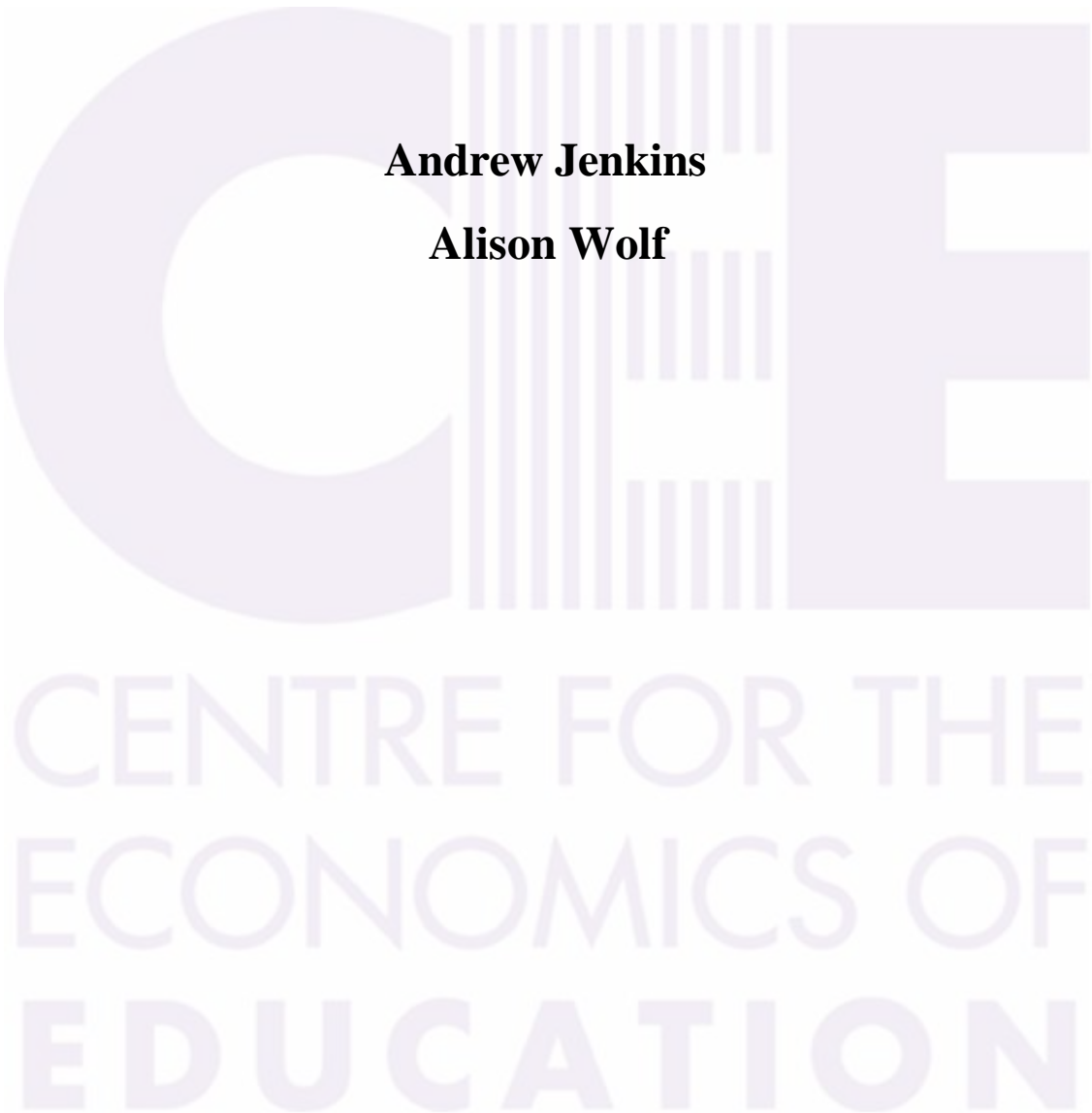


**Regional Variations in Adult Learning and  
Vocational Training: Evidence from  
NCDS and WERS 98**

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## **Executive Summary**

The purpose of this paper is to examine whether or not there are important regional differences in skill formation and learning opportunities for adults, and whether adults' behaviour and experiences tend to reinforce regional patterns apparent among young people. Our underlying interest is in (a) how adults respond to local differences in the demand for skills, and (b) whether differences in local levels of skill supply may affect employers' willingness to adopt high-value-added work practices (and so demand, or develop, high skill in their workforces). Both of these are important in determining the future economic development of regions and localities.

There is accumulating evidence of regional variations in the proportion of young people staying on in post-compulsory education. This appears to be a problem which has persisted for some time but has not received as much attention as it may deserve. As for adult learning, in reviewing existing literature and evidence we found that there is a lack of reliable information on regional differences in adult learning and vocational training. National surveys on these topics have insufficient sample sizes to enable robust conclusions to be reached at regional level and tend to show large variations from year to year.

Analysis of cohort data has shown that respondents tended to migrate to London and the South East in their twenties, but there was some tendency to move away from this area later on, when they were in their thirties or early forties often back to their region of birth. The North, East Anglia and the South West were regions attracting more well-qualified people, while Yorkshire/Humberside and Wales lost some of their stock of well qualified cohort members.

Estimates of the extent of participation in adult learning, drawing on data from the National Child Development Study, varied by region but which regions had the highest participation rates depended on the definition of adult learning adopted. For learning leading to qualifications participation was highest in the North, North West and Wales; for work-related training the South East had the highest proportion of learners, while for leisure courses participation rates were highest in London.

Data from the 1998 Workplace Employee Relations Survey were used to analyse the regional distribution of work-related training. Here the proportion of workers in receipt of some training was highest in the North East, London and Eastern region, and lowest in the West Midlands and Yorkshire/Humberside. In regression analyses of the likelihood of receiving training, and controlling for both worker characteristics such as level of education and

occupation and workplace characteristics such as establishment size some regional effects remained statistically significant with those in the East and North East more likely to obtain some training.

Some key gaps in the evidence remain. The strength of the association between regional economic performance and the skills base of the regions remains unclear and would certainly benefit from further analysis. The extent to which sub-regional variations in economic prosperity and in the presence of a well-qualified workforce align with the regional differences in these variables is also not well-established in the research literature. This implies some uncertainty as to whether the appropriate unit for policy action is the region or the local area or some combination of the two.

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## **1 Introduction**

In recent years there have been some major policy changes in Britain in the devolution of power to sub-national and regional levels. The establishment of new institutions such as the Regional Development Agencies and the local Learning and Skills Councils and the setting of targets to reduce gaps between regions have led to a renewed interest in regional policies and regional and local differences, and in the extent to which these have an impact on the lives and opportunities of their inhabitants. In terms of education and training, the key questions are what effect does the economic performance of a locality have on the educational choices made by the people living there and, conversely, how do the skills of people in a locality influence the prosperity of that area? In response to the first question, the most obvious possible impact is on the motivation and behaviour of young people. Their perceptions of the labour market – how many jobs there are, how well paid, and how tightly linked to possession of skills and of formal qualifications – will probably influence their decisions about whether to stay in school after 16, and what qualifications to pursue. Local and regional economic conditions may also affect adults' willingness to engage in 'lifelong learning' and update or increase their skills. If the local labour market does not seem to reward study and skill enhancement, this may make them less likely to undertake learning than if they lived in a different part of the country. Furthermore, differences in the economic environment may both reflect and influence the way employers use skills. It may be that regional differences in wage rates reflect, in part, differences in the extent to which local companies employ high value-added techniques. We have already argued that, if employers demand relatively low levels of skill from their workers, this may affect young people's and adults' attitudes to education and training. But employers' own training activity may also be affected by local labour market conditions, though it is harder to predict, from first principles, the nature of the effect. Employers may train less if unemployment is quite high, because they can readily hire people to fill skill gaps. Conversely, they may be less worried that trained labour will be poached away in this situation, and so inclined to train in-house. More generally, their willingness to increase their demand for skills, and move towards more high-skills strategies may depend quite strongly on how they perceive the local labour market, and whether local labour is seen as well educated and productive. Their decisions will in turn have a dynamic effect on the motivations of people in the area, and the future pattern of skill supply (and on the type of enterprise which later establishes itself in the region).

The idea that it is low employer demand for skills which needs to be acted upon if the drive to improve skills is to succeed has influenced policy makers (e.g. PIU, 2001) but remains contentious. The presence of “latent skill gaps” is inherently difficult to measure. Survey data gathered for the National Skills Task Force (NSTF) revealed that approximately half of the employers surveyed anticipated problems with skills if they attempted to move towards the production of high value-added goods or services (see PIU, 2001, p 33). A more recent survey in Green et al (2003) which asked a sample of over 1,000 employers whether they would like to produce more complex products but were constrained by the limited skills of their current workforce found that some one in five respondents agreed slightly or strongly with this statement. Analyses have also been conducted which suggest that, for employers at present utilising a cost minimising strategy, a very considerable improvement in the skills of their workforce would be required if they were to switch to high value-added strategies (see the discussion in Campbell et al, 2001). These analyses are necessarily inconclusive but suggest that, if low employer demand is regionally concentrated it could set up vicious circles/negative feedback for teenagers and adults wishing to learn and train.

The hypotheses of Bradley and Taylor (1996) illustrate some of the potential dynamic linkages between economic performance and education/training. Their model is shown in Figure 1. Here the skills of the workforce in a locality have a major influence on labour productivity and competitiveness and hence on the capacity for growth of the local economy. The greater competitiveness of high-skill areas may occur because more educated workers are better able to perform tasks, but also because areas which are knowledge-rich will tend to specialise in activities such as R&D and in technically complex sectors where new ideas and new products will be generated. (Armstrong and Taylor, 2000, p 87). Fast-growing local economies are hypothesised to draw in high-skilled migrants and also to have a positive influence on the aspirations of the young. The skills base of the economy is enhanced with further beneficial effects for the competitiveness of the area. It is important to note that areas which have a poor stock of skilled workers could then experience slow growth leading to outflows of skilled workers and a lowering of the aspirations of students. The key implication emerging from this framework, then, is that there could be virtuous or vicious circles at local level, with the consequence of divergence of local or regional economies. (Armstrong and Taylor, 2000; OECD, 2001). It is the risk of this scenario, with substantial and widening disparities between different areas of the country, which is of most concern to policy-makers. However, to date it has not been clearly established whether such vicious or



virtuous circles do operate within the British economy. Also it is not known how far variations tend to occur at the regional or the local level. The purposes of this paper are to consider the existing information on spatial variations in education/training and economic performance and to fill in some of the gaps in our knowledge.

In the next section we review existing literature and the widely-used data sources from which conclusions about spatial variations in skill levels, work-related training and adult learning have been drawn. We show that evidence for substantial regional variations in adult learning and workforce training is not robust, mainly because of small sample sizes. In later sections of the paper we therefore assemble some new evidence on these subjects. The data we utilise are taken from the National Child Development Study (NCDS) and the Workplace Employee Relations Survey (WERS 98). NCDS is a large-scale longitudinal survey of a single cohort of people who were all born in a single week in 1958. It contains lots of detail on the educational and social background of respondents, as well as enabling us to track regional movements of individuals over time. WERS 98 is a large cross-sectional survey which contains information on workforce training. Section 3 of this paper contains qualification profiles by region using the NCDS cohort data. We compare the levels of qualifications of the cohort in 1991 and 2000, consider whether some regions had greater concentrations of qualified individuals than others, and examine which regions were drawing in, and which regions were losing, their stocks of highly qualified workers. Section 4 also uses the NCDS to consider lifelong learning, using a variety of different definitions of what constitutes learning. In section 5 we turn to the WERS survey in order to look at workforce training. The main advantage of the WERS data is that it includes information on a wide range of employer and employee characteristics. Finally, in section 6 we draw together our main findings.

## **2 Review of Literature and Existing Evidence**

### *Evidence for regional and local effects: education choices by young people*

We know a considerable amount about the apparent effect on young people's choices of where they live and go to school. Much of the relevant analysis has been carried out using successive sweeps of the Youth Cohort Study, first (in England) by Gray et al (1994) and (in Scotland) by Paterson and Raffe (1995), and more recently by Joan Payne. The results were

summarised recently by Payne in a report to the DfES Advisory Panel on Research Issues for the 14-19 Age Group, as follows:

...differences in post-16 participation rates between regions, travel-to-work areas and smaller local areas remain after differences in GCSE results, personal characteristics and family background have been taken into account....These differences are very large. YCS data show that in the middle third of the national distribution of GCSE results there was a gap of about 17 percentage points between the region with the highest participation rate and the region with the lowest participation rate, while in the bottom third of the GCSE results the corresponding gap was around 21 percentage points. (Payne 2002: 17)

Tables 1 and 2 illustrate these quite dramatic contrasts between regions: in achievement at age 16 *and* in how students at a given attainment level then behave. The decision to continue in education post-16 and the type of courses taken at that point are, of course, heavily dependent on exam achievement at age 16, but the factors underlying the participation decision appear to be quite complex and operate in rather different ways at different points in the ability distribution. Among the higher achieving teenagers, regions with high levels of employment in 'high skill' sectors (with large proportions of professional, managerial, technical and white collar staff) have particularly high staying on rates, and these are not sensitive to short term fluctuations in unemployment rates. Among lower achieving students, there is a regional or local effect which may plausibly be related to the general structure of the economy- but choices are also affected by short-term factors. The choice between taking a vocational/vocationally-related course in FE or entering the labour market, or between going into Youth Training and going to work, is directly affected by the local unemployment rate. This suggests that, for lower-achieving students as a whole, available post-16 courses are seen as having rather little long-term labour market value as compared to those taken by higher-achievers. There nonetheless remain important local/regional variables which influence the perceived value of these lower-status qualifications and courses, and create the regional patterns just described (Payne, 2002; Clark 2002).

These results for young people have been established quite recently and, later in the paper, we investigate whether the patterns are stable over time. But the bulk of our work will be concerned with discovering whether or not there are similar patterns in the training and learning of adults. Such patterns would clearly exacerbate differences between regions and/or local areas. We will also look at mobility between regions by education level since differential mobility could, depending on the direction of the flows, worsen or counteract

variations in the supply of skilled workers in particular regions. What does the existing literature tell us about these matters?

