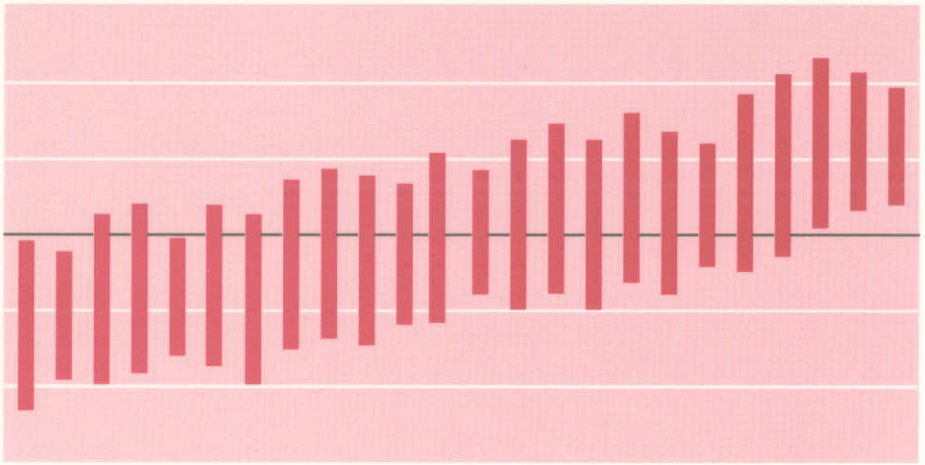
HITTING THE TARGETS



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A report for the
National Advisory Council for Education and Training Targets

July 1997

HITTING THE TARGETS

EVALUATION OF PROGRESS TOWARDS FOUNDATION TARGETS 1 AND 3 BY ENGLISH REGION

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GLOSSARY

ASCETT	Advisory Scottish Council for Education and Training Targets
CGLI	City & Guilds of London Institute
CID	County Indicator
EBP	Education Business Partnership
DfEE	Department for Education and Employment
ESF	European Social Fund
FEFC	Further Education Funding Council
FT	Foundation Target
GNVQ	General National Vocational Qualification
GO	Government Office
GOR	Government Office Region
HIE	Highlands and Islands Enterprise Board
IIP	Investors in People
ISR	Individualised Student Record
LEA	Local Education Authority
LFS	Labour Force Survey
MA	Modern Apprenticeship
NACETT	National Advisory Council for Education and Training Targets
NCER	National Consortium for Examination Results
NCVQ	National Council for Vocational Qualifications
NFER	National Foundation for Educational Research
NISVQ	National Information System for Vocational Qualifications
NVQ	National Vocational Qualifications
OFSTED	Office for Standards in Education
RHOMIS	Regional Head Office Management Information System
SCAA	School Curriculum and Assessment Authority
TDS	Trainee Database System
TEC	Training and Enterprise Council
TFW	Training for Work
YCS	Youth Cohort Study
YT	Youth Training
UCAS	Universities and Colleges Admissions Service

1. INTRODUCTION

1.1 Background

The National Targets for Education and Training have been adopted by the National Advisory Council for Education and Training Targets (NACETT) and endorsed by the Government and many other organisations. The targets aim to make Britain more competitive internationally by raising attainment levels in education and training to world-class standards by the year 2000. There are Foundation Targets for young people and Lifetime Targets for the workforce. This research has focused on Foundation Targets 1 and 3 (set out in the box below), concentrating on Government Office Regions in England.

Foundation Target 1
By the age of 19, 85 per cent of young people to achieve five GCSEs at Grade C or above, an Intermediate GNVQ or an NVQ Level 2.

Foundation Target 3
By age 21, 60 per cent of young people to achieve 2 GCE A-levels, an Advanced GNVQ or an NVQ Level 3.

The regional variation in the achievements of young people, which is the focus of this investigation, has to be seen in the context of national developments and trends, as well as any specific local factors which may contribute to regional performance. These national developments include changes in the opportunities open to, and the choices made by, young people and also in the increasing use of qualifications for target setting, in institutional planning and review.

Since its foundation in 1993, NACETT has been able to report consistent progress towards the original and (since 1995) the revised targets. However, in 1994 and 1995 the rate of progress slowed, particularly on Foundation Target 1 (FT1), making the targets more challenging. Over the same period, there have been a number of policy initiatives which should increase opportunities for young people to achieve qualifications at Levels 2 and 3 and thus contribute to the targets within the defined timescale. These include the introduction of new qualifications (GNVQ), and a new post-16 track (Modern Apprenticeships). Moreover, further innovations (National Traineeships, Dearing-based Diplomas and Certificates) could have an impact on

outcomes for the 19-21 age group before 2000, though the lead times on some of these initiatives means that the benefits may come after the current target date.

However, some commentators (Spours, 1995a; Payne, 1995) have suggested that trends already in place may outweigh the positive effect of these initiatives. For example, the steady growth in post-16 full-time participation rates may well have peaked and even be decreasing. Given the close relationship over the last few decades between trends in participation and performance rates, this is not encouraging, especially as full-time education has yielded by far the greatest proportion of post-16 qualifications. Another concern is about the 'long tail' of low or unqualified young people, which has persistently reduced the UK's overall ranking in many international comparisons. Here two issues have been raised. First, there has been discussion in the last two years about some polarisation in GCSE results at Year 11. While the proportion of the age group reaching Level 2 (5+ A*-C grades) by this route has continued to increase, albeit at a slower rate than before, there has been no corresponding decrease in the percentage getting no graded results; in fact, it appears that this has increased from seven per cent to over eight per cent since 1992. Secondly, a proportion of 16- and 17-year-olds – perhaps as high as one-fifth of the year group in some areas – are outside the education, training and employment framework, and have been designated as 'hard to reach' (Green and Ainley, 1995).

