:34	13:37
C: Detailed Job Analysis Questions	6:25	5:51
D: Computing Skills and Qualifications Questions	6:03	5:35
F: Work Attitudes	2:52	2:37
E: The Organisation	4:53	4:47
G: Pay Questions	1:29	1:18
H: The Job Five Years Ago	1:15	1:07
J: Recent Skill Changes and Future Perspectives	6:37	6:20
K: Personal Details	4:28	3:57
Q: Details of Organisation and Conclusion	4:40	3:45

A2.10 Supervision and quality control

One of the key methods of quality control on data collection is regular accompaniment of each interviewer by a supervisor. This was mainly conducted on interviewers with less experience of this type of work. A second quality control measure is re-contact with members of the sample, to check on certain details of the information collected by the interviewer. Eleven per cent of the productive interviews in the core sample (542 cases) were back-checked, of which 474 were conducted by telephone and the remainder by post. No cases were considered unsatisfactory. Similarly, eleven per cent of the productive interviews in the boost sample (270 cases) were back-checked, with no cases considered unsatisfactory. The electronic communications used for CAPI signalled receipt of questionnaires at head office the morning after interviewing took place. As well as giving instant knowledge about numbers of questionnaires completed, the data was

examined in terms of interview length and contact time thus giving tighter control of the survey and interviewer performance.

A3 Survey Outcomes

A3.1 Response rate

Tables A13 and A14 below show detailed response breakdowns of the UK sample (thus incorporating the core sample, GB boost sample and Northern Ireland sample). The UK survey, as a whole, achieved an overall gross response rate of 61.8 per cent and a net response rate of 56.0 per cent.[13]

Table A13 UK Sample: Gross Response Rate

Outcome category	ACS Code	Number	%	%	%	%
Original issued addresses		27,620	100.0			
Out of scope addresses:		2,631	9.5			
- insufficient address	*11, 12*	*48*	*0.2*			
- not traced	*13*	*237*	*0.9*			
- not built	*1*	*46*	*0.2*			
- derelict/demolished	*2*	*186*	*0.7*			
- empty dwelling	*3*	*1,311*	*4.7*			
- business premises	*4*	*379*	*1.4*			
- institution	*5*	*39*	*0.1*			
- holiday home	*6*	*279*	*1.0*			
- other out of scope	*10*	*106*	*0.4*			
In scope of screening		24,989	90.5	100.0		
Not screened:		2,330		9.3		
- no contact with an adult	*14, 16, 18, 19, 20*	*965*		*3.9*		
- refusal (including head office)	*15, 17, 31*	*1,365*		*5.5*		
Screened		22,659		90.7	100.0	
No-one aged 20-65 in paid work	*7, 32*	10,057			44.4	
Selected eligible respondent		12,602			55.6	100.0
Non-contact after screening	*35*	470				3.7

[13] For a discussion of the difference of interpretation between net and gross response rates, see Felstead *et al*. (2007).

Refusal after screening:		3,497	27.7
- personal refusal	*36, 38*	*2,000*	*15.9*
- proxy refusal	*37*	*869*	*6.9*
- broken appointment	*39*	*628*	*5.0*
Other unproductives:		848	6.7
- ill during survey	*40*	*36*	*0.3*
- away/in hospital	*41*	*350*	*2.8*
- senile/incapacitated	*42*	*29*	*0.2*
- inadequate English	*43*	*78*	*0.6*
- other unproductive	*44*	*355*	*2.8*
Productive interviews	*51, 52*	7787	61.8

Table A14 UK Sample: Net Response Rate

Outcome category	ACS Code	Number	%	%	%	%
Original issued addresses		27,620	100.0			
Out of scope addresses:		2,631	9.5			
- insufficient address	*11, 12*	*48*	*0.2*			
- not traced	*13*	*237*	*0.9*			
- not built	*1*	*46*	*0.2*			
- derelict/demolished	*2*	*186*	*0.7*			
- empty dwelling	*3*	*1,311*	*4.7*			
- business premises	*4*	*379*	*1.4*			
- institution	*5*	*39*	*0.1*			
- holiday home	*6*	*279*	*1.0*			
- other out of scope	*10*	*106*	*0.4*			
In scope of screening		24,989	90.5	100.0		
Not screened:		2,330		9.3		
- no contact with an adult	*14, 16, 18, 19, 20*	*965*		*3.9*		
- refusal (including head office)	*15, 17, 31*	*1,365*		*5.5*		
Screened		22,659		90.7	100.0	
No-one aged 20-65 in paid work	*7, 32*	10,057			44.4	
Selected eligible respondent		12,602			55.6	100.0
Not screened, but assumed eligible		1,296				
Estimated eligible addresses		13,898				100.0
Not screened, but assumed		1,296				9.3