## **2.1 Supply of skills and qualifications**

To what extent does the supply of skills vary across different regions? The available evidence (mainly from Labour Force Survey data) generally uses the attainment of qualifications to proxy skill levels. Some figures are shown in Table 3. The proportions qualified to NVQ equivalent level 3 were as high as 52 per cent in London and 50 per cent in the South East, but only 39 per cent in Wales and 43 per cent in the Midlands. There were similar variations in the proportions qualified to level 4 or above.

The variations are even more marked at sub-regional level, as data on local Learning and Skills Council areas make clear (LSC, 2003). Table 4 reveals that nearly a quarter of employees in the Black Country and Birmingham/Solihull areas were without qualifications, compared to ten per cent or less in places such as Herts and Surrey. Conversely, 30 per cent or more of employees in parts of the South East were qualified to at least level 4, while this fell to some 16 or 17 per cent in areas such as Tees Valley and the Black Country (Table 5). A key question is whether the sub-regional differences align with the regional ones, or whether variation within regions is actually much greater than that between regions. A recent, very brief, discussion of the evidence in LSC (2003) suggested that

the differences in the distribution of qualifications at the 47 local LSC level is greater than at the regional level. However, they mainly reflect the underlying regional pattern, with local LSCs located in London and the South East tending to have a workforce which is rather more qualified than local LSCs in the North.

However, a more thorough and systematic analysis of this question would undoubtedly be useful.

There is some evidence of geographical variations in the proportions of adults with basic skills problems. Campbell et al (1999), drawing on Basic Skills Agency data for 1998 report that there substantial variations across localities in the proportion of the working age population with low, or very low levels of numeracy. This varied from a high of 48 per cent in Knowsley, to a low of 24 per cent in Richmond on Thames. There were some 34 local

authorities where 40 per cent or more of the population of working age had either low or very low levels of numeracy.

An important finding by Campbell et al (1999) was that different measures of the local supply of skills were closely correlated with each other. They gathered together data for about 100 local education authority areas (LEAs) for which comparable data were available for 1997/98 on four skill indicators – the proportions attaining level 4 (the Government’s target level) at Key Stage 2 (i.e. ages 10-11), the proportions of 16 year olds obtaining five or more GCSEs, the percentage of the workforce with no qualifications, and the percentage of the working population with low levels of numeracy.<sup>1</sup> These were found to be quite highly correlated (correlation coefficients varied from about 0.6 to almost 0.8), leading the authors to conclude that areas which were “skill rich” tended to be so at all levels, and similarly for “skill poor” areas, implying that “spatial skill variations are deeply structural and are thus likely to require sustained action if they are to be reduced” (Campbell et al, 1999, pp 10-14).

## **2.2 Adult learning**

As well as the stock of qualified people, we can also look at flows, as adults engage in learning to improve their skills and knowledge over time. Are there systematic variations at regional level in the proportions of adults undertaking learning? If the arguments set out earlier are correct we might expect that individuals in prosperous/fast-growing regions would have stronger incentives to engage in learning, and that there would therefore be substantial variations in participation rates. The two major surveys of adult learning in Britain are the DfES-sponsored National Adult Learning Survey (NALS) and the surveys run by the National Institute of Adult and Continuing Education (NIACE). The definitions of learning used in these two surveys differ so that different things are being measured. However, within a survey, over time, the questions are normally held constant so that within each survey, one is comparing like with like over time.

Table 6 reports the National Adult Learning Survey results and shows major differences among regions but also great fluctuation over time. We find that, in the four years between 1997 and 2001, the proportion of the adults in the North East who were involved in some sort of learning apparently rose from 64 to 72 per cent, while in Wales, in that same four years, it

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<sup>1</sup> The authors do not state which subjects the Key Stage 2 figures relate to; the numeracy data were obtained from Basic Skills Agency (1998), *Adults’ Basic Skills: Benchmark Information on Scale of Need in Different*

*fell* from 71 to 64 per cent. In 1997, learning activity in London and Wales apparently ran at much the same level: four years later, the two regions were strikingly different. We do not know of any events which would explain such a difference.

NIACE has run a survey of adult participation in learning for a number of years and the results are summarised in tables 7 and 8. Again, what is really striking is the instability of the numbers – and of the rankings. In table 7, we see that, for example, between 1990 and 1996, the proportion of learners in Scotland almost doubled; while in the North West, after a decade of apparent stability, the two years from 1999 to 2001 saw an increase from 41 to 54 per cent of the population being recorded as learners. Table 8 shows regions' ranks in terms of these NIACE data, and underlines how enormously variable these have been.

In both the NALS and NIACE surveys, then, we find dramatic fluctuations, within very short time periods, in the absolute and the relative level of learning reported for a given region.

The simplest explanation for these patterns is also almost certainly the correct one: namely that the sample sizes were not large enough to allow for reliable estimates of activity at a disaggregated, regional level. This means, however, that relatively little data is available from which to examine how far adults in more or less economically successful, or highly qualified, regions behave differently in terms of undertaking continued skill development. Later in this paper we present some estimates of lifelong learning activities, broken down by region, drawing on data from the National Child Development Study (NCDS), where the sample size is roughly double that of the NALS and NIACE surveys.

### **2.3 Training**

Adult learning is a very broad category which may be undertaken for all sorts of non-economic, as well as economic, reasons. It is therefore also interesting to look more specifically at vocational training to see if discernible regional patterns are observable. On training a major source of information is the Learning and Training at Work survey which has been carried out annually in recent years. Tables 9 and 10 summarise data on employer-provided training, first off and then on the job, from the Learning and Training at Work surveys.

On the basis of evidence from the 2000 survey Campbell et al (2001) have argued that 'training levels appear, overall, to be lower in higher qualification and higher employment regions' (Campbell et al, 2001, p 134). However, looking at the results over time suggests

that, once again, there is a lot of volatility. For example, in the South East apparently the proportion of employers reported as providing off-the-job training was 54 per cent in 1999, 63 per cent a year later, and back down to 53 per cent just one year after that. The sample size in the survey was some 3,400 employers nationally, so that the numbers in some regions will have been quite small. As with the data on adult learning discussed earlier, the estimates at regional level are not very reliable, and therefore we cannot be confident that we know, at present, which regions have high proportions of employers providing training. Some evidence on this topic is also presented in Section 5 of this paper.

## **2.4 Demand for skills**

How far does employers' demand for skills vary by region and does it reflect, or correlate with, differences in the supply of skills, as measured by qualification rates? Do adults in the regions with the lowest qualification levels and/or the lowest staying on rates also face relatively low demand for skills from employers?

Table 11 replicates analyses by Felstead (2002) indicating which regions have high vacancy rates and which have vacancies which reflect a shortage of skills among applicants or a response to skill gaps among employees. Note that skill shortages occur when there is a genuine lack of adequately skilled individuals available in the accessible labour market, while skill gaps arise when employers report that their existing workforce has lower skill levels than those necessary to meet their business objectives. The data in Table 11 came from the Employer Skills Survey, which has run for a number of years. The data suggest that skill shortages and skill gaps were highest in the North West, London and the South East, and lowest in the North East. Further information on the nature of skill demands in the local economy come from the recently completed 2001 Skills Survey (see especially Felstead, Gallie & Green 2002). The Skill Survey interviews working individuals in Britain (aged 20-60) rather than employers; and actually collects measures of skills used in people's working lives. Table 12 displays two regional indices constructed from respondents' responses. One summarises the average level of formal qualification demanded by employers (for the jobs respondents held, and in the respondents' view), the other shows the average length of training required for those jobs (again, for the jobs the respondents held, and in the respondents' view). These figures show that, on average, the most skilled jobs, measured in terms of the qualifications required to do the job were to be found in London and the South East, but were also quite high in the North East, while the figures were lowest in the East

Midlands, followed by Eastern region and Wales. The training time index was highest in the South West, but Yorkshire/Humberside was slightly ahead of London, and substantially higher than the South East. As Yorkshire/Humberside is certainly not a region where average earnings are relatively high, these figures in particular suggest that an assumption that it is the most prosperous regions where the most training occurs may not be valid. However, as Felstead acknowledges, there is (once again) a need to be cautious in interpreting the results because of small sample sizes.

## **2.5 The evidence on links between economic performance and skills**

In this section we review existing evidence on regional and local variations in economic performance and the role of human capital in explaining those differences. The economic figures certainly indicate the presence of regional differences. For example, if we look at household disposable income per head in 1999 then we find that, within the UK, this ranged from £8353 in the North East to £12036 in London. As proportions of the UK average, these are 83 and 119 per cent respectively – moreover, in 1989, while the same regions held top and bottom place, the proportional figures were 88 and 117 per cent, a substantially smaller spread. (Source: National Statistics, drawing on the Labour Force Survey and New Earnings Survey).<sup>2</sup>

As for change through time, there is some evidence at the regional level that GDP per head showed a tendency to converge over the period 1950 to 1990 as a whole although this convergence process was an extremely slow one (Sala-i-Martin, 1996a,b) and dispersion between regions may actually have increased in the late 1970s and the 1980s (McGuinness and Sheehan, 1998). Data at the sub-regional level are only available for shorter periods of time. Gripiaios et al (2000) tested for convergence among GB counties during 1977 to 1995, and found evidence of increasing disparities between the counties over this period.

Studies of the impact of education/training on economic outcomes have usually been conducted at the local area level in order to generate sufficient data points for analysis. It can of course also be argued that local areas are more appropriate units of analysis than whole regions which are usually large and contain much variation both in economic performance and in concentrations of skilled workers within their boundaries. Bradley and

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<sup>2</sup> These figures are not adjusted for differences in the cost of living in different parts of the country.

Taylor (1996) investigated the relationships between educational attainment, the stock of high-skill workers in a locality, and local economic performance. In multiple regression analysis, using data on 107 LEAs they demonstrated, firstly, that educational attainment (the proportion of school leavers attaining 5 or more GCSEs in 1992) was strongly related to low unemployment in the local labour market. This suggests that local employment opportunities had an incentive effect on how hard children work at school and how motivated they were to achieve good exam results. Other favourable socio-economic factors which influenced educational attainment were high home ownership rates, high proportions of skilled/professional workers in a locality and a low truancy rate. Secondly, economic performance, as measured by employment growth 1981-1991, was strongly influenced by a locality's initial (1981) mix of industries and by the proportion of school leavers proceeding to further education (also in 1981). Bradley and Taylor's results provide some evidence that human capital variations affect economic performance. However employment growth is a somewhat unusual measure of economic performance, with variables such as GDP per head or average earnings more often utilised. Moreover, the data used in the study refer to the 1980s and are now quite old, while the human capital variables relate only to school-leavers rather than the employed population more generally.

In a more recent study, Campbell (2000) gathered together cross-sectional data on skills profiles and economic performance for 46 counties in England in the mid-1990s. The conclusion reached was that:

“There are strong links between local workforce qualification levels and local economic performance. Those areas with better qualified labour forces tend to out-perform those with less well qualified workforces in terms of earnings, job generation and competitiveness. Skills are strongly associated with economic performance. Localities who (*sic*) seek a high skill route to economic development are the more likely to be successful” (Campbell, 2000, p 39).

This is surely an overconfident assertion for Campbell's evidence was, in fact, rather weak. All his results were based on simple regressions of some measure of economic performance, such as GDP per head at county level, on measures of skills, such as the proportion in a county qualified to NVQ level 3 or higher. Because education/training and economic performance influence each other, there are questions of simultaneity bias (Campbell's



economic outcomes are for 1996 and his human capital stock measures are for 1997). Moreover, no other explanatory variables were included in any of the regression models, and it is not clear that the education/skills variables would remain significant if other relevant variables were included. Research in the United States suggests that human capital remains an important determinant of local and state-level outcomes, such as GDP per head and economic growth, in the presence of other explanatory variables (Bhatta and Lobo, 2000; Rupasingha et al, 2002) but this has not yet been demonstrated in the British case. Gripiaios et al (2000) found that county level variations in GDP per head could be explained by variables reflecting industrial structure and population structure but did not include human capital specifically in their regression analyses.<sup>3</sup> The existing evidence on links between economic performance and education/training in the UK is, then, very thin, partly no doubt because of the limited amount of sub-regional data which has been available until recently.

### **3 Education and Qualifications in NCDS**

Having reviewed the literature, in the remainder of the paper we analyse cohort data and the WERS data on training in order to contribute to the evidence base, particularly on the supply of skills and on lifelong learning.

We looked at data from the National Child Development Study (NCDS), a cohort of people all born in the same week in 1958. The cohort were surveyed at various points childhood and early adulthood, at the ages of seven, eleven, 16 and 23, with the two most recent surveys occurring in 1991 when cohort members were aged 33, and in 2000, when they were 42. The data available in the NCDS surveys include employment histories, detailing whether cohort members were in education, in work or out of the labour force month by month from the age of 16 onwards. This information can be used to consider whether there were regional variations in staying-on rates among the NCDS cohort. As highlighted in the literature review above, in the 1990s there were substantial regional variations in staying-on rates, and it is important to consider whether these have only begun to occur recently or whether they have in fact persisted over many years. Figure 2 shows the percentage of

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<sup>3</sup> It is possible that variables such as the proportion in employment in high technology industries, and the proportion in employment in financial/business services could be acting, in part, as crude proxies for human capital.

NCDS respondents participating in full-time education at the time of their 17<sup>th</sup> birthday (March 1975). It is clear that there were large differences among the regions. The proportion still in full-time education at age 17 was high in London and the South-East (45 per cent for boys and 48 per cent for girls, against national averages of 33 per cent and 40 per cent respectively), and in Wales amongst girls (46 per cent). It was particularly low in the Northern region (25 per cent for boys and 29 per cent for girls).

An econometric analysis of the staying-on decision utilising the NCDS data by Micklewright (1989) found that regional effects persisted even after allowing for a wide range of background variables including whether parents had remained at school beyond age 16, the socio-economic status of the father, the presence of older and younger siblings, the type of school attended, and maths and reading test scores at age 16. Controlling for these factors, boys in London/South-East and girls in Wales were still more likely to stay on in education at the age of 16. The fact that regional variations were apparent in the 1970s as well as in the 1990s and beyond adds weight to Payne's point that geographical variations in participation in post-compulsory education have received less attention than they deserve (Payne, 2003, p 61).