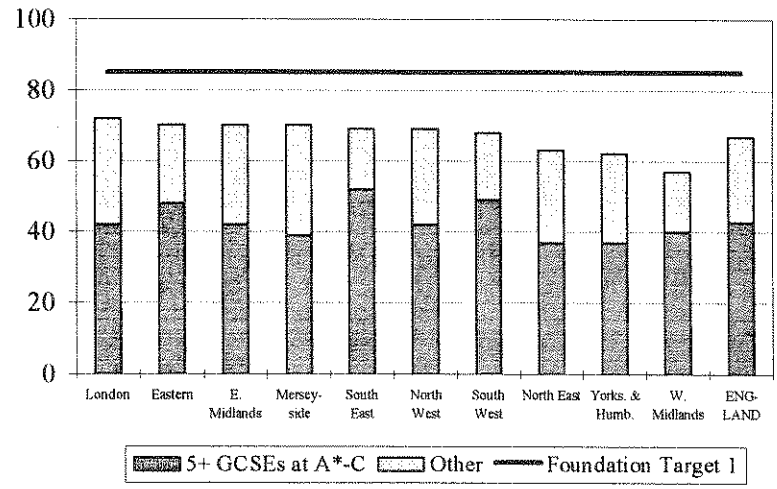
Since there is evidence of persistent regional differences in patterns of post-16 choice between the South (with its high proportions in full-time education) and the North, where a substantial proportion favour an early work-based choice, it is not easy to predict the effect of these underlying shifts on the dominant pattern of choice between and within regions. Another trend that seems to be emerging (Payne, 1995) is the blurring of boundaries between 'routes', as young people increasingly combine paid work with education and training in varying combinations, from age 14 onwards. This trend, while it may be neutral in its effect on performance, also makes it more difficult to predict future patterns of variation between regions.

While some education and training providers have willingly embraced a target-led approach to organisational planning and review, almost all provider groups are obliged to expend at least some time and effort on setting, working for and monitoring progress towards qualification-related targets. Thus monitoring and support by NACETT at national level have been mirrored by local target-related activities of many kinds. In addition to the local education and training targets defined by Training and Enterprise Councils and their partners through local forums (now targets task forces),

there has been a major shift towards institutional and organisational target setting, much of it focused on the achievement of qualifications. Institutional targets designed to raise attainment progressively for each cohort leaving an institution differ from the National Targets in a number of respects. They are concerned with the output of the institution (as set out, for example, in school performance tables) rather than with the achievements of all young people in an area, and may reflect current institutional priorities (such as increasing student numbers). However, where target setting is raising levels of attainment, it is probably contributing to the achievement of National Targets, even if this is not the institution's prime objective. Government plans to formalise target setting for schools and colleges may clarify the links between National Targets and institutional attainment targets.

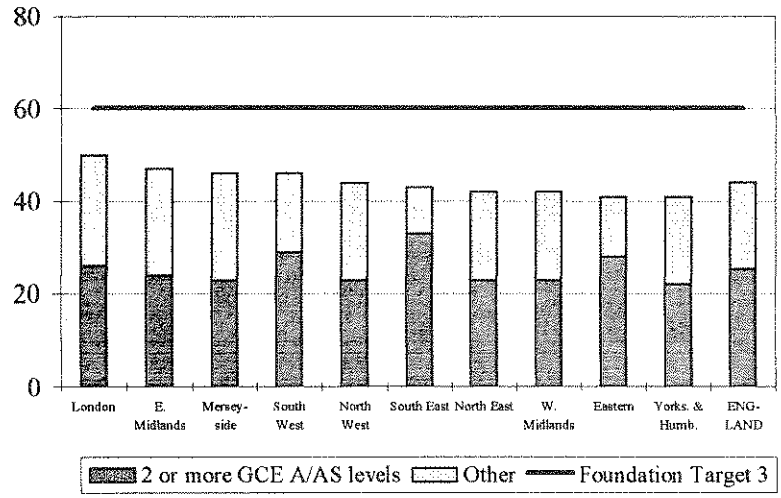
Against this complex background, the marked, and apparently increasing, differences in regional performance against FTs 1 and 3 become highly significant. Figures 1.1 and 1.2 show the regional figures for 1995 (NACETT, 1996b).

Figure 1.1: Percentages of 19-year-olds with Level 2 qualifications by English region (1995)



Source: Charts 31 and 32, Skills for 2000 *(NACETT, 1996b)*

Figure 1.2: Percentages of 21-year-olds with Level 3 qualifications by English Region (1995)



Source: Charts 51 and 52, Skills for 2000 *(NACETT, 1996b)*

The results show both overall differences in outcome and differences in the pattern of performance; that is, in the proportions of young people reaching, for example, FT1 through GCSE (mostly at 16) or through other – mainly vocational – qualifications (often after 16). Since the targets are national, it should not be assumed that every region could be expected to reach the target at the same time, or by the year 2000. Indeed, some of the initial guidance on targeting approaches at local level was to replicate the national rate of change required at local level, rather than the targets themselves. Nevertheless, FT1 will be very challenging indeed for the lowest-ranking regions.

1.2 Research Aims

The overall purpose of this project was to investigate the nature and pattern of these differences, between and within regions, and the range of factors (linked, for example, to provision, demography, economics and culture) associated with different performance levels, and to identify strategies that have proved effective in raising attainment levels in academic and vocational qualifications above what might have been expected. The results of the research are intended to inform policy and practice in Government Offices, LEAs and TECs, in their task of continually improving the quality and effective use of data on target-related attainment as well as developing and supporting local strategies for raising attainment.

Within this broad remit, three main aims were identified, linked to description, explanation and improvement:

- to clarify the spread of achievement across and within regions (for each target, over time, for different qualification routes, by TEC and LEA) (see Chapter 2);
- to identify the factors that influence variations in achievement (including factors related to the individual, the institution, and the local economy) (see Chapter 3);
- to identify effective strategies for raising attainment, and suggest how these might be disseminated more widely (see Chapter 4).

As part of the third aim, concerned with improving the system, the research expected to provide guidance on effective methods for monitoring progress towards the targets (Chapter 2).