eligible			
Non-contact after screening	*35*	470	3.4
Refusal after screening:		3,497	25.2
- personal refusal	*36, 38*	*2,000*	*14.4*
- proxy refusal	*37*	*869*	*6.3*
- broken appointment	*39*	*628*	*4.5*
Other unproductives:		848	6.1
- ill during survey	*40*	*36*	*0.3*
- away/in hospital	*41*	*350*	*2.5*
- senile/incapacitated	*42*	*29*	*0.2*
- inadequate English	*43*	*78*	*0.6*
- other unproductive	*44*	*355*	*2.6*
Productive interviews	*51, 52*	7787	*56.0*

A3.2 Survey Representativeness (East Midlands)

Although the sample design should ensure that it is representative of workers in East Midlands, we first checked whether the sample is broadly representative. We classified the data against some standard socio-economic variables, and compared with figures from the Quarterly Labour Force Survey (QLFS). Since the QLFS has a substantially larger sample size, and since it gleans information from every member of households, it can be argued that the QLFS sample is likely to be closely representative of the workforce.

Table A15, below, presents this comparison, where the figures in brackets are the figures from the QLFS. The base is those in employment and aged between 20 and 65 inclusive. We compare the representation in the two samples of the different age groups, ethnicity, working time status, occupation and industry. The base is those in employment in the East Midlands and aged between 20 and 65 inclusive. As can be seen, the East Midlands Skills Survey sample is close to the QLFS sample according to most categories. However, males are a little under-represented, as well as both females and males aged 20 to 29.

Table A15 Socio-Economic Distribution of the Sample

	All	All (%)	Males (%)	Females (%)
All	1101	100	100	100
Sex				
Male	562	51.3 (53.7)	100	0
Female	539	48.7 (46.4)	0	100

Age groups:				
20-29	170	17.7 (19.8)	17.1 (19.6)	18.3 (20.1)
30-39	297	25.9 (25.0)	23.7 (24.6)	28.0 (25.4)
40-49	312	28.7 (27.1)	26.9 (26.6)	30.4 (27.7)
50-60	261	22.9 (23.1)	25.3 (23.0)	20.6 (23.1)
61-65	61	4.8 (5.1)	7.0 (6.2)	2.7 (3.7)
Ethnicity				
White	1047	95.0 (93.7)	96.3 (93.2)	93.9 (94.3)
All non-white	54	5.0 (6.3)	3.7 (6.8)	6.1 (5.7)
Working Time				
Full-Time	833	75.2 (77.2)	91.6 (93.8)	59.6 (58.1)
Part-time	268	24.8 (22.8)	8.4 (6.2)	40.4 (41.9)
Occupation (SOC2000)				
Managers	176	15.0 (16.1)	21.0 (19.8)	9.3 (11.9)
Professionals	116	11.4 (12.6)	9.8 (13.0)	12.9 (12.1)
Associate Professionals	137	12.3 (12.8)	9.2 (11.0)	15.4 (14.9)
Administrative & Secretarial	133	12.4 (11.5)	6.2 (4.4)	18.3 (19.8)
Skilled Trades	127	11.1 (11.6)	20.5 (19.9)	2.3 (1.9)
Personal Services	92	8.5 (7.6)	1.4 (1.6)	15.4 (14.5)
Sales	70	6.9 (6.4)	2.8 (3.4)	10.9 (9.8)
Plant & Machine Operatives	120	10.6 (10.1)	18.1 (15.7)	3.4 (3.7)
Elementary	130	11.7 (11.4)	11.1 (11.3)	12.2 (11.5)

Table A3.5 Continued

	All	All (%)	Males (%)	Females (%)
Industry (SIC92)				
Agriculture & fishing	23	1.8 (1.2)	3.1 (1.8)	0.6 (0.6)
Energy & water	13	1.2 (1.0)	1.7 (1.5)	0.8 (0.4)
Manufacturing	180	15.8 (17.8)	24.1 (24.5)	8.0 (10.1)
Construction	77	7.0 (7.9)	12.9 (13.0)	1.4 (2.0)
Distribution, hotels & restaurants	194	18.1 (17.2)	14.1 (16.1)	21.9 (18.5)
Transport & communication	78	6.7 (7.4)	10.6 (10.9)	3.0 (3.4)
Banking, finance & insurance etc	131	11.7 (13.5)	12.2 (13.0)	11.2 (14.1)
Public admin, education & health	349	32.6 (28.7)	18.4 (14.6)	46.1 (45.2)
Other services	46	4.1 (5.2)	1.7 (4.7)	6.4 (5.8)

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