The longitudinal nature of the survey means that we can follow people over long periods of time, examining the qualifications which they have acquired, both at school and as adults, and their movement between different parts of the country. Of course, because it is a single cohort, it might be unwise to use it as a basis for generalising about the population as a whole. Figure 3 displays the changing pattern at the regional level between 1991 and 2000 in the proportions in each region with no qualifications, (note that we are confining the analyses to an identical sample in 1991 and 2000 by excluding those with missing data in either year; London and the South East have been combined, because different definitions of London appear to have been used in the two sweeps of the survey). Overall, the proportion with no qualifications fell from 11 per cent in 1991 to around nine per cent in 2000 while the proportions with only level 1 or level 2 also fell from 45 to 42 per cent, and the proportion at level 3 or above rose from about 44 per cent in 1991 to some 49 per cent by 2000. The regions followed the national pattern, with each region seeing a reduction in the proportion with no qualifications, but increases in the proportions at level 3 or above. It is important to reiterate that NCDS is a single cohort growing older between the two surveys, and since qualifications (unlike skills) cannot be lost cohort members must, as a matter of logic, either

increase or remain constant in their qualification level over time, which is not the case for the population in general. It is, however, interesting that although (as we shall see) there was significant population mobility, the regional pattern does remain fairly constant over time in that those regions with above average proportions of their populace with no qualifications in 1991 were also in that situation in 2000; similarly those with high (low) proportions at level 3 or above in 1991, also generally had high (low) fractions of their populations at this well-qualified level in 2000 – the single exception was the North West which was marginally above average at level 3 plus in 1991 but just fractionally below average in 2000.

Now, because we are dealing with quite a lengthy period of time, many cohort members will have migrated from one part of Britain to another at some point. Hence the regional qualification profiles at the beginning and end of the period do not necessarily contain the same people (although the sample as a whole is identical by construction at the two points since those missing at either point have been excluded from the analysis). As Table 13 shows, net migration flows in the sample are of considerable size, and the direction of change appears quite unusual, with strong population gains in the North, the South West and East Anglia and population loss in Yorkshire/Humberside, East Midlands, London and the South East. In their analysis of the geographical mobility of graduates in the cohort studies, Bynner et al (2002) showed that respondents in their thirties and early forties were moving away from London and the South East having, in many cases, migrated into that area at some earlier point in their lives; and it was often the case that people were migrating back to their region of birth.

Consideration of these geographical movements raises the question of to what extent different regions were attracting or losing a stock of highly qualified individuals. In Table 14 we address this issue by comparing the distribution of actual qualifications in 2000 with how that qualification profile might have looked had people remained in the region in which they were located in 1991, but assuming they still acquired qualifications during the 1990s as before. It can be seen that some regions such as the North, East Anglia the South West and Scotland were on balance tending to attract in the more well-qualified people (those at level 3 + by 2000) and to lose some of their less qualified individuals, while regions such as Yorkshire/Humberside and Wales were, on balance, losing some of their stock of well-qualified cohort members.

#### **4 Lifelong Learning in NCDS**

There has been a great deal of debate in recent years about adult participation in learning: why some people participate in learning and others do not; how participation might be increased; and various policy initiatives aimed at improving access to learning opportunities for adults. As pointed out in the literature review, it is uncertain whether there are geographical variations in lifelong learning because of the small sample sizes at regional or local level in the major surveys concerned with this topic.

We draw on NCDS data to investigate lifelong learning by region. One of the difficulties of analysing this subject is that there is no generally agreed definition of what constitutes lifelong learning, but in NCDS we can utilise several different measures: lifelong learning which resulted in a qualification, work-related training and attending leisure courses. About one-third of the sample as a whole obtained a qualification between 1991 and 2000, some 31 per cent obtained some work-related training during this period, while just below a quarter engaged in one or more leisure courses. Figures 4, 5 and 6 respectively display regional deviations from these national averages for each of the three types of learning. A complication is that we have information on which region cohort members were in in 1991 and 2000, but for those who moved regions, we do not know precisely where they were when they actually undertook their lifelong learning course(s). But in fact the results were not sensitive to whether we use 1991 or 2000 as the year in which to measure location (we use 1991 as the base year in the figures which follow). Using attainment of a qualification between 1991 and 2000 (when cohort members aged 33 and 42 respectively) as the definition of lifelong learning (see Figure 4) it was found that participation was high in the North, North West, Yorkshire/Humberside and Wales and it was rather low in London and East Anglia.

For work-related training, the regional distribution is shown in Figure 5. Here, the national average was just over 31 per cent, and there was a gap of about five percentage points between regions, with the highest proportion of people in receipt of training found in the South East at about 34 per cent while in Yorks/Humber it was only 29 per cent. The gap was in fact much wider for males (the highest was the South East at 42 per cent; while the lowest was Yorks/Humber at 33 per cent) than for females, amongst whom the highest proportion of

learners was found in London at 28 per cent, while the lowest was West Midlands at 24 per cent. As for leisure courses, where the national average for participation was some 24 per cent, Figure 6 reveals that participation was extremely high in London, and high in the South East, while it was low in Scotland and the North. These patterns were evident for both males and females. It is clear, then, that the regional patterns were very different according to which definition of learning was used, with some regions showing a relatively high proportion of learners on, say, work-related training but a low proportion on learning leading to a qualification.

Having presented the data by region for various kinds of lifelong learning, we now proceed to some more formal statistical analyses. The regression analyses seek to determine whether there were statistically significant regional differences in participation in adult learning, controlling for a range of other factors which could influence a person's propensity to undertake learning activities. We ran separate probit models for each type of lifelong learning, that which led to a qualification, work-related training and leisure courses, undertaken between 1991 and 2000. Marginal effects (which can be interpreted as the effect of each variable on the probability of undertaking adult learning) are reported throughout. Location in 1991, the start of the period, was used as the measure of which region people were living in. The South West is the base region for the regressions (chosen as such because it was close to the national average on participation, and with a reasonably large number of observations). The control variables included attainment on test scores at age 7, school type, parental education, parental socio-economic status, and variables reflecting the type of workplace covering public/private status, union membership, and the size of the workplace.

The regressions were run for men and women separately. The results for lifelong learning leading to a qualification with the full set of controls are shown in Tables 15 and 16. For males, the main finding was that there were few statistically significant differences among the regions. Welsh men appeared to be some seven per cent more likely to obtain qualifications as adults, but this was only statistically significant at the ten per cent level. The results were much stronger for females. In the initial model, including only the regional variables, those in East Anglia, London and Scotland were significantly less likely to participate in lifelong learning compared to the base region of South West; these results were unaffected when some control variables were included or when all the control variables were

included. In the full model those in the West Midlands also showed a lower propensity for adult learning, being some seven per cent less likely to obtain a qualification, while the figures were 12 per cent less likely for East Anglia, ten per cent in London and eight per cent in Scotland. These findings, then, suggest that the regional variation in participation for males are not robust, but that there are significant regional variations among women for this type of lifelong learning, which are little affected by the inclusion of other factors which might explain lifelong learning.

The regressions for participation in training showed that, for men, participation was significantly higher in the South East compared to the base region, South West. This applied consistently, whether there were no controls through to the full range of controls. In the latter case the size of the regional effect was such that those in the South East were some eight percentage points more likely to have received some training. Other regions did not differ significantly from the base for men. Among women, on the other hand, there did not appear to be any statistically significant differences for region in participation in work-related training (see Tables 17 and 18).

For leisure courses, there were not statistically significant differences among the regions in the equations for men, but for women London region was positive and strongly significant, suggesting that women were about nine percentage points more likely to participate in these courses, after controlling for other factors. The South East region was also statistically significant relative to the base, South West, but only weakly so. These results are presented in Tables 19 and 20.

## **5 Regional Variations in Vocational Training: Evidence from WERS 98.**

In investigating whether there were regional patterns in the provision of vocational training by employers, we also utilised information from the 1998 Workplace Employee Relations Survey (WERS 98), a large government-sponsored survey of public and private sector workplaces in Great Britain. In contrast to many surveys which concentrate only on large firms the WERS survey, when appropriately weighted, is nationally representative of workplaces with ten or more employees within Standard Industrial Classification (SIC) major

groups D to O.<sup>4</sup> It includes information obtained from interviews with the manager most responsible for personnel matters at each workplace, a worker representative, and a questionnaire survey of employees (Cully et al, 2000). In the employee dataset, respondents were asked: “During the last 12 months, how much training have you had, either paid for or organised by your employer?” The total response was approximately 28,000. This sample size is large enough to provide ample regional sub-samples. Table 21 reports the proportion of workers who had received some training, broken down by the Government Office Region of the workplace. The estimates are weighted to take account of the complex sampling design of WERS 98 which involved both stratification of the sample of workplaces, and clustering of the employee sample within workplaces (see Forth and Kirby, 2000, for details of sample design and weighting procedures).

It can be seen that the proportion of employees who has received some training was highest in the North East at some 65 per cent, followed by London and the Eastern region at approximately 62 per cent each. Most of the other regions were clustered in a narrow band between 58 and 60 per cent, while the West Midlands and Yorkshire/Humberside regions each had less than 57 per cent of workers in training. In Table 22 a more detailed picture of the amount of training received is presented. Regional variations can be observed here, too. For instance, if we consider five days or more as a large amount of training, it is apparent that the proportion of workers who were in this position varied from below 16 per cent in some regions, such as South West and Scotland to 20 per cent or more in Wales, the East and the North East. In fact the North East was the most highly ranked region both for the proportion of workers receiving any training, and the proportion obtaining five or more days of training. It is worth noting that this result contrasts with those which we observed in earlier sections on qualifications and staying-on rates.

Now, it is well-known that the demand for training will vary with the type of worker and with the type of workplace. For example, professional workers tend to receive much more training than unskilled workers, younger workers obtain more training than older workers, while the characteristics of a workplace, such as the industrial sector in which it is located and its size will also influence the amount of training provided. To what extent can factors such as these explain the observed regional variations in the proportions of workers receiving

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<sup>4</sup> Agriculture, forestry and fishing, mining and quarrying were excluded from the survey.

training? WERS 98 contains a good deal of information both on worker characteristics and on workplace characteristics which we can use in regression models of training.

We ran probit regressions with the dependent variable as whether or not the worker received some training. Subsequently, we also present some analyses of the amount of training. Table 23 reports probit estimates of training with regional dummies as the sole explanatory variables. The base region was the South East, the sample size was about 28,000 employees, and as before the estimates are weighted to allow for complex sample design. Compared to the South East, a number of regions attracted positive coefficients in the probit regression but almost all of these were not statistically significant. However, the proportion of workers in receipt of training in the North East was significantly larger than the base region at the five per cent level.

In Tables 24, 25, and 26 a range of worker characteristics and workplace characteristics were introduced into the model as explanatory variables. Table 24 contains only worker characteristics, Table 25 just the workplace characteristics, while information on both the worker and the workplace is contained in Table 26. As shown in Table 24, the probability of receiving training increased with the worker's level of education; it was higher too for those with a vocational qualification, and it was also higher for certain occupational categories, notably managers, professional, personal/protective service workers and sales staff compared to the base category – operatives. Those on permanent contracts had a greater likelihood of receiving some training than those on temporary or fixed-term contracts; part-time workers were markedly less likely to get training; union membership raised the probability of the worker receiving some training. These effects seem plausible and are generally in line with findings in the literature (e.g. OECD, 1999; Booth, 1991) so that we now focus on the regional estimates which are our main interest in this paper. In Table 24 the regional dummy variables actually showed a tendency to increase in strength when the additional controls for worker characteristics were introduced. Both the East and North East regions were now positive and statistically significant compared to the base region, the South East. Some worker characteristics in these regions were unfavourable to training. Only 14 per cent of workers in the North East and 17.5 per cent in the East were educated to degree or postgraduate level, compared to 21 per cent across all regions, while the proportion of employees in managerial and professional occupations was only some 16 per cent in the East and a mere 11 per cent in the North East, compared to the national average in WERS of



almost 20 per cent. Some characteristics of workers associated with increased chances of receiving training were also found in these regions: union/staff association membership was very high in the North East, for example, but on balance the inclusion of worker characteristics in the model served to strengthen the degree of statistical association between the probability of receiving some training and the regional variables.

Table 25 shows a probit regression for training with workplace characteristics as explanatory variables. The size of the workplace had quite weak effects on the probability that an employee would receive some training, but workers in establishments which were part of a larger organisation had increased chances of participating in some training. The probability of receipt of training was higher in some industrial sectors than in others, particularly in public administration, the utilities and the health sector. The presence of a personnel specialist at the workplace, and investor-in-people status raised the probability that training was provided, as would be expected. It is noticeable that none of the regional variables was statistically significant in the probit regression equation reported in Table 25. This can be explained by the fact that in regions where training probabilities were high, such as the North East and the East, a large proportion of employment was in sectors such as public administration and health, where training levels were high. In the weighted WERS estimates, over 13 per cent of employees in the North East were in the public administration sector and 20 per cent were in the health sector compared to the average for all regions of nine per cent and 13.5 per cent respectively in these two sectors. Also some 84 per cent of workers in the North East in the survey were employed at workplaces which were part of a larger organisation, compared to the national average of 78 per cent (the highest proportion was in Scotland at nearly 87 per cent). Hence, once these workplace characteristics had been allowed for, there were not significant regional effects in Table 25.

So, how did the regional variables fare when we included both worker and workplace characteristics in the model. In Table 26 estimates are reported controlling for both the worker and workplace characteristics. Even with all these control variables included some statistically significant regional effects were apparent. These were for East and North East. It is also worth noting that the London regional dummy variable had a negative coefficient, suggesting that less training tends to take place in the London region, perhaps because the metropolis was able to draw in highly-skilled migrants, although this effect was not statistically significant.

We were also interested in exploring the amount of training, as well as just whether some training had occurred. Ordered probit regressions were used here because the dependent variable had only a small number of discrete categories. Again we began with just the regional variables in the model, introduced worker and workplace characteristics separately, and then combined all the explanatory variables in the final specification. The results were quite similar to the probit models. Table 27 shows no statistically significant regional effects in the absence of any other explanatory variables; including worker characteristics in the model tended to strengthen regional effects, the inclusion of workplace characteristics tended to dampen them; when all the explanatory variables were combined as in Table 28, statistically significant and positive effects were still present for the East and the North East. This time the London regional variable was negative and statistically significant at the five per cent level.