1.3 Research Design

In order to attempt to meet the aims of the research, given the complex and multifaceted nature of the topic, two parallel strands of research were undertaken. The intention was that the two strands, although focusing on different areas of interest and using different methodologies, would inform each other and give a more rounded picture of the research area than any single methodology. The quantitative strand involved collating, consolidating and analysing data from relevant national data sources. The qualitative strand included interviews with national and regional personnel to identify and clarify issues which could contribute to the design of the analysis, and to pursue the implications of the analysis in four selected regions.

The **quantitative** strand of research had three stages:

1. **Evaluating data sources:** collecting relevant national datasets from various agencies and evaluating how far they could be used in further analysis.

2. **Data consolidation:** matching information from different datasets to determine their reliability and consistency.

3. **Mapping regional variations and identifying significant factors affecting performance.** Most of the work in this stage was based on the individual-level data from the Labour Force Survey (LFS), and involved sophisticated

statistical analysis to determine background factors affecting progress towards the targets, and details of regions significantly above or below expected levels.

A further stage of analysis had been envisaged, incorporating regional with national data in the regions shown to be unusually effective, as a result of the third stage described above. In practice, for both logistical and statistical reasons, all analysis was focused on national datasets (see Chapter 2).

The **qualitative** or fieldwork strand of research had two main stages:

1. **Identifying issues.** In this stage, strategic interviews were conducted with key national groups and some regional personnel, within an initial selection of four regions with varying levels of performance at FT1 and FT3. This stage aimed to clarify issues relating to the measurement of progress towards the targets, to investigate variations within regions in achievement and the factors affecting these, and to identify initiatives considered to be particularly effective in raising attainment, in both academic and vocational routes.

   The investigation was carried out through interviews, the majority by telephone and some face-to-face, of managers at Government Office (GO), TEC and LEA levels. Each GO education manager identified at least two TECs and two LEAs in their region which provided distinctive approaches to the achievement of targets.

   In practice these interviews, which took place between October and December 1996, provided much information about local practice, issues and priorities, and some useful leads on effective strategies for raising attainment. As a result, it was apparent that there were wide variations in outcomes and in commitment to FT1 and FT3 *within* GO regions; in fact, these variations seemed at least as wide as those between regions.

2. **Evaluating effective strategies.** A further round of visits and interviews was undertaken in the regions selected for the first stage, together with one additional 'low scoring' region. These investigations, which in most cases built on the earlier work, included further contacts at TEC level and visits to schools and colleges. These institutions were selected because they were perceived to be successful in raising attainment, particularly for groups of young people or local communities for whom achievement of target levels had been a major challenge. The inquiry focused on factors associated with enhanced performance in vocational or academic outcomes at area and institutional levels.

Appendix A summarises the fieldwork interviews and visits. In addition to the regional inquiries, interviews were carried out with representatives of relevant national bodies such as SCAA, DfEE, and major awarding bodies for vocational qualifications. The project also took account of related developments in target setting for schools, entry

procedures for higher education and the development of techniques for collecting and analysing data on qualifications.

1.4 Structure of the Report

This report is organised into chapters, reflecting the research aims outlined in Section 1.2 above. The focus of the four remaining chapters is given below.

Chapter 2: Measuring Progress: a national and regional overview

This chapter reviews the current situation, in terms of the relationships between local and national data collection, and the apparent variations between and within regions in progress rates. Investigation of existing national datasets is combined with statistical modelling to show what, if any, significant variations there are between regions. Recommendations are made for improving procedures and criteria for Foundation Target data management and analysis.

Chapter 3: Behind the Targets: investigating variations in achievement

Chapter 3 investigates statistically the relationships between background factors (at the individual and regional levels) and performance at FT1 and FT3 and considers projections for future performance. Variations between regions in the rate of progress towards the targets are also explored. A summary of interview-based research on factors affecting performance within a range of local contexts is given, identifying some major constraints and facilitating factors.

Chapter 4: Routes to success: strategies to improve progress

Results of interviews and fieldwork are summarised to indicate local, regional or institutional strategies which may lead to enhanced progression towards the targets, particularly in challenging circumstances where major improvements are needed. The roles of institutions, LEAs and TECs are reviewed, and the requirements of an effective local area strategy, involving all key partners, are considered.

Chapter 5: Recommendations and conclusions

The final chapter summarises the main findings of the research and suggests procedures that NACETT and its partners could use to improve all aspects of the drive towards meeting the Foundation Targets.

2. MEASURING PROGRESS: A NATIONAL AND REGIONAL OVERVIEW

This chapter describes the current situation, in terms of the relationships between national and local data collection, and the apparent variations between and within regions in progress rates.

The National Targets were launched in 1991 and updated in 1995. Their definition represented a new departure for the assessment of national performance, in that the targets were defined in terms of individuals' achievements over time. The two Foundation Targets relevant to this study, FT1 and FT3, were also defined in terms of age. Thus FT1 was to be attained by age 19 and FT3 by age 21. Each of these targets is now expressed as a percentage of the designated age group expected to reach it by the defined date – December 2000. Unlike most other performance indicators in education, which summarise the performance of school or college populations, the targets represent a measure of achievement levels for a whole age group – nationally, regionally or in some smaller local grouping. Furthermore, the targets differ from widely publicised annual performance indicators such as school or college performance tables in taking account of cumulative achievement. Thus young people may reach FT1 at any age up to 19; and FT3 at any age up to 21. Given the well-established pattern of differential achievement by 16, this approach allows for 'catching up' and indeed for reaching the target by different routes. One senior manager we talked to felt the definition was not generous enough, since it still formally excluded from FT1, in local analyses, the not inconsiderable number who were thought to attain FT1 between 19 and 21.[1] However, by including vocational as well as academic qualifications acquired at the relevant level over an extended period, the cumulative approach probably provides a more reliable measure of each age group's potential for further learning and employment than can be obtained from indicators confined to specific types of qualification obtained at 16 or 18.

The measurement implications of the approach, however, have proved challenging, since it is only in the last few years that those responsible for producing and collecting qualifications data have begun to bring together the qualifications obtained by an individual at different time points, based in different institutions and from different awarding bodies. A coherent national system for recording and analysing all qualifications achieved and linking individuals' achievements over time does not exist.