In summary, regional variations in whether workers get training and in the amount of training, are quite substantial. In terms of the proportion of workers who participated in some training this varied from 65 per cent in the North East to about 57 per cent in the West Midlands. Some of these variations were statistically significant in regression analysis, and remained so even in the presence of a very wide range of control variables which can be drawn on in the WERS dataset. Models which control only for worker characteristics tend to strengthen regional effects, while workplace characteristics such as its industrial sector tend to dampen them. The regions where training was greater than expected were the East and the North East, while the amount of training was less than might have been expected on the basis of the characteristics of the workforce and the establishments in London. It is possible that there is some tendency in London to attract skilled workers rather than providing training; as for the positive effects in the North East and the East it is possible that this could be attributable to supply factors, or to regional development policies, but this must be conjectural in the absence of further information. A simple catching-up model in which regions with a low-skilled workforce conduct more training may be a partial explanation for the observed patterns, but is clearly incomplete. For example, it does not account for patterns in the West Midlands or Yorkshire/Humberside, where the skills base of the workforce, as measured by formal qualifications was low but where the level of training provision was also low.

## 6 Conclusion

Regional variations in skill levels and economic performance continue to be of concern to policy-makers. In this paper we have looked at some widely-used data sources on lifelong learning and work-related training and demonstrated that regional differences identified in the surveys may not be robust. There was much unexplained variation from year to year in the pattern of learning and training by region. It seems that sample sizes in several of these surveys may not be large enough to deliver consistent results across regions. These surveys of course remain valuable for identifying trends at national level but we suggest that they must be used with great caution when comparing sub-groups such as regions within the sample.

Our own estimates of the extent of participation in adult learning, drawing on data from the National Child Development Study, varied by region but which regions had the highest participation rates depended on the definition of adult learning adopted. For learning leading to qualifications participation was highest in the North, North West and Wales; for work-related training the South East had the highest proportion of learners, while for leisure courses participation rates were highest in London. However, these results need to be interpreted with some caution as they apply only to a single cohort and may not be representative of the population of working age more generally.

The 1998 Workplace Employee Relations Survey (WERS) does contain information on workers of all ages, and the sample size is sufficiently large to deliver robust estimates at the regional level. Analyses were therefore conducted on the regional distribution of work-related training using data from WERS. Here the proportion of workers in receipt of some training was highest in the North East, London and Eastern region, and lowest in the West Midlands and Yorkshire/Humberside. In regression analyses of the likelihood of receiving training, and controlling for both worker characteristics such as level of education and occupation and workplace characteristics such as establishment size some regional effects remained statistically significant with those in the East and North East more likely to obtain some training.

Some key gaps in the evidence remain. Our review of the literature showed that the available information was surprisingly thin on the inter-relationships between regional economic performance and the skills base in the regions and would certainly benefit from further

analysis. The extent to which sub-regional variations in economic prosperity and in the presence of a well-qualified workforce align with the regional differences in these variables is also not well-established in the research literature. It is to be hoped that the evidence base on these topics will become stronger as new data sources, such as small area statistics from the Labour Force Survey as well as 2001 Census data are utilised in research studies. But at present there is some uncertainty as to whether the appropriate unit for policy action is the region or the local area or some combination of the two.

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**Figure 1**

**The linkages between education, the socio-occupational mix and economic competitiveness (Source: Bradley and Taylor, 1996)**

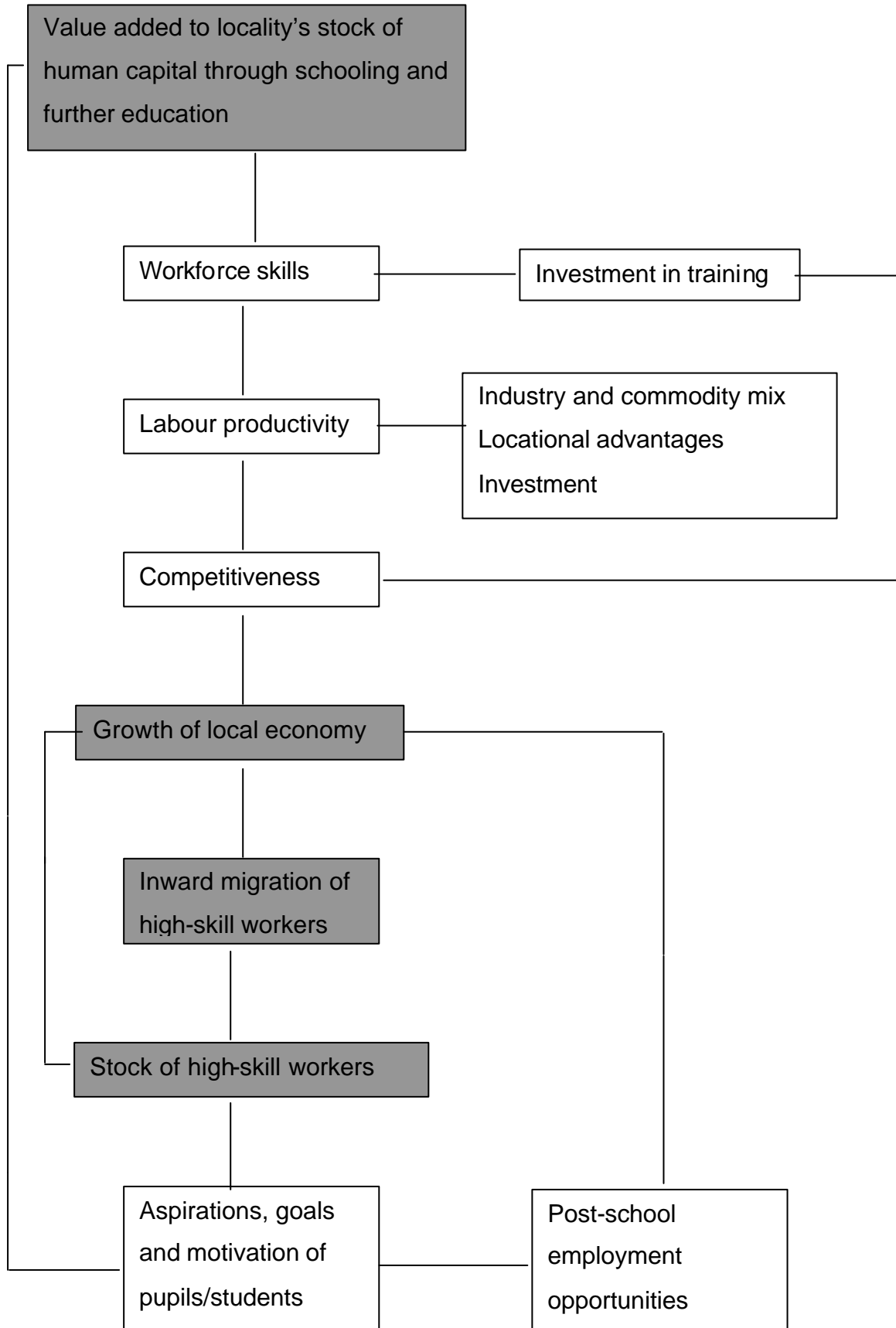


Figure 2 Proportion of NCDS Cohort in full-time education at age 17, by region

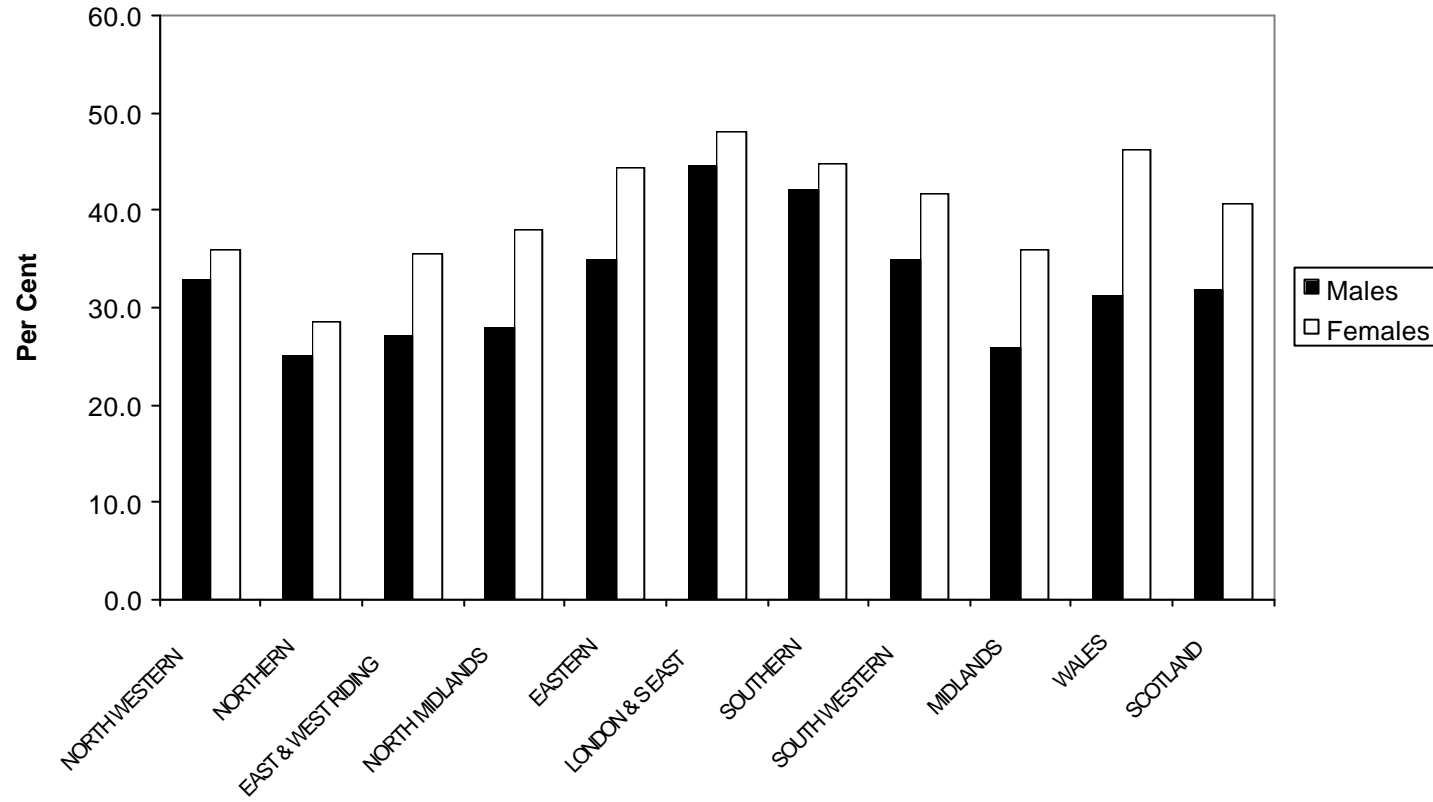




Figure 3 Proportion of cohort members with no qualifications, 1991 to 2000

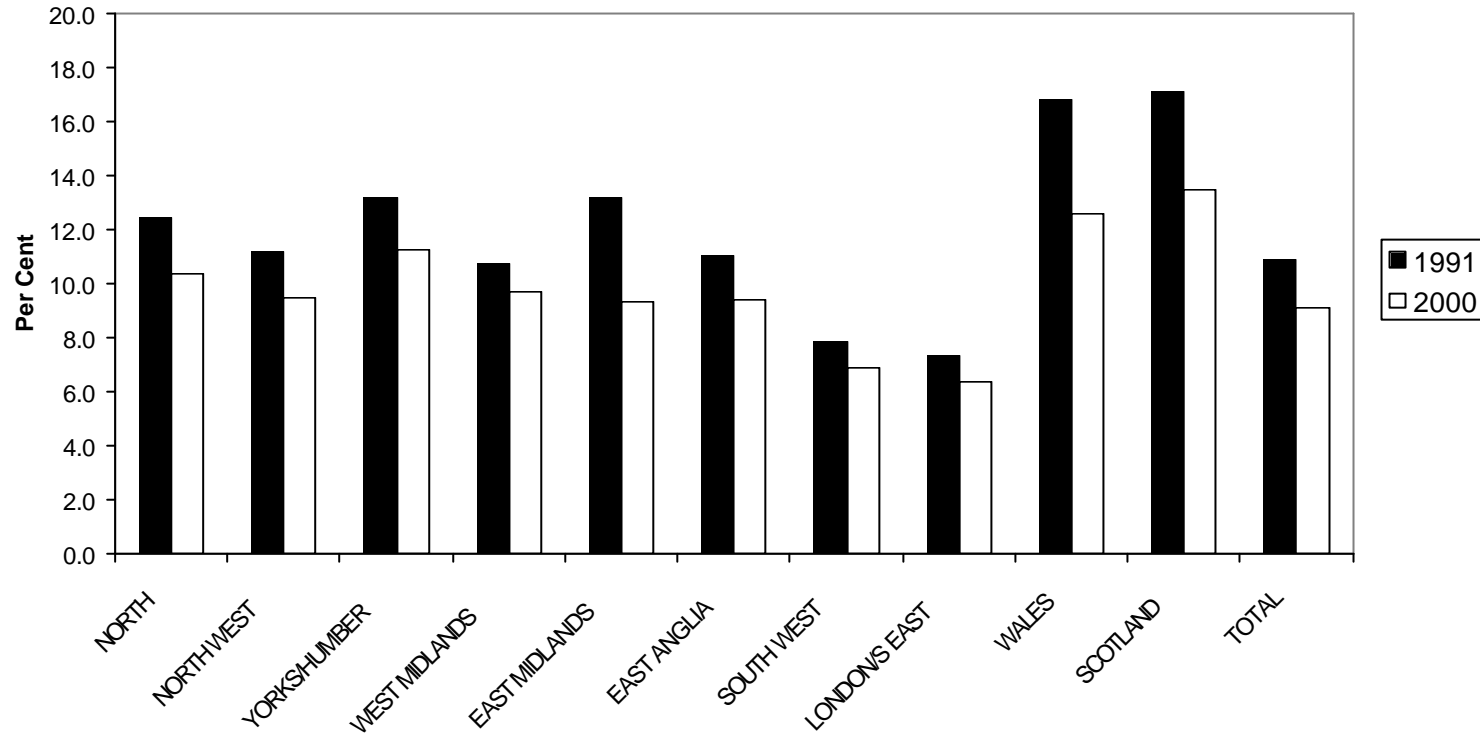


Figure 4 Learning leading to a qualification, NCDS, 1991 to 2000: deviation from national average

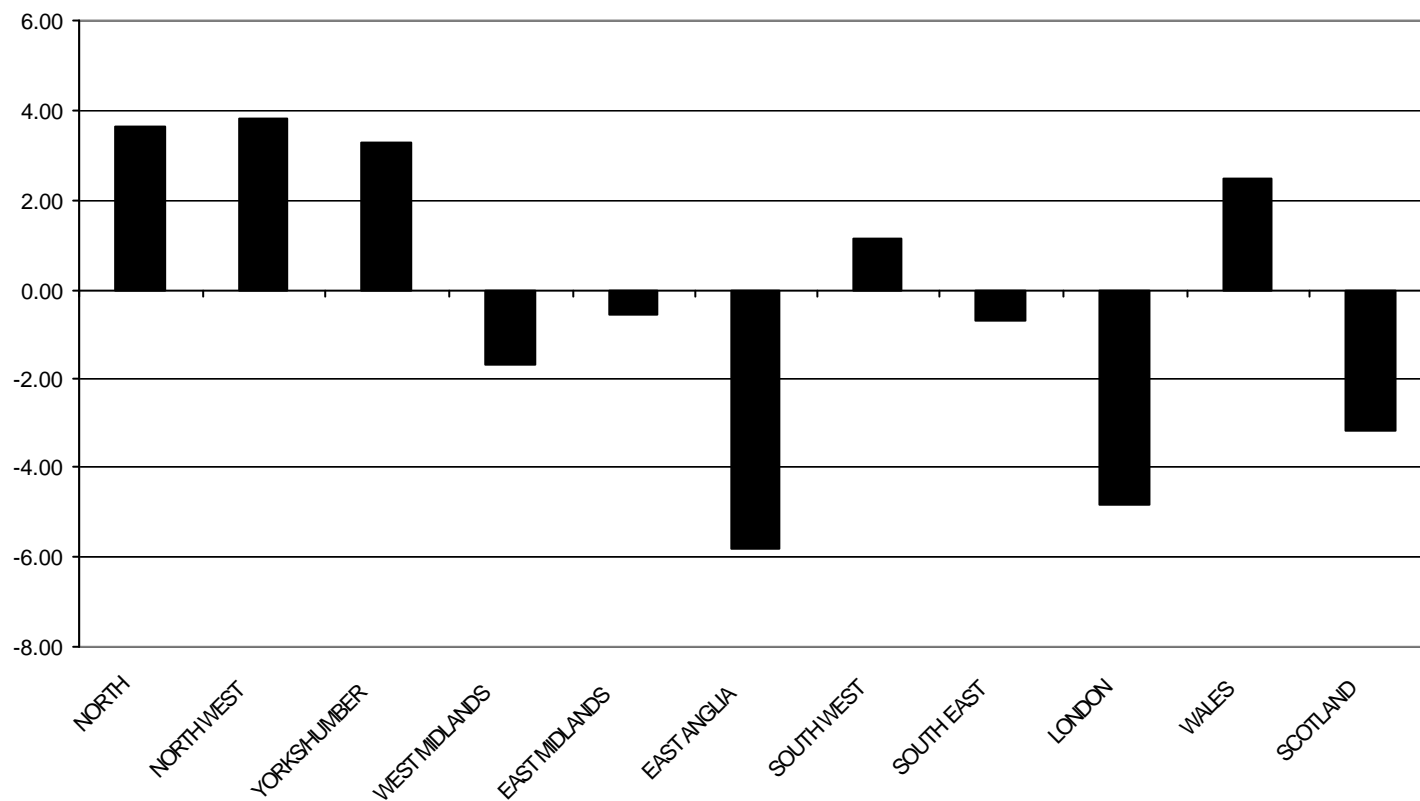


Figure 5 Work-related training, NCDS, 1991 to 2000: deviation from the national average

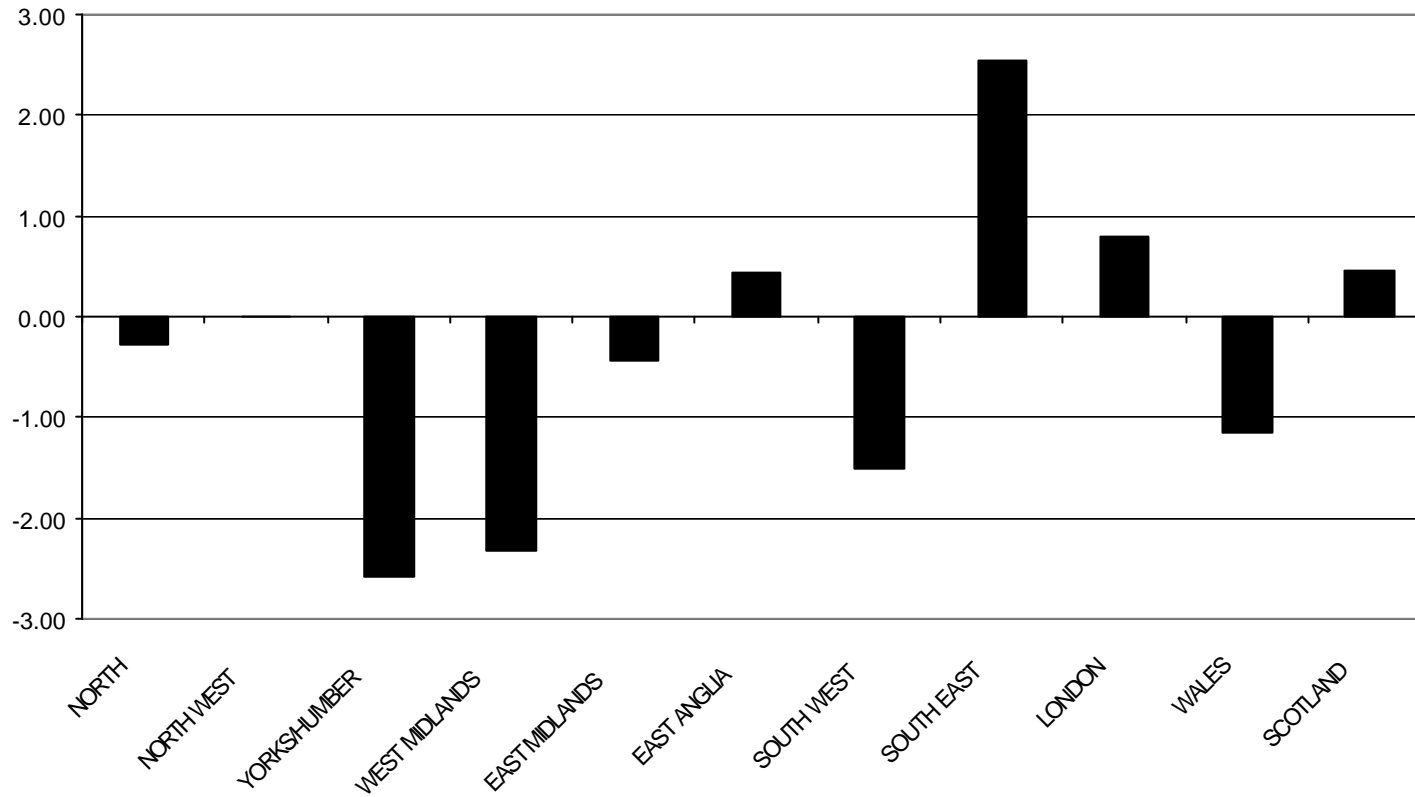
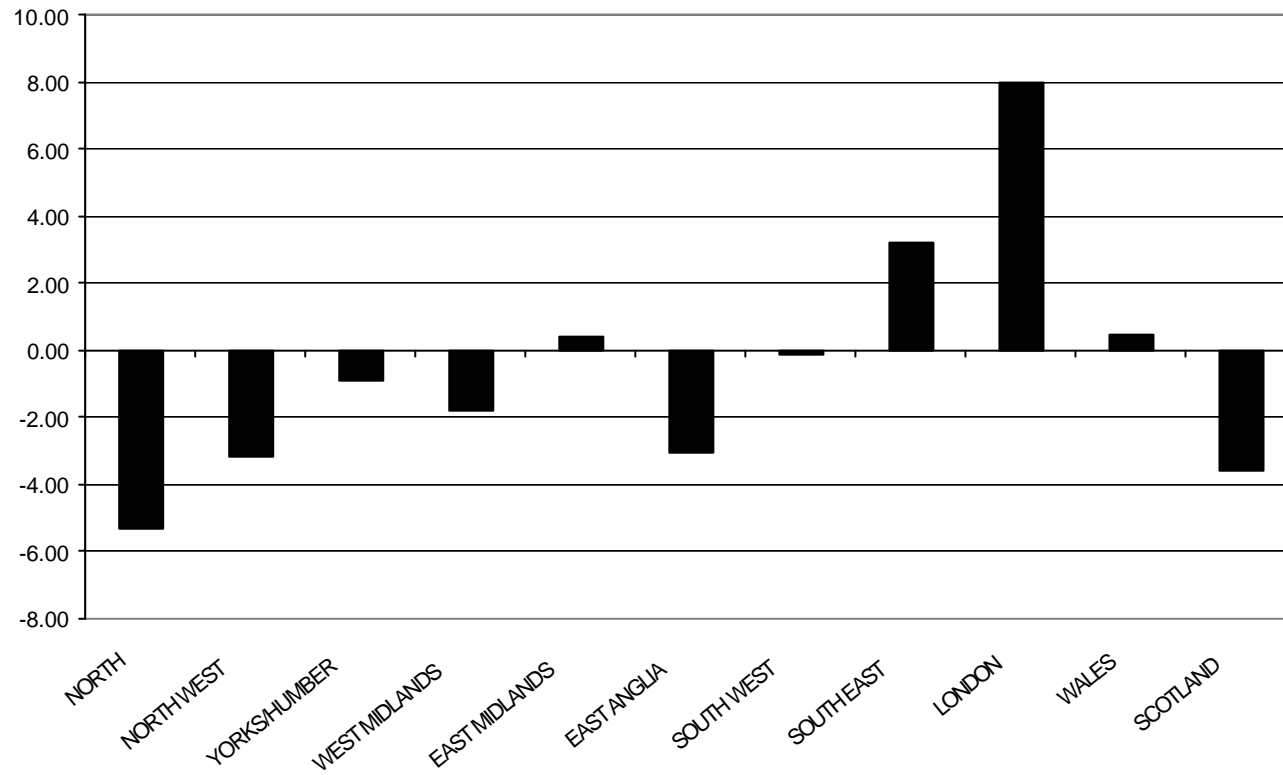


Figure 6 Leisure courses, NCDS, 1991 to 2000: deviation from the national average



**Table 1 Mean point scores at Year 11 GCSE, 2000**

North East	35.3
North West	36.8
Yorkshire and Humberside	35.1
Wales	34.9
West Midlands	37.1
East Midlands	37.7
South West	40.4
East	39.6
South East	40.8
London	39.3
<b>Inner London</b>	<b>37.2</b>
<b>Outer London</b>	<b>40.3</b>

Source: Payne, 2001.

**Table 2 Percentage of students who were in the bottom third on their GCSE results who stayed in full-time education**

North East	39
North West	46
Yorkshire and Humberside	42
Wales	46
West Midlands	44
East Midlands	38
South West	47
East	46
South East	47
London	59

Source: YCS 9 and 10 combined (1998 and 2000): Payne 2001

**Table 3 Economically active adults 2000: percentage qualified to NQF level 3 or 4**

	Level 3 or above	Level 4 or above
North East	41	21
North West	47	25
Yorkshire and Humberside	45	24
East Midlands	43	24
West Midlands	43	25
East	44	25
London	52	35
South East	50	30
South West	46	27
Wales	39	22
Scotland	47	26

Source: ONS.

**Table 4 Per cent employees with no qualifications: Learning and Skill Council Areas**

		%			%
1	The Black Country	23.8	26	London North	14.8
2	B'ham and Solihull	22.4	27	Norfolk	14.8
3	South Yorkshire	21.8	28	Cambridgeshire	14.3
4	Greater Merseyside	21.7	29	B'mouth, Dorset and Poole	14.3
5	County Durham	21.5	30	Herefordshire and Worcestershire	14.3
6	Tees Valley	21.2	31	Kent and Medway	14.1
7	London East	20.6	32	London West	13.9
8	Nottinghamshire	20.6	33	Cumbria	13.9
9	Tyne and Wear	20.3	34	Devon and Cornwall	13.8
10	Staffordshire	20.2	35	North Yorkshire	13.0
11	Greater Manchester	19.9	36	Hampshire and IoW	12.7
12	Suffolk	19.6	37	Wiltshire and Swindon	12.6
13	Derbyshire	19.4	38	London Central	12.4
14	Leicestershire	19.1	39	Berkshire	11.6
15	Northumberland	19.0	40	Sussex	11.6
16	Humberside	17.8	41	Somerset	11.3
17	West Yorkshire	17.8	42	West of England	11.2
18	Essex	17.7	43	Gloucestershire	11.2
19	Shropshire	17.1	44	MKOB	11.0
20	Coventry and Warwickshire	17.1	45	London South	10.7
21	Lancashire	17.1	46	Hertfordshire	9.9
22	Lincolnshire and Rutland	15.9	47	Surrey	8.2
23	Cheshire and Warrington	15.5			
24	Bedfordshire and Luton	15.3			
25	Northamptonshire	14.9			
				Unweighted Average	19.1



**Table 5 Per cent employees at NVQ4+: Learning and Skill Council Areas**

1	London Central	38.9	26	B'mouth, Dorset and Poole	21.1
2	Surrey	34.0	27	Greater Manchester	21.1
3	London South	32.8	28	Devon and Cornwall	20.5
4	MKOB	30.0	29	B'ham and Solihull	20.5
5	Berkshire	29.5	30	Nottinghamshire	20.1
6	West of England	28.9	31	Lincolnshire and Rutland	19.9
7	London West	28.3	32	Derbyshire	19.7
8	Hertfordshire	28.2	33	Cumbria	19.7
9	Cambridgeshire	27.5	34	Kent and Medway	19.3
10	Gloucestershire	27.4	35	Leicestershire	19.3
11	London North	26.8	36	Norfolk	18.9
12	Wiltshire and Swindon	26.7	37	Greater Merseyside	18.9
13	Cheshire and Warrington	26.3	38	Northamptonshire	18.8
14	North Yorkshire	26.2	39	Tyne and Wear	18.8
15	Sussex	25.3	40	County Durham	18.0
16	Coventry and Warwickshire	25.3	41	Staffordshire	17.8
17	Herefordshire and Worcestershire	24.5	42	South Yorkshire	17.6
18	Bedfordshire and Luton	24.1	43	Essex	17.4
19	Hampshire and IoW	22.9	44	Humberside	17.4
20	London East	21.9	45	Suffolk	17.3
21	Somerset	21.8	46	Tees Valley	16.9
22	Northumberland	21.7	47	The Black Country	15.8
23	West Yorkshire	21.6			
24	Lancashire	21.4			
25	Shropshire	21.3			
				Unweighted Average	26.5

**Table 6 Percentages of respondents in different GORs reporting some learning: NALS 1997-2001**

	N.East	N.West	Merseyside	Yorks & Humber	E.Mids	W.Mids	S.West	Eastern	London	S.East	Wales
	%	%	%	%	%	%	%	%	%	%	%
NALS 1997	64	71	68	74	71	74	73	80	72	78	71
NALS 2001	72	71	[69]	70	76	74	79	81	76	84	64

Base: all respondents aged under 70

n = 5532 (2001)

Source: I. La Valle and M. Blake, National Adult Learning Survey, 2001. DfES Research Report 321.