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[1] In practice, national analyses of Labour Force Survey data, carried out for NACETT, are based on achievements of 19- to 21-year-olds for FT1 and 21- to 23-year-olds for FT3, in order to provide more reliable measurements (NACETT, 1996b, Annex 2).

There are various databases which look at different parts of the system. Comprehensive data on cumulative vocational attainment is not available from existing systems. This has meant that different approaches have had to be taken at national and local levels. Nationally, it has been possible to use surveys to measure individuals' attainment at the target ages.

National analyses are based on the 'cohort' approach, which tracks all the qualifications obtained by individuals within a given age group over a period of time. With data of this kind it is possible to take account of the way different qualifications obtained by an individual contribute to the achievement of each target level. If they have obtained five or more GCSEs at A*-C grades and a vocational qualification at Level 2 or above, then these only count once towards FT1; in this way there is no risk of 'double counting'. It also ensures that all qualifications obtained by the individual up to the age of 19 can contribute to the total. For those who had not attained Level 2 at 16, Level 2 may well be achieved later through vocational qualifications. On the other hand, it has to be recognised that there is a time lag. If GCSE achievements at 16 and/or vocational qualifications at 17/18 are improving nationally year on year, it will take time for these improvements to flow through to the cumulative results for 19-year-olds.

Regions, through their participant TECs, monitor local progress towards targets. Locally, data on the flow of awards from various sources has been used. Over time, as data-collection systems have developed, they have been able to provide more regional and TEC-level data for target purposes. These changes should provide a more common basis for TEC comparisons. In this investigation, we found that regions and TECs were operating their own approaches to collecting data on the targets, though most followed broadly similar methodologies in line with DfEE guidance.

In the next part of this chapter, investigation of existing national datasets is combined with statistical modelling to show what, if any, significant variations there are between regions (Section 2.1). Section 2.2 reviews local approaches, outcomes and issues in order to illustrate the range of variation at the level of Government Office Regions (GORs) and between TECs within regions. At these local levels, the focus is on securing effective progress towards the targets within the local context. Recommendations are then made (Section 2.3) for improving procedures and criteria for National Target data management and analysis.

2.1 Analysis of National Data

From the outset, there has been a need for consistent and reliable national information to allow NACETT and other agencies to predict trends and patterns. In particular, there is concern about apparent regional variations in target achievement and a need to see how real these variations are and what factors may be contributing to them.

In this part of the chapter, therefore, we shall be looking at the available datasets relating to the targets, estimating the consistency and reliability with which they allow us to estimate progress towards the targets, and using sophisticated modelling techniques to determine the importance of regional variations.

2.1.1 Description of available datasets

From the start of the project it was judged to be necessary to make the best use of all available sources of relevant national data. The main difficulty was that these databases are all designed for different purposes, collect data in different ways, and do not all directly address the Foundation Targets. However, some insights into the underlying reasons behind differential performance between and within regions were expected to be derived from a detailed analysis of certain datasets.

The conference papers from the Statistics Users' Annual Conference (22/11/95): *Education and Training Statistics* are very relevant to the search for data sources. In particular, Allnut (1995) and Craggs (1995) gave good insights into the main sources of information relevant to this study, which appeared to be:

1. Labour Force Survey.
2. Youth Cohort Study.
3. DfEE database on GCSE and A-level examination performance by schools.
4. Individualised Student Record database held by the FEFC.
5. GNVQ student database.
6. National Information System on Vocational Qualifications (NISVQ) held by the DfEE.
7. Trainee Database System held by the DfEE.
8. NVQ Certificate Returns database held by the National Council for Vocational Qualifications (NCVQ).

9. Databases compiled by individual TECs.

10. OFSTED school inspection database.

11. Census information, by postcode area.

Not all of the above datasets were, in practice, found to be accessible and useful within the timescale of the project. The Youth Cohort Study (YCS) is an extensive dataset, but only one or two cohorts would have given information relevant to the project. There were also difficulties with obtaining access to sufficiently detailed data to be of value, and so the use of this dataset was not pursued.

The GNVQ student database currently holds only registrations rather than outcomes, and the National Information System on Vocational Qualifications (NISVQ) holds data on qualifications awarded rather than on individuals, as does the NCVQ database. The NISVQ contains data for the main awarding bodies only, and covers about 70 per cent of the NVQs.

OFSTED's school inspection database is a powerful tool for exploring school factors which affect performance. However, it would not have been possible to match this data to any other information during this project, so no attempt was made to access it directly. Findings from other work using this database and other studies on school effectiveness will be quoted in the course of this report.

Having described datasets which were not used in this study, we shall consider those to which access was obtained and on which some analysis was carried out. The Labour Force Survey (LFS) is a regular three-monthly survey which allows direct calculation of the levels achieved for Foundation Targets 1 and 3, and is the source of most of the current national and regional data on progress towards the targets. Individual-level data on a subset of relevant variables was obtained from the Data Archive at Essex University, for the last eight surveys which were available (March 1994 to February 1996).

The DfEE examination data (GCSE and A-level) gives exhaustive information on academic qualifications which is directly relevant to the targets. To ensure that an accurate picture is available for this sector, the data has been matched at the individual level by Bath University as part of the Schools Examination Results Analysis Project (SERAP) contract using data collected by the National Consortium for Examination Results (NCER). This database will be merged with GNVQ outcomes data via the

GNVQ student database in 1997, and the system as a whole has a vast potential for yielding important information about young people's achievement of qualifications via the academic and GNVQ routes. Information from the academic dataset was obtained from DfEE in the form of a spreadsheet, aggregated to the TEC level, with data on numbers achieving FT1 and FT3 in different cohorts from academic years 1991/2 to 1994/5.

The FEFC's Individual Student Record (ISR) database contains information about students at college achieving the targets, via both academic and vocational qualifications. A spreadsheet was obtained from FEFC, with data aggregated to LEAs or metropolitan counties, showing numbers achieving FT1 and FT3 in colleges in different cohorts. When the ISR becomes fully operational (for academic year 1996/7), it will contain information on prior academic attainment, and will be able to take into account the achievement of both academic and vocational qualifications in the same year.

The DfEE's Trainee Database System (TDS) contains individual records of participants in a number of TEC-delivered government training programmes, including Training for Work (TfW), Youth Training (YT) and Modern Apprenticeships (MA). It also includes responses to a questionnaire sent to a sample of participants after the completion of training. Unfortunately, it proved difficult to obtain access to this database within the timescale of the project, partly due to the size of the computer files involved. A small subset, relating to Modern Apprentices, was obtained at a late stage and some investigation of its usefulness was carried out. Detailed analysis of the attitudinal data contained within the full database may indicate factors affecting individual achievement in this sector.

Despite this failure to obtain individual-level data on qualifications achieved through the work-based training route, some information was acquired via the DfEE's Regional Head Office Management Information System (RHOMIS) database, in the form of a spreadsheet, aggregated to the TEC level once more, of NVQ and equivalent achievements via YT, MA and TfW for different cohorts. In addition, TEC 'performance indicator' data was obtained from the (GB. DfEE, 1997a) giving variables such as cost per NVQ and Investors in People (IIP) commitments for each TEC in England.

The census data on the socio-economic background of local areas was available as part of the LFS data, and could be aggregated to TEC or other regional levels. Each of the datasets used gives a partial picture of the current situation relative to the targets, but

none was complete in every aspect. We shall finish this section by highlighting the ways in which the datasets differed from each other, and the aspects which we were able to access which were complementary. The aspects considered are as follows:

1. *Level at which data is available.* In one case (LFS) we had individual data; in the others, it was aggregated to the TEC or LEA level.

2. *Whether the data was exhaustive or sampled.* Again, the LFS data was a sample, but the others were exhaustive (within their realm of definition).

3. *Whether the data was incremental or cumulative.* The LFS data told the cumulative story – whether an individual had FT1 or FT3 at that time. Other datasets were incremental, since they told us the numbers achieving the targets in a given time period. The DfEE academic database can in practice provide both types of information.

4. *The range of individuals covered by the dataset.* The LFS data related to all individuals of the relevant age group, but other datasets related only to subsets of young people.

5. *Geographical information.* The LFS data for Foundation Targets could only be allocated to counties and Government Office regions (latest three surveys) or to other broad regional groups (all eight surveys). Other datasets were defined by TECs or LEAs.

Table 2.1 gives a brief summary of the four main datasets used and how they relate to the above aspects.

Table 2.1: Overview of datasets used in further analysis

Dataset	**LFS**	**Academic**	**FEFC**	**YT/MA**
Level of information	Individual	TEC	LEA/ metropolitan county	TEC
Full data or sample	Sample	Full	Full	Full
Incremental or cumulative	Cumulative	Cumulative	Incremental	Incremental
Individuals covered	All	Academic route only	College only	YT or MA only
Geographical information	County/GOR or region	TEC	LEA/ metropolitan county	TEC

Note: The table refers to datasets as they were provided to the researchers for this project. All of the above datasets are actually compiled at the individual level.

2.1.2 Comparison of results from different datasets

The previous section has shown that the different datasets available for this research cover the field of interest, but each only in a partial fashion. It is important to see how far they are mutually consistent in what they show about the proportions of young people achieving FT1 and FT3 by different routes.

The best way to judge the validity and consistency of estimates made from different datasets is through a so-called *calibration* exercise. By this we mean attempting to estimate the same quantity from two different datasets and compare the results to judge the degree of mutual consistency. However, to do this successfully requires that we are comparing 'like with like', that is that the datasets refer to the same cohorts of pupils and that the outcomes are measured in the same way.

Although in principle it should have been possible to compare results from the LFS with the three other datasets (Academic, FEFC, and YT/MA), in practice two of these calibrations were not possible because of the difficulty of finding a common basis of calibration. The FEFC data showed individuals achieving the targets in a given academic year in colleges, but irrespective of age. Even restricting the LFS data to those in college at the time of the survey would have led to a serious underestimate, because many individuals will have left college before the results have been recorded.

The comparison between the LFS and the data on vocational qualifications via YT/MA was again difficult, because of the different ways in which the data was collected. LFS gave us numbers in specified cohorts who had accumulated FT1 or FT3 via the vocational route, whereas the RHOMIS data gave us numbers, irrespective of age, who gained the targets during a year. For these reasons neither of these datasets could be validly calibrated against LFS, and the only dataset on which a true 'like with like' comparison could be carried out was the academic one.

A comparison was carried out, based on young people in the appropriate age groups with FT1 or FT3 via academic qualifications in the academic year 1994/5. A fair degree of agreement was observed, with percentages achieving FT1 and FT3 of 51 per cent and 27 per cent from the LFS, compared with 44 per cent and 28 per cent from the Academic database.

From the LFS data it was also possible to estimate the incidence of 'double counting', i.e. individuals achieving FT1 or FT3 via both academic and vocational routes. It was

estimated that approximately 31 per cent of those with vocational FT1 also had academic FT1, or that about four per cent of those with academic FT1 also had vocational FT1. Overall, it was estimated that approximately 2.9 per cent of the population of 16- to 19-year-olds had achieved FT1 through both academic and vocational qualifications. The overlap between academic and vocational FT3 was found to be negligible.

More technical details of the work described in this section can be found in Appendix B.

To summarise the findings of this section:

- **There are serious difficulties in attempting to assess the reliability of one dataset by comparing its results with those of others** – it is hard to ensure that we are comparing 'like with like'.
- **There appear to be some inconsistencies between the LFS and other data sources**, but these are not as substantial as those seen in Scotland (ASCETT, 1996) (see also Section 2.3).
- **There is no compelling reason to reject the LFS as giving us a broad picture of the situation**, including different cohorts, different routes and different points in time.

2.1.3 Assessing variations between and within regions

One of NACETT's concerns which led to setting up this project was the perceived variation between regions (defined by GOR) in percentages achieving FT1 and FT3. A fundamental aim of the quantitative strand of the research was to answer the following questions:

- Are the perceived variations between GORs real or artefacts of the sampling used for the LFS?
- Are there significant regional variations at a lower level than GORs (e.g. counties)?
- To what extent can regional variations be explained by contextual information about individuals or regions?