**Table 7 NIACE Surveys: % current/recent learners by region\***

	1990	1996	1999	2001
Greater London	40	44	46	52
South East	40	38	42	47
South West	43	37	37	53
East Anglia	39	43	48	52
East Midlands	37	50	48	45
West Midlands	46	35	34	47
Wales	37	37	43	39
North West	40	35	41	54
Yorks/Humberside	40	52	42	42
North	33	45	34	44
Scotland	22	38	33	36
Total sample	39	40	40	46

\*Current/recent and informal in 1990

Sources: F. Aldridge and A. Tuckett, *Winners and Losers in an Expanding System: The NIACE Survey on Adult Participation in Learning 2001*. NIACE, 2001.

N. Sargent, *The Learning Divide Revisited* NIACE, 2001.

**Table 8 NIACE: Percentage current/recent learners: regions by rank (1 = highest)**

	1990	1996	1999	2001
Greater London	3=	4	3	3=
South East	3=	6=	5=	5
South West	2	8=	8	2
East Anglia	7	5	1=	3=
East Midlands	8=	1	1=	7
West Midlands	1	10=	9=	5=
Wales	8=	8=	4	10
North West	3=	10=	7	1
Yorkshire and Humberside	3=	2	5=	9
North and North East	10	3	9=	8
Scotland	11	6=	11	11
Mean % for total sample	39	40	40	46
Range (% points between top and bottom)	24	15	15	18

**Table 9 Provision of off-the-job training by Government Office Region of employer**

	1999 %	2000 %	2001 %
North East	54	55	59
North West	52	63	51
Yorkshire and the Humber	53	63	60
East Midlands	56	55	51
West Midlands	57	56	59
Eastern	43	54	58
London	46	56	57
South East	54	63	53
South West	63	64	54
Total	52	59	55

Base/Coverage: all employers with 5 or more employees: n = 3431

Source: D. Spilsbury, *Learning and Training at Work 2001*. DfES Research Report 334 (2002).

**Table 10 Provision of on-the-job training by Government Office region of employer**

	1999 %	2000 %	2001 %
North East	91	85	84
North West	82	87	76
Yorkshire and the Humber	78	80	77
East Midlands	79	85	82
West Midlands	76	86	77
Eastern	83	83	82
London	75	81	73
South East	79	83	75
South West	72	84	83
Total	79	83	78

Base/Coverage: all employers with 5 or more employees: n = 3431

Source: D. Spilsbury, *Learning and Training at Work 2001*. DfES Research Report 334 (2002).

**Table 11 Vacancies, hard-to-fill vacancies, skill-shortage vacancies and skill gaps for the regions, Autumn 1999**

	Percentage of reported vacancies				Percentage of employers reporting vacancies			
	All vacancies	Hard-to-fill	Skill-shortage	Skill gaps	All vacancies	Hard-to-fill	Skill-shortage	Skill gaps
North East	3	3	3	3	25	10	4	5
North West	11	10	20	18	27	13	5	13
Yorks and Humber	8	9	10	9	29	15	6	10
East Midlands	7	6	7	8	29	14	7	8
West Midlands	10	10	9	10	30	14	7	11
East	11	12	11	11	35	18	8	10
London	20	18	22	18	36	18	10	17
South East	21	22	20	18	38	21	9	16
South West	9	11	10	9	32	18	7	9

Source: A. Felstead, Putting skills in their place: the regional pattern of work skills in Britain. Chapter 10 in K. Evans, P. Hodgkinson and L. Unwin (eds) *Working to Learn: Transforming learning in the workplace* (London: Kogan Page, 2002).

**Table 12 Qualification and training requirements by region, 2001**

Region	Required Qualification Index	Training Time Index
North East	2.21	2.13
North West	2.05	2.39
Yorkshire and the Humber	2.02	2.40
East Midlands	1.90	1.87
West Midlands	2.00	2.37
East	1.93	2.25
London	2.41	2.37
South East	2.30	2.20
South West	2.03	2.57
Wales	1.95	2.04
Scotland	2.05	2.08

Source: Felstead et al 2001, table 3.5

Note: The indices are derived as follows:

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 Required Qualification Index was calculated from the responses:

none = 0; level 1 = 1; level 2 = 2; level 3 = 3; and level 4 or above = 4.

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.



**Table 13 Total numbers in each region**

	1991	2000	Change (%)
North	514	607	18.1
North West	1041	1032	-0.9
Yorks/Humber	1000	936	-6.4
West Midlands	875	878	0.3
East Midlands	669	613	-8.4
East Anglia	364	438	20.3
South West	855	971	13.6
London/S East	2973	2823	-5.0
Wales	537	510	-5.0
Scotland	884	904	2.3
Total	9712	9712	0.0

**Table 14 Highest qualification overall by 2000 based on region of residence in 1991 and in 2000. Percentages. (Note this table compares distribution of qualifications in 2000, and how it would have looked had people not moved regions between 1991 and 2000).**

	No qualifications (in 2000)		Levels 1 & 2 (in 2000)		Levels 3 and above (in 2000)	
	Based on population in:		Based on population in:		Based on population in:	
	1991 %	2000 %	1991 %	2000 %	1991 %	2000 %
North	11.3	10.4	46.3	45.1	42.4	44.5
North West	8.9	9.5	41.3	41.6	49.8	48.9
Yorks/Humber	10.5	11.2	44.5	45.3	45.0	43.5
West Midlands	9.6	9.7	44.0	43.8	46.4	46.5
East Midlands	10.0	9.3	43.2	42.9	46.8	47.8
East Anglia	9.6	9.4	45.9	44.1	44.5	46.6
South West	7.0	6.9	43.6	41.8	49.4	51.3
London/S East	6.2	6.3	40.7	41.2	53.1	52.4
Wales	13.6	12.5	42.1	44.9	44.3	42.5
Scotland	13.8	13.5	35.0	33.6	51.2	52.9
Total	9.1	9.1	41.9	41.9	49.0	49.0

**Table 15 Likelihood of undertaking learning leading to a qualification: males**

Probit Model, Marginal Effects	Robust			
	dF/dx	Std. Err.	z	P> z
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.087	0.029	3.160	0.002
< 5 O levels	0.092	0.025	3.770	0.000
> 5 O levels	0.116	0.031	3.880	0.000
A levels	0.107	0.031	3.490	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	0.015	0.019	0.810	0.416
Middle Vocational	0.016	0.022	0.740	0.458
Upper Vocational	0.009	0.025	0.340	0.733
Degree	-0.026	0.027	-0.930	0.350
<b>Maths attainment at age 7</b>				
5th quintile (highest)	0.028	0.026	1.090	0.275
4th quintile	0.004	0.025	0.150	0.882
3rd quintile	0.019	0.024	0.770	0.443
2nd quintile	0.009	0.024	0.370	0.715
<b>Reading attainment at age 7</b>				
5th quintile (highest)	0.016	0.028	0.570	0.568
4th quintile	0.037	0.026	1.450	0.147
3rd quintile	0.024	0.025	1.000	0.318
2nd quintile	0.013	0.023	0.580	0.563
<b>School Type (base comprehensive)</b>				
Sec Modern	-0.005	0.020	-0.240	0.813
Grammar	-0.027	0.025	-1.050	0.292
Private	-0.035	0.031	-1.110	0.269
Other	-0.044	0.046	-0.910	0.364
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.009	0.005	1.650	0.099

**Table 15 (continued)**

Mother's yrs of edn	0.002	0.006	0.290	0.773
Father's edn missing	0.064	0.074	0.880	0.378
Mother's edn missing	0.004	0.077	0.050	0.960
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	-0.027	0.042	-0.640	0.525
Intermediate	-0.009	0.030	-0.300	0.764
Skilled non-manual	-0.065	0.032	-1.940	0.053
Skilled Manual	-0.009	0.027	-0.330	0.744
Semi-skilled non-manual	-0.090	0.068	-1.200	0.232
Semi-skilled manual	-0.051	0.031	-1.590	0.112
Bad Finances, 1969 or 1974	0.003	0.020	0.130	0.894
<b>Work Variables</b>				
Large Employer	0.050	0.019	2.730	0.006
Union Member	0.078	0.015	5.210	0.000
Private Sector	0.003	0.014	0.190	0.851
<b>Regions (base South West)</b>				
North	0.037	0.040	0.940	0.347
North West	0.051	0.034	1.550	0.122
Yorks/Humber	0.025	0.033	0.760	0.448
West Midlands	0.020	0.034	0.600	0.551
East Midlands	0.005	0.035	0.140	0.889
East Anglia	0.002	0.044	0.050	0.956
South East	0.011	0.028	0.390	0.695
London	-0.019	0.036	-0.530	0.597
Wales	0.067	0.041	1.700	0.089
Scotland	-0.012	0.034	-0.350	0.725
N	4489			
Pseudo R2	0.0212			

**Table 16 Likelihood of undertaking learning leading to a qualification: females**

Probit Model, Marginal Effects	Robust			
	dF/dx	Std. Err.	z	P> z
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.157	0.032	5.070	0.000
< 5 O levels	0.243	0.027	9.130	0.000
> 5 O levels	0.244	0.032	7.760	0.000
A levels	0.272	0.034	8.090	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	0.040	0.018	2.180	0.029
Middle Vocational	0.050	0.043	1.180	0.236
Upper Vocational	0.071	0.026	2.860	0.004
Degree	-0.075	0.029	-2.490	0.013
<b>Maths attainment at age 7</b>				
5th quintile (highest)	0.059	0.027	2.170	0.030
4th quintile	0.049	0.026	1.940	0.052
3rd quintile	0.052	0.025	2.090	0.037
2nd quintile	0.020	0.024	0.860	0.391
<b>Reading attainment at age 7</b>				
5th quintile (highest)	-0.057	0.026	-2.140	0.032
4th quintile	-0.038	0.025	-1.470	0.140
3rd quintile	-0.044	0.025	-1.720	0.085
2nd quintile	-0.051	0.025	-2.030	0.042
<b>School Type (base comprehensive)</b>				
Sec Modern	-0.008	0.020	-0.390	0.697
Grammar	0.020	0.025	0.820	0.414
Private	-0.026	0.033	-0.760	0.449
Other	-0.100	0.050	-1.840	0.065
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.004	0.005	0.820	0.413
Mother's yrs of edn	0.000	0.006	-0.020	0.982

**Table 16 (continued)**

Father's edn missing	0.045	0.070	0.650	0.518
Mother's edn missing	0.009	0.074	0.120	0.907
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	-0.036	0.043	-0.810	0.417
Intermediate	0.052	0.031	1.700	0.089
Skilled non-manual	0.086	0.037	2.350	0.019
Skilled Manual	0.036	0.027	1.330	0.182
Semi-skilled non-manual	-0.036	0.075	-0.470	0.636
Semi-skilled manual	-0.002	0.033	-0.050	0.960
Bad Finances, 1969 or 1974	0.035	0.020	1.780	0.075
<b>Work Variables</b>				
Large Employer	0.068	0.020	3.400	0.001
Union Member	0.059	0.018	3.390	0.001
Private Sector	-0.003	0.015	-0.220	0.828
<b>Regions (base South West)</b>				
North	0.013	0.038	0.350	0.724
North West	0.010	0.031	0.320	0.751
Yorks/Humber	0.027	0.032	0.850	0.393
West Midlands	-0.065	0.031	-2.030	0.042
East Midlands	-0.018	0.035	-0.500	0.615
East Anglia	-0.121	0.036	-2.990	0.003
South East	-0.042	0.026	-1.590	0.112
London	-0.096	0.032	-2.850	0.004
Wales	-0.052	0.035	-1.430	0.152
Scotland	-0.079	0.031	-2.460	0.014
N	4882			
Pseudo R2	0.0453			

**Table 17 Likelihood of undertaking work-related training: males**

<b>Probit Model, Marginal Effects</b>	<b>Robust</b>			
	<b>dF/dx</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt; z </b>
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.105	0.030	3.560	0.000
< 5 O levels	0.147	0.027	5.530	0.000
> 5 O levels	0.200	0.032	6.250	0.000
A levels	0.265	0.032	8.150	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	0.018	0.021	0.880	0.379
Middle Vocational	0.093	0.024	3.880	0.000
Upper Vocational	0.058	0.028	2.130	0.033
Degree	-0.035	0.029	-1.180	0.240
<b>Maths attainment at age 7</b>				
5th quintile (highest)	0.054	0.028	1.930	0.053
4th quintile	0.024	0.027	0.890	0.372
3rd quintile	0.013	0.026	0.510	0.607
2nd quintile	0.007	0.025	0.280	0.779
<b>Reading attainment at age 7</b>				
5th quintile (highest)	0.008	0.030	0.260	0.799
4th quintile	-0.004	0.027	-0.130	0.893
3rd quintile	-0.016	0.026	-0.620	0.533
2nd quintile	-0.038	0.024	-1.570	0.116
<b>School Type (base comprehensive)</b>				
Sec Modern	0.001	0.021	0.030	0.975
Grammar	0.011	0.028	0.410	0.684
Private	-0.035	0.034	-1.020	0.307
Other	0.056	0.053	1.090	0.277
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.003	0.006	0.430	0.664
Mother's yrs of edn	-0.006	0.007	-0.930	0.350