To attempt to answer these questions requires data which can be analysed in sufficient detail to draw out the underlying features of what is happening both nationally and

regionally. It should be collected at the individual level, with all possibly relevant individual background measures acquired, and with information at the regional level included. The LFS data was the only dataset which met these criteria, but it was also necessary to use a suitably sophisticated analysis technique to extract the most meaning from the data.

The statistical analysis technique used for this part of the work was *logistic multilevel modelling*. Appendix C gives a detailed account of this analysis technique and how it was applied in this study, but here we shall just outline the main features which make it an essential tool for our analysis.

1. It models explicitly the relationships between the outcome variable of interest and a set of background or explanatory factors.

2. It models the hierarchical nature of the data – in our case, the fact that individuals are grouped into local areas, which are grouped into regions.

3. It allows for the possibility that the relationships between variables may vary from region to region.

4. It enables us to model the type of outcome relevant to this study, namely the probability of achieving a target. This is achieved by means of a *logistic transformation* (for further details see Appendix C).

Before going on to describe the results of such multilevel modelling, an important aspect of the available LFS data needs to be discussed. The variables available for defining the region within which each individual was located are rather limited – there is nothing available corresponding to institution, or even LEA or TEC in contrast to the local area data. The latest three surveys available contain two variables which give regional information: GOR and County, which is nested within GOR, so that these two variables give us a hierarchy of regional information. It is worth noting that the County of the West Midlands is one of five included in the GOR West Midlands and that the GOR London covers Greater London which includes Inner and Outer London. Future details are provided in Appendix C. GOR and County are not defined for the five earlier surveys, so that the only regional information available is given by the variable 'Region of usual residence'. This does not exactly correspond to GOR, which meant that we were unable to determine variations at a more detailed regional level when the full dataset was used. All analyses were therefore carried out twice, once using only the last three surveys with the detailed regional data, and once with all eight surveys but more limited regional information.

A number of different multilevel analyses were carried out, and detailed results are given in Appendix C. In this part of the report we shall merely summarise the findings of the analysis, in terms of the variations between regions in the probabilities of achieving FT1 and FT3.

- **There are no statistically significant differences between GORs.**
- **A few counties did show small but statistically significant differences.**
- **The variation between regions of usual residence was statistically significant for FT1 but not for FT3.**
- **Differences which do exist between regions are reduced by the inclusion of background variables in the model.**
- **For FT1, only three regions of usual residence showed results which were significantly different from what might have been expected given background factors.** These were: West Midlands (metropolitan county) and West Yorkshire (both below expectation), and South West (above expectation).

From the multilevel analysis, it is possible to define *residuals* for each county, which measure the amount by which each county area differs, positively or negatively, from the overall pattern of behaviour, once background variables have been taken into account. A small minority of counties did show residuals which were significant, either positive or negative, which suggests some other unmeasured factors are causing differences. In some cases, these could be related to findings from the qualitative strand of investigation, based on interviews relating to the same counties. The counties are listed in Table 2.2

Table 2.2: Counties with residuals significantly different from average

Significantly different	FT1	FT3
Above average	Devon	Devon
	Outer London	Cheshire
		South Yorkshire
		Oxfordshire
		Avon
Below average	West Midlands	West Midlands
	Staffordshire	Shropshire
	Suffolk	North Yorkshire

Source: NFER analysis of LFS data

Two counties show a consistent pattern for both targets: Devon showed above average performance and the (former) county of the West Midlands, comprising the seven LEAs of Wolverhampton, Walsall, Dudley, Sandwell, Birmingham, Solihull and Coventry, had results which were below average. There is some difficulty in commenting on the West Midlands result, since TEC evidence points to considerable variation within this large area. However five of the seven boroughs equate broadly to the five lowest-performing TECs on FT1. Comments at GO level on the lower-performing TECs, and at TEC level, point to the negative influence of a widespread and longstanding culture of low expectations. There were also specific factors at work in some areas. Since boys' GCSE performance is generally at a lower level than girls', changes in the gender balance over time could affect outcomes; the same is true of changes in the ethnic composition of an area, a topic of concern in one LEA. However, ethnic and gender factors had already been taken into account in the results shown in Table 2.2. There was particular concern about outcomes of training in one West Midlands TEC before the introduction of outcome-related funding (see page 49). More generally, lack of strategic planning for post-16 provision had affected attainment, with some colleges turning mainly to over-21s in order to meet their growth targets. By contrast, the above-average results for Devon are not readily explained by local managers at TEC and LEA level. Indeed, performance at FT1 was felt locally to be less than satisfactory. However, it was suggested that progression from FT1 to FT3 was relatively effective. One reason was that young people in rural areas often preferred to stay in full-time education at 16, rather than enter the labour market, not least because transport was provided. There had also been large increases in sixth-form provision in recent years. However, the interview evidence pointed to no clear factors to explain the above-average performance. Chapter 3 discusses in more detail the factors associated with levels of performance, as demonstrated in the statistical analysis and identified in interview evidence.

In later sections we shall look again in more detail at regional variations, both in terms of routes to achieving the targets and differential rates of change over time.

2.2 Measuring Progress at Regional and TEC Levels

2.2.1 The basis for measurement

In order to evaluate regional variations, it is important to clarify the various dimensions and components of the qualifications data on which progress towards the Foundation Targets is measured. These concern qualification types, routes taken by young people,

the age or stage at which qualifications are obtained, and the monitoring of trends over time. It was apparent from local inquiries that those responsible for collecting and analysing data had their own approaches to some aspects of the process, and differed in their views about the validity and significance of different elements.

Qualification types. Each of the Foundation Targets may be attained through one of three qualification types: five or more A*-C grades at GCSE, Intermediate GNVQ, NVQ Level 2 or other vocational qualifications at this level; and two or more GCE A-levels (or AS equivalents), Advanced GNVQ, NVQ Level 3 or other appropriate vocational qualifications for FT3. As long as the individual obtains the appropriate qualification to achieve the target level, then it is of no consequence which type of qualification is selected. However, most TECs find it valuable to disaggregate results by qualification type in order to evaluate the contribution made through each qualification route, and to assess how effort might most effectively be targeted in order to raise attainment levels.

In 1995, national figures (NACETT, 1996b) showed that GCSE performance, mainly at 16, was by far the most common route to FT1, although vocational qualifications contributed almost a third of the total figure. Some of the TECs visited for the research showed that local patterns for these breakdowns could vary considerably. Table 2.3 shows the results for two TECs in the West Midlands in 1995.

Table 2.3: Breakdown of FT1 by qualification type in two TECs

TEC A (1995) Qualification	**FT1 %**	**TEC B (1995) Qualification**	**FT1 %**
5+ A*-C GCSEs	28	5+ A*-C GCSEs	33.9
Intermediate GNVQ	4	Intermediate GNVQ	2.6
Level 2 vocational qualifications	20	Level 2 vocational qualifications	28.3
Total %	*52*	*Total %*	*64.8*
Qualification	**FT3 %**	**Qualification**	**FT3 %**
2+ A-levels or AS equivalent	14	2+ A-levels or AS equivalent	24
Advanced GNVQ	2	Advanced GNVQ and Other Level 3 vocational qualifications	14
Other Level 3 vocational qualifications	22		
Total %	*38*	*Total %*	*38*

Source: TEC data

Apart from some differences between TECs in the way qualifications were categorised, it can be seen that in TEC A performance through the academic route was relatively low, at both FT1 and FT3. However, whereas at FT1 the balance between the vocational and academic routes was fairly similar in the two TECs, at FT3 young people in TEC A area were much more likely than in TEC B to achieve the target through vocational qualifications.

Age/stage. National figures show that 41.1 per cent of the cohort reaching the age of 19 in 1996 had achieved FT1 in Year 11, at age 16 (in 1993). However, the contribution made at later ages was very important. For FT1, almost all of this post-16 contribution was coming from GNVQs, NVQs and other vocational qualifications by 1995, rather than from GCSEs, and Table 2.3 has shown the significance of this vocational element. By contrast, in a high-achieving area, such as one of the London TECs visited, almost half the cohort had reached FT1 at 16; the post-16 element, which was still substantial, then raised the total to just over 85 per cent, the target level for 2000.

Institutional routes. Closely related to the two previous dimensions is the issue of the type of education or training provider preparing young people for qualifications. Again, there are three main categories: school, college and work-based training. There is no simple match, however, between these categories and the three qualification types. This is important at local level because of the way it relates to data collection procedures. Qualifications obtained through TEC-funded youth training programmes are closely monitored by TECs themselves, giving them confidence about their records for private training providers and colleges acting as training providers. However, there has always been an issue about the collection of college qualifications data, which may cover all three qualification types and include 'double counting' of TEC-funded qualifications. In practice, TEC concerns about college-derived data were sometimes at a more basic level; managers were worried that colleges were not always recording all the qualifications relevant to the Foundation Targets that had actually been obtained.

2.2.2 Issues and developments at local level

Improving local data collection mechanisms. In order to fulfil their own objectives, TECs had developed procedures to meet local needs. Results from different TEC areas were therefore not always directly comparable. There have been continuing developments by national and regional bodies to improve and simplify data collection

procedures. This year, GNVQ data and data from the FEFC's Individual Student Records (ISR) for students at FE colleges will be centrally coordinated by the DfEE and the FEFC and made available to TECs, in addition to the data they are already accustomed to receive on GCSEs and A/AS-levels. There has also been work to clarify the guidelines further. This work built on existing initiatives at regional level. Thus some GORs had already adopted strategies to ensure comparability between TECs within the region. For example, the GO for the West Midlands had developed a common methodology for collecting Foundation Targets data, which was implemented by all the TECs in the region, and the GO was thus able to exercise a *'reasonably tight rein'* on Foundation Target data. They had set up a Targets Methodology Group, which was then split into two subgroups, one for TEC education managers looking at overall strategy, and the other for research and evaluation officers, mainly concerned with data collection and analysis. This had made it possible to reduce and even eliminate double counting.

TECs had also taken steps to improve particular aspects of local data collection. For example, one London TEC collected data directly from institutions and organisations such as schools, colleges, LEAs, HE providers, training providers and outreach centres, by writing to them in October or November enclosing an appropriate pro forma. These results were usually returned by January. In one West Midlands TEC, a programme of visits and discussions with colleges has considerably enhanced the range of qualifications recorded, following strong indications of under-recording, particularly of vocational qualifications. The result of this exercise has been to improve the FT3 outcome for 1996 by four percentage points. Another TEC had introduced service level agreements with colleges in order to speed up the returns. Some TEC managers expressed concern that the introduction of the ISR had not yet resolved well-rehearsed problems in the collection of qualifications data relevant to the Foundation Targets, since FEFC definitions and requirements – the major priority for college managers – differ in some respects from those needed for the targets.

While these problems will be significantly reduced with the introduction of new procedures, the success with which each region and its TECs have addressed their own data collection and analysis to meet the need of their targets strategy has influenced the impact of that strategy on all stakeholders in the area. Where it has been possible to obtain reasonably valid and reliable results, analyses of the data have helped policy review and planning. But local scepticism or disputes about results, or problems in data collection, have made it harder to establish the importance and credibility of the targets.

Evaluating inter- and intra-regional variations. At GO and TEC level, managers feel they have a sound grasp of how performance varies within and between regions. For sub-regional analysis, GO staff have needed to rely on TEC-level data collection, since national data for Foundation Targets, relying mainly on the Labour Force Survey, cannot reliably be disaggregated to sub-regional level. There has therefore been a continuing tension between the need to produce analyses that are reliable enough for local policy purposes and the pressure this process can place on educational providers, who sometimes expressed the view that National Targets place too much emphasis on the technicalities of data collection and analysis and too little on measures to raise attainment.