**Table 17 (continued)**

Father's edn missing	0.001	0.078	0.010	0.989
Mother's edn missing	-0.053	0.080	-0.660	0.509
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	-0.040	0.046	-0.860	0.389
Intermediate	-0.021	0.032	-0.650	0.513
Skilled non-manual	-0.004	0.037	-0.120	0.905
Skilled Manual	-0.014	0.029	-0.470	0.638
Semi-skilled non-manual	0.082	0.087	0.970	0.332
Semi-skilled manual	-0.031	0.035	-0.880	0.377
Bad Finances, 1969 or 1974	-0.015	0.021	-0.700	0.487
<b>Work Variables</b>				
Large Employer	0.132	0.020	6.720	0.000
Union Member	0.142	0.016	8.890	0.000
Private Sector	0.062	0.015	4.170	0.000
<b>Regions (base South West)</b>				
North	0.015	0.043	0.360	0.719
North West	0.022	0.035	0.650	0.515
Yorks/Humber	-0.007	0.035	-0.210	0.830
West Midlands	0.024	0.036	0.660	0.507
East Midlands	0.025	0.038	0.680	0.499
East Anglia	0.045	0.048	0.940	0.347
South East	0.083	0.030	2.760	0.006
London	0.013	0.040	0.320	0.747
Wales	0.039	0.042	0.940	0.347
Scotland	0.027	0.037	0.730	0.464
N	4488			
Pseudo R2	0.0603			



**Table 18 Likelihood of undertaking work-related training: females**

Probit Model, Marginal Effects	Robust			
	dF/dx	Std. Err.	z	P> z
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.079	0.030	2.770	0.006
< 5 O levels	0.142	0.025	5.830	0.000
> 5 O levels	0.204	0.031	6.900	0.000
A levels	0.163	0.033	5.230	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	-0.012	0.016	-0.710	0.479
Middle Vocational	-0.005	0.037	-0.150	0.883
Upper Vocational	0.088	0.024	3.860	0.000
Degree	-0.039	0.026	-1.440	0.150
<b>Maths attainment at age 7</b>				
5th quintile (highest)	0.045	0.026	1.820	0.068
4th quintile	0.060	0.024	2.530	0.012
3rd quintile	0.063	0.024	2.730	0.006
2nd quintile	0.033	0.023	1.470	0.142
<b>Reading attainment at age 7</b>				
5th quintile (highest)	-0.066	0.022	-2.820	0.005
4th quintile	-0.053	0.022	-2.340	0.019
3rd quintile	-0.058	0.022	-2.550	0.011
2nd quintile	-0.051	0.022	-2.260	0.024
<b>School Type (base comprehensive)</b>				
Sec Modern	0.002	0.018	0.140	0.892
Grammar	0.050	0.024	2.210	0.027
Private	0.020	0.031	0.640	0.520
Other	-0.111	0.040	-2.270	0.023
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.000	0.005	0.070	0.948
Mother's yrs of edn	0.005	0.005	0.960	0.338

**Table 18 (continued)**

Father's edn missing	0.012	0.061	0.200	0.844
Mother's edn missing	0.065	0.069	0.960	0.335
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	-0.008	0.040	-0.200	0.840
Intermediate	-0.018	0.027	-0.650	0.517
Skilled non-manual	0.015	0.033	0.460	0.644
Skilled Manual	0.028	0.025	1.130	0.257
Semi-skilled non-manual	0.040	0.074	0.550	0.580
Semi-skilled manual	0.052	0.032	1.670	0.095
Bad Finances, 1969 or 1974	0.052	0.019	2.890	0.004
<b>Work Variables</b>				
Large Employer	0.072	0.019	3.980	0.000
Union Member	0.170	0.017	10.590	0.000
Private Sector	-0.001	0.013	-0.040	0.966
<b>Regions (base South West)</b>				
North	-0.034	0.033	-1.000	0.319
North West	-0.026	0.027	-0.930	0.352
Yorks/Humber	-0.036	0.027	-1.270	0.204
West Midlands	-0.043	0.028	-1.460	0.145
East Midlands	-0.045	0.030	-1.430	0.152
East Anglia	0.011	0.039	0.290	0.772
South East	-0.010	0.024	-0.400	0.687
London	-0.008	0.031	-0.270	0.790
Wales	-0.048	0.031	-1.450	0.147
Scotland	-0.029	0.029	-0.990	0.322
N	4880			
Pseudo R2	0.062			

**Table 19 Likelihood of undertaking leisure courses: males**

<b>Probit Model, Marginal Effects</b>	<b>Robust</b>			
	<b>dF/dx</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt; z </b>
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.038	0.026	1.500	0.135
< 5 O levels	0.090	0.024	3.950	0.000
> 5 O levels	0.149	0.031	5.230	0.000
A levels	0.197	0.032	6.770	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	0.019	0.017	1.110	0.269
Middle Vocational	0.019	0.020	0.980	0.327
Upper Vocational	0.032	0.023	1.430	0.151
Degree	0.029	0.025	1.230	0.219
<b>Maths attainment at age 7</b>				
5th quintile (highest)	-0.028	0.020	-1.320	0.187
4th quintile	-0.054	0.019	-2.680	0.007
3rd quintile	-0.047	0.018	-2.440	0.015
2nd quintile	-0.050	0.018	-2.610	0.009
<b>Reading attainment at age 7</b>				
5th quintile (highest)	0.045	0.025	1.850	0.065
4th quintile	0.001	0.022	0.060	0.950
3rd quintile	0.035	0.022	1.630	0.104
2nd quintile	0.039	0.021	1.950	0.051
<b>School Type (base comprehensive)</b>				
Sec Modern	0.012	0.018	0.700	0.486
Grammar	-0.016	0.021	-0.740	0.460
Private	0.004	0.027	0.140	0.885
Other	0.073	0.047	1.660	0.096
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.001	0.005	0.120	0.903
Mother's yrs of edn	0.009	0.005	1.870	0.062

**Table 19 (continued)**

Father's edn missing	0.010	0.062	0.170	0.868
Mother's edn missing	0.143	0.074	2.080	0.038
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	0.027	0.042	0.690	0.493
Intermediate	0.036	0.029	1.310	0.190
Skilled non-manual	0.054	0.034	1.680	0.094
Skilled Manual	0.037	0.025	1.480	0.140
Semi-skilled non-manual	0.110	0.085	1.450	0.147
Semi-skilled manual	0.020	0.032	0.660	0.512
Bad Finances, 1969 or 1974	0.013	0.018	0.740	0.462
<b>Work Variables</b>				
Large Employer	-0.009	0.015	-0.590	0.554
Union Member	0.022	0.013	1.720	0.086
Private Sector	-0.015	0.012	-1.260	0.207
<b>Regions (base South West)</b>				
North	-0.023	0.031	-0.710	0.475
North West	-0.008	0.027	-0.300	0.768
Yorks/Humber	0.003	0.028	0.120	0.903
West Midlands	-0.003	0.028	-0.100	0.918
East Midlands	0.040	0.032	1.320	0.188
East Anglia	-0.037	0.035	-0.980	0.326
South East	0.016	0.024	0.670	0.502
London	0.027	0.033	0.850	0.394
Wales	0.017	0.034	0.520	0.606
Scotland	-0.041	0.026	-1.450	0.148
N	4487			
Pseudo R2	0.0385			

**Table 20 Likelihood of undertaking leisure courses: females**

<b>Probit Model, Marginal Effects</b>	<b>Robust</b>			
	<b>dF/dx</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt; z </b>
<b>Highest School Qualification (base none)</b>				
CSE gds 2-5	0.132	0.032	4.300	0.000
< 5 O levels	0.150	0.027	5.680	0.000
> 5 O levels	0.224	0.033	7.140	0.000
A levels	0.296	0.035	8.830	0.000
<b>Highest Post-School Qualification (base none)</b>				
Lower Vocational	0.063	0.018	3.650	0.000
Middle Vocational	0.129	0.043	3.180	0.001
Upper Vocational	0.049	0.024	2.120	0.034
Degree	0.055	0.030	1.880	0.059
<b>Maths attainment at age 7</b>				
5th quintile (highest)	-0.019	0.024	-0.810	0.420
4th quintile	-0.028	0.022	-1.240	0.214
3rd quintile	0.002	0.022	0.100	0.921
2nd quintile	-0.021	0.022	-0.970	0.333
<b>Reading attainment at age 7</b>				
5th quintile (highest)	0.004	0.025	0.150	0.880
4th quintile	0.043	0.025	1.780	0.075
3rd quintile	0.003	0.024	0.130	0.898
2nd quintile	0.016	0.025	0.670	0.500
<b>School Type (base comprehensive)</b>				
Sec Modern	0.017	0.019	0.920	0.358
Grammar	0.037	0.023	1.620	0.104
Private	0.079	0.033	2.490	0.013
Other	-0.077	0.049	-1.430	0.152
<b>Parents Yrs of education</b>				
Father's yrs of edn	0.010	0.005	2.060	0.039
Mother's yrs of edn	0.002	0.005	0.350	0.726

**Table 20 (continued)**

Father's edn missing	0.123	0.066	1.930	0.054
Mother's edn missing	-0.014	0.066	-0.220	0.829
<b>Father's Social Class, 1974 (base unskilled)</b>				
Professional	-0.068	0.035	-1.800	0.071
Intermediate	-0.020	0.027	-0.730	0.466
Skilled non-manual	-0.036	0.031	-1.120	0.263
Skilled Manual	-0.021	0.024	-0.890	0.375
Semi-skilled non-manual	-0.081	0.063	-1.160	0.247
Semi-skilled manual	-0.022	0.030	-0.750	0.455
Bad Finances, 1969 or 1974	-0.006	0.019	-0.320	0.752
<b>Work Variables</b>				
Large Employer	-0.014	0.018	-0.790	0.428
Union Member	0.021	0.016	1.290	0.198
Private Sector	-0.019	0.014	-1.360	0.174
<b>Regions (base South West)</b>				
North	-0.022	0.036	-0.600	0.547
North West	-0.023	0.029	-0.800	0.427
Yorks/Humber	0.033	0.031	1.080	0.279
West Midlands	0.009	0.032	0.290	0.773
East Midlands	0.012	0.035	0.340	0.730
East Anglia	-0.005	0.040	-0.130	0.898
South East	0.049	0.027	1.890	0.059
London	0.086	0.036	2.510	0.012
Wales	0.045	0.037	1.230	0.218
Scotland	-0.024	0.031	-0.760	0.447
N	4879			
Pseudo R2	0.0598			

**Table 21 Proportions of employees receiving any training by government office region**

Region	No training		Some training		Total
	N	%	N	%	
East	922	38.2	1493	61.8	2414
East Midlands	987	41.0	1420	59.0	2407
London	1034	37.5	1719	62.4	2754
North East	510	35.1	943.7	64.9	1453
North West	1340	41.1	1924	58.9	3264
Scotland	1156	40.0	1736	60.0	2892
South East	1736	41.7	2428	58.3	4164
South West	968	41.5	1365	58.5	2333
Wales	488	40.6	713.8	59.4	1202
West Midlands	1222	43.3	1597	56.7	2819
Yorks/Humber	990	43.3	1296	56.7	2286
	11353	40.6	16636	59.4	27988

**Table 22 Number of days of training received by employees broken down by government office region**

Region	Amounts of training received						Total
	No training	Less than one day	1 to less than 2 days	2 to less than 5 days	5 to less than 10 days	10 days or more	
East	922	246	311	430	211	295	241 4
East Midlands	987	254	300	477	190	199	240 7
London	1034	236	402	581	301	200	275 4
North East	510	138	188	299	146	172	145 3
North West	1340	314	405	602	301	302	326 4
Scotland	1156	256	430	591	237	222	289 2
South East	1736	338	557	820	382	330	416 4
South West	968	247	346	411	182	179	233 3
Wales	488	99	152	222	121	119	120 2
West Midlands	1222	255	330	517	261	234	281 9
Yorks/Humber	990	218	290	412	166	210	228 6
All Regions	11353	2603	3710	5364	2497	2463	27988



**Table 23 Regression analysis of effects of region on probability of receiving training**

Survey probit Regression: Dependent Variable whether employee received any training in previous 12 months

	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt; t </b>	
Constant	0.210	0.048	4.390	0.000	***
<b>Region (Government Office Region, base South East)</b>					
Eastern	0.091	0.089	1.020	0.307	
East Midlands	0.018	0.082	0.220	0.829	
London	0.107	0.080	1.350	0.178	
North East	0.174	0.089	1.960	0.050	**
North West	0.016	0.075	0.220	0.827	
Scotland	0.045	0.075	0.600	0.552	
South West	0.005	0.078	0.070	0.944	
Wales	0.028	0.100	0.280	0.778	
West Midlands	-0.042	0.081	-0.510	0.608	
Yorks/Humber	-0.041	0.084	-0.490	0.624	
N	28010				

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 24 Likelihood of receiving any training: effects of worker characteristics**

Surveyprobit Regression: Dependent Variable whether employee received any training in previous 12 months

	Coef.	Std. Err.	t	P> t
Constant	-0.204	0.095	-2.140	0.032 **
Female	0.016	0.032	0.480	0.632
<b>Age Group (base, less than 20)</b>				
Age 20-24	-0.132	0.074	-1.770	0.077 *
Age 25-29	-0.203	0.074	-2.740	0.006 ***
Age 30-39	-0.158	0.071	-2.240	0.025 **
Age 40-49	-0.193	0.075	-2.590	0.010 ***
Age 50-59	-0.260	0.077	-3.400	0.001 ***
Age 60 or more	-0.574	0.098	-5.870	0.000 ***
<b>Educational Qualifications (base, none)</b>				
CSE or equivalent	0.052	0.052	1.000	0.317
O level or equivalent	0.221	0.036	6.210	0.000 ***
A level or equivalent	0.284	0.048	5.880	0.000 ***
Degree or equivalent	0.373	0.049	7.680	0.000 ***
Postgrad or equivalent	0.352	0.067	5.250	0.000 ***
Vocational Qualification	0.149	0.025	6.000	0.000 ***
<b>Occupational Group (base, operative)</b>				
Manager/Senior Admin	0.844	0.063	13.350	0.000 ***
Professional	0.781	0.074	10.540	0.000 ***
Assoc Prof/Technical	0.737	0.064	11.440	0.000 ***
Clerical & Secretarial	0.605	0.060	10.080	0.000 ***
Craft/Skilled Service	-0.029	0.067	-0.430	0.668
Personal/Protective	0.795	0.063	12.600	0.000 ***
Sales	0.765	0.072	10.670	0.000 ***
Other Occupation	0.181	0.058	3.090	0.002 ***