GO and TEC managers pointed out the importance of recognising and understanding local variations in performance. Sometimes these were described in socio-economic terms. For example, it was argued that one significant large urban dockyard area with recent increases in unemployment and some long-term social problems could drag down overall scores for the shire county. Another county TEC area was described as having five discrete labour markets, each with a different pattern of performance against the Foundation Targets. In one mainly urban GOR, the inclusion of a few prosperous areas with above-average proportions of high-attaining families was thought to distort the picture for the region as a whole, making overall performance appear better than it was in most areas. London TECs in particular pointed to the difference between LEAs in their area, and LEAs to differences between divisions or cluster areas. The London GO region has 15 of the most deprived boroughs in the country, but also contains some LEAs with very high levels of performance, attributed largely to strong academic traditions and the commitment of professional parents. Managers were therefore keen to place results in context, and to compare like with like. One contributor said that this approach has been used both within regions and nationally, with TEC working partners facilitating such comparisons between TECs.

Assessing progress. All TEC and GO managers interviewed during the project reported strategies for assessing progress towards Foundation Targets, both retrospectively and prospectively. Three issues recurred in these discussions: challenges presented by the data in terms of validity, reliability and consistency; the fit between local and National Targets; and lastly questions about the most effective approaches to analysing progress.

Queries about the quality of the data had their effect on analysis and interpretation. For example, reports on progress sometimes had to explain unexpected highs and

lows in trends over time. Sometimes this was straightforward, for example when the academic criterion for FT1 changed from four to five A*-C grades at GCSE, explaining an apparent reduction in the percentage of the local cohort attaining FT1 from 1992 to 1993. Other 'blips' were more difficult to explain, but might in part be due to data collection methods. Reduction in double counting could result in apparent declines in performance; conversely, were larger than average annual gains by some TECs also due to data error, even in a region with a well-tested methodology? In some cases it was possible to pinpoint the reason for gains, for example in above-average improvement in certain qualification types such as vocational outcomes. Another concern in some areas was about the population base for the targets, especially FT3. This is defined as the total Year 11 population for each age cohort, as represented in school returns to the DfEE. In urban areas, particularly in London, it was difficult to be confident that the achievements from colleges and other post-16 providers fairly represented the outcomes for a given Year 11 population in areas where there was considerable mobility across LEA and other local boundaries.

While people recognised that local and national agenda for targets differed, there was concern about the implications of the differences. TECs recognised that they have the prime responsibility for monitoring progress towards Foundation Targets within their area, and for negotiating local targets. The mechanisms for managing targets-related strategy varied between TECs, and approaches were influenced partly by the pattern of performance within the area. The range of differences in performance and in the local targets set by TECs within a region could be considerable.

Table 2.4: 1995 achievement and proposed local targets for FT1 within one GOR, May 1996

TEC	1995 (actual)	1996	1997	1998	1999	2000	*% increase required*
1	78	80	*	*	*	85	*7*
2	73	79	81	83	85	87	*14*
3	71	71	73	76	80	85	*14*
4	70	*	*	*	*	*	*[15]*
5	67	73	76	79	82	85	*18*
6	67	72	76	80	83	86	*19*
7	64	67	70	73	75	78	*14*
8	62	66	70	75	80	85	*23*
9	60	63	67	72	76	80	*20*
10	52	59	65	72	78	85	*33*

Source: GOR data **Data not supplied to GOR*

Table 2.4 shows the 1995 performance and the milestones set by ten TECs within one region. It can be seen that TEC 1 had set itself rather an easy task for 1995-97, while TEC 10 was apparently expecting to improve by 33 percentage points over five years.

In this GOR, with below average performance in national terms, it was suggested that the most important priority was to ensure that all TECs were '*moving forward*', that is that they were setting challenging interim targets, even if these were still some way off the National Target levels. An important point for this area is that TECs 5 and 8 account for well over a third of the cohort, and their relatively low performance therefore has a disproportionate effect on the region as a whole. Through discussions with the GOR, TECs in the region were being encouraged to review their progress against the local context; thus it was suggested that TEC 3 should be making greater progress, given the make-up of their area. It was also noted that, using GCSE data for 1991 to 1995 alone, two of the low performing areas (TECs 8 and 10) could show progress of over 20 percentage points; but performance in TEC 7 area had actually declined slightly. GO evidence suggested that TECs each used their own criteria to set local milestones, and these were not always explicit. In particular, what should higher-performing TECs do, in setting a local target for 2000? Only two of the TECs in Table 2.2 had set a target above 85 per cent. One London TEC was setting local targets for 2000 above the specified National Target level, which had already been reached for FT1 and was being approached for FT3 (Table 2.5). However, this only represented an increase of three per cent on the 1995 FT1 performance.

Table 2.5: Actual and projected outcomes for one London TEC, 1996-2000

	1995 (actual)	**1996**	**1997**	**1998**	**1999**	**2000**
FT1	85.5	86	87	87.5	88	88.5
FT3	56.5	58	**60**	65	66	67

Source: TEC data, London Region

The third issue which arose in discussions concerned the methods of analysing progress. In part, this was a technical question. Most TECs, in keeping with the guidance from GORs and the DfEE, have adopted what is called the annual method because it is easier to obtain data at the local level on this basis. This takes account of all relevant qualifications gained in the most recent academic year by all young people within the defined age range. An advantage of the method is that it gives the most up-to-date picture of changes in performance. Provided the method is used consistently from year to year, it enables the TEC to prepare valid and reliable analyses of

performance for all local partners, while recognising that the results, when aggregated to GOR level, may differ from national outcomes, which are measured on a different basis. For example, the recent increases in GCSE attainment at 16 showed up sooner in the TEC outcomes. At local level, however, it was sometimes difficult for managers to explain why nationally measured performance was lower than local figures showed, especially to stakeholders who were not convinced of the value or relevance of the targets. Breaking down the data by area or institution type to assess patterns of performance in more detail could cause difficulties if, as in one case, this involved comparisons between LEAs which challenged the statistics. But analyses which showed achievement by institution and qualification type could provoke constructive discussion within a strategic forum which was committed to using the data as a spur to