**Table 24 (continued)**

<b>Total Length of Time Employed at Workplace (base, less than one year)</b>				
One to less than two years	0.019	0.044	0.430	0.669
Two to less than five years	-0.180	0.038	-4.730	0.000 ***
Five to less than ten years	-0.277	0.044	-6.240	0.000 ***
Ten years or more	-0.239	0.044	-5.480	0.000 ***
<b>Contract Type (base, Permanent)</b>				
Temporary Contract	-0.274	0.075	-3.640	0.000 ***
Fixed Term Contract	-0.130	0.065	-2.000	0.046 **
<i>Other Worker Characteristics</i>				
Part-time Worker	-0.278	0.037	-7.560	0.000 ***
Union/Staff Assoc Member	0.334	0.033	10.030	0.000 ***
<b>Region (Government Office Region, base South East)</b>				
Eastern	0.187	0.080	2.340	0.019 **
East Midlands	0.094	0.080	1.170	0.241
London	-0.055	0.075	-0.730	0.465
North East	0.172	0.076	2.270	0.023 **
North West	0.030	0.073	0.410	0.680
Scotland	0.030	0.063	0.480	0.632
South West	0.053	0.071	0.750	0.456
Wales	-0.006	0.092	-0.060	0.949
West Midlands	-0.021	0.071	-0.300	0.761
Yorks/Humber	-0.032	0.080	-0.400	0.692
N	25,763			

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 25 Likelihood of receiving any training: effects of workplace characteristics**

Survey probit Regression: Dependent Variable whether employee received any training in previous 12 months

	Coef.	Std. Err.	t	P> t
Constant	-0.645	0.084	-7.690	0.000 ***
<b>Establishment Size (base 10 to 24 Employees)</b>				
25 to 49 Employees	-0.071	0.067	-1.070	0.284
50 to 99 Employees	0.102	0.067	1.530	0.127
100 to 199 Employees	0.025	0.065	0.380	0.702
200 to 499 Employees	0.062	0.067	0.920	0.358
500 + Employees	0.160	0.069	2.330	0.020 **
Part of Larger Organisation	0.343	0.050	6.850	0.000 ***
<b>Industrial Sector (base, manufacturing)</b>				
Electricity, Gas, Water	0.925	0.090	10.230	0.000 ***
Construction	0.335	0.095	3.530	0.000 ***
Wholesale/Retail	0.298	0.059	5.040	0.000 ***
Hotels/Restaurants	0.470	0.082	5.760	0.000 ***
Transport/Communication	0.091	0.080	1.130	0.259
Financial Services	0.666	0.086	7.780	0.000 ***
Other Business Services	0.434	0.082	5.310	0.000 ***
Public Administration	0.849	0.071	11.910	0.000 ***
Education	0.442	0.067	6.610	0.000 ***
Health	0.609	0.062	9.880	0.000 ***
Other Community Services	0.245	0.096	2.550	0.011 **
<b>Some Other Workplace Characteristics</b>				
Presence of Personnel Specialist	0.226	0.051	4.440	0.000 ***
Investor in People	0.094	0.038	2.480	0.013 **

**Table 25 (continued)****Government Office Region (base, South East)**

Eastern	0.070	0.076	0.910	0.363
East Midlands	-0.004	0.077	-0.050	0.962
London	0.011	0.067	0.170	0.864
North East	0.099	0.083	1.200	0.230
North West	0.023	0.077	0.290	0.770
Scotland	-0.059	0.068	-0.870	0.382
South West	0.048	0.066	0.720	0.473
Wales	-0.094	0.104	-0.900	0.369
West Midlands	-0.005	0.070	-0.070	0.947
Yorks/Humber	-0.020	0.067	-0.290	0.769
N	27175			

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 26 Likelihood of receiving any training: effects of worker and workplace characteristics**

Survey probit Regression: Dependent Variable whether employee received any training in previous 12 months

	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt; t </b>
Constant	-0.595	0.115	-5.170	0.000 ***
Female	-0.012	0.034	-0.340	0.736
<b>Age Group (base, less than 20)</b>				
Age 20-24	-0.134	0.076	-1.760	0.078 *
Age 25-29	-0.222	0.075	-2.970	0.003 ***
Age 30-39	-0.196	0.072	-2.740	0.006 ***
Age 40-49	-0.231	0.075	-3.060	0.002 ***
Age 50-59	-0.289	0.077	-3.750	0.000 ***
Age 60 or more	-0.563	0.097	-5.790	0.000 ***
<b>Educational Qualifications (base, none)</b>				
CSE or equivalent	0.059	0.055	1.080	0.282
O level or equivalent	0.182	0.036	5.000	0.000 ***
A level or equivalent	0.232	0.050	4.600	0.000 ***
Degree or equivalent	0.342	0.050	6.820	0.000 ***
Postgrad or equivalent	0.328	0.069	4.740	0.000 ***
Vocational Qualification	0.151	0.025	6.030	0.000 ***
<b>Occupational Group (base, operative)</b>				
Manager/Senior Admin	0.727	0.064	11.360	0.000 ***
Professional	0.670	0.078	8.620	0.000 ***
Assoc Prof/Technical	0.529	0.065	8.080	0.000 ***
Clerical & Secretarial	0.400	0.061	6.560	0.000 ***
Craft/Skilled Service	-0.043	0.066	-0.650	0.516
Personal/Protective	0.555	0.066	8.380	0.000 ***
Sales	0.615	0.074	8.280	0.000 ***
Other Occupation	0.029	0.059	0.490	0.625
<b>Total Length of Time Employed at Workplace (base, less than one year)</b>				
One to less than two years	0.014	0.046	0.310	0.755
Two to less than five years	-0.180	0.040	-4.540	0.000 ***
Five to less than ten years	-0.271	0.046	-5.870	0.000 ***
Ten years or more	-0.239	0.045	-5.360	0.000 ***
<b>Contract Type (base, Permanent)</b>				
Temporary Contract	-0.272	0.078	-3.470	0.001 ***
Fixed Term Contract	-0.171	0.067	-2.560	0.011 **
<b>Other Worker Characteristics</b>				
Part-time Worker	-0.303	0.038	-8.020	0.000 ***
Union/Staff Assoc Member	0.118	0.036	3.290	0.001 ***

**Table 26 (continued)**

<b>Establishment Size (base 10 to 24 Employees)</b>				
25 to 49 Employees	-0.058	0.074	-0.780	0.435
50 to 99 Employees	0.112	0.069	1.610	0.108
100 to 199 Employees	0.057	0.066	0.860	0.392
200 to 499 Employees	0.124	0.069	1.790	0.073 *
500 + Employees	0.175	0.072	2.440	0.015 **
Part of Larger Organisation	0.286	0.050	5.700	0.000 ***
<b>Industrial Sector (base, manufacturing)</b>				
Electricity, Gas, Water	0.674	0.101	6.670	0.000 ***
Construction	0.265	0.101	2.620	0.009 ***
Wholesale/Retail	0.133	0.068	1.950	0.051 *
Hotels/Restaurants	0.382	0.090	4.260	0.000 ***
Transport/Communication	0.074	0.074	1.000	0.318
Financial Services	0.368	0.094	3.910	0.000 ***
Other Business Services	0.126	0.078	1.620	0.105
Public Administration	0.590	0.068	8.670	0.000 ***
Education	0.203	0.074	2.740	0.006 ***
Health	0.456	0.070	6.500	0.000 ***
Other Community Services	0.171	0.099	1.720	0.085 *
<b>Some Other Workplace Characteristics</b>				
Presence of Personnel Specialist	0.168	0.051	3.280	0.001 ***
Investor in People	0.122	0.039	3.170	0.002 ***
<b>Region (Government Office Region, base South East)</b>				
Eastern	0.165	0.077	2.140	0.032 **
East Midlands	0.084	0.076	1.100	0.272
London	-0.093	0.068	-1.380	0.168
North East	0.153	0.083	1.840	0.066 *
North West	0.050	0.076	0.660	0.512
Scotland	-0.028	0.065	-0.430	0.670
South West	0.090	0.066	1.370	0.171
Wales	-0.061	0.105	-0.580	0.559
West Midlands	0.006	0.071	0.080	0.935
Yorks/Humber	-0.004	0.071	-0.060	0.956
N	25,013			

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 27 Amount of training: effects of region only**

Survey Ordered Probit Regression: Dependent Variable amount of training in previous 12 months

	Coef.	Std. Err.	t	P> t
<i>Region (Government Office Region, base South East)</i>				
Eastern	0.107	0.080	1.340	0.181
East Midlands	-0.006	0.067	-0.090	0.928
London	0.067	0.066	1.010	0.312
North East	0.171	0.082	2.100	0.036 **
North West	0.023	0.069	0.340	0.738
Scotland	0.009	0.065	0.130	0.894
South West	-0.036	0.067	-0.550	0.585
Wales	0.057	0.091	0.620	0.532
West Midlands	-0.024	0.073	-0.330	0.743
Yorks/Humber	-0.033	0.073	-0.450	0.654
N	28,010			

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%



**Table 28 Amount of training received: effects of worker and workplace characteristics**

Survey Ordered Probit Regression: Dependent Variable amount of training in previous 12 months

	Coef.	Std. Err.	t	P> t
Female	-0.062	0.027	-2.300	0.021 **
<b>Age Group (base, less than 20)</b>				
Age 20-24	-0.116	0.065	-1.790	0.074 *
Age 25-29	-0.144	0.064	-2.260	0.024 **
Age 30-39	-0.205	0.060	-3.400	0.001 ***
Age 40-49	-0.243	0.064	-3.810	0.000 ***
Age 50-59	-0.365	0.065	-5.600	0.000 ***
Age 60 or more	-0.595	0.089	-6.650	0.000 ***
<b>Educational Qualifications (base, none)</b>				
CSE or equivalent	0.030	0.053	0.570	0.569
O level or equivalent	0.087	0.036	2.390	0.017
A level or equivalent	0.144	0.045	3.220	0.001 ***
Degree or equivalent	0.211	0.044	4.800	0.000 ***
Postgrad or equivalent	0.150	0.052	2.860	0.004 ***
Vocational Qualification	0.161	0.022	7.180	0.000 ***
<b>Occupational Group (base, operative)</b>				
Manager/Senior Admin	0.729	0.060	12.170	0.000 ***
Professional	0.645	0.066	9.730	0.000 ***
Assoc Prof/Technical	0.586	0.061	9.660	0.000 ***
Clerical & Secretarial	0.383	0.055	6.950	0.000 ***
Craft/Skilled Service	0.056	0.065	0.860	0.390
Personal/Protective	0.639	0.064	9.960	0.000 ***
Sales	0.537	0.069	7.820	0.000 ***
Other Occupation	0.042	0.057	0.730	0.467

**Table 28 (continued)**

<b>Total Length of Time Employed at Workplace (base, less than one year)</b>				
One to less than two years	-0.036	0.033	-1.100	0.273
Two to less than five years	-0.195	0.033	-5.900	0.000 ***
Five to less than ten years	-0.273	0.038	-7.280	0.000 ***
Ten years or more	-0.262	0.039	-6.650	0.000 ***
<i>Contract Type (base, Permanent)</i>				
Temporary Contract	-0.245	0.068	-3.590	0.000 ***
Fixed Term Contract	-0.114	0.055	-2.070	0.039 **
<i>Other Worker Characteristics</i>				
Part-time Worker	-0.344	0.036	-9.460	0.000 ***
Union/Staff Assoc Member	0.124	0.028	4.490	0.000 ***
<b>Establishment Size (base 10 to 24 Employees)</b>				
25 to 49 Employees	-0.092	0.066	-1.380	0.168
50 to 99 Employees	0.041	0.062	0.670	0.504
100 to 199 Employees	-0.011	0.062	-0.180	0.858
200 to 499 Employees	0.048	0.064	0.740	0.459
500 + Employees	0.107	0.067	1.600	0.109
Part of Larger Organisation	0.220	0.044	5.040	0.000 ***
<b>Industrial Sector (base, manufacturing)</b>				
Electricity, Gas, Water	0.519	0.076	6.830	0.000 ***
Construction	0.124	0.088	1.410	0.159
Wholesale/Retail	-0.024	0.059	-0.410	0.685
Hotels/Restaurants	0.195	0.074	2.630	0.009 ***
Transport/Communication	0.048	0.060	0.810	0.416
Financial Services	0.335	0.079	4.250	0.000 ***
Other Business Services	0.110	0.071	1.550	0.122
Public Administration	0.465	0.057	8.150	0.000 ***
Education	0.089	0.061	1.470	0.143
Health	0.314	0.057	5.520	0.000 ***
Other Community Services	0.035	0.076	0.450	0.651

**Table 28 (continued)**

<b>Some Other Workplace Characteristics</b>				
Presence of Personnel Specialist	0.156	0.046	3.380	0.001 ***
Investor in People	0.094	0.031	3.040	0.002 ***
<b>Region (Government Office Region, base South East)</b>				
Eastern	0.142	0.067	2.120	0.034 **
East Midlands	0.047	0.061	0.770	0.440
London	-0.107	0.053	-2.030	0.043 **
North East	0.131	0.072	1.810	0.071 *
North West	0.045	0.061	0.740	0.459
Scotland	-0.059	0.055	-1.060	0.288
South West	0.026	0.056	0.470	0.642
Wales	-0.017	0.088	-0.200	0.845
West Midlands	-0.014	0.065	-0.220	0.828
Yorks/Humber	-0.018	0.060	-0.300	0.764
N	25,013			

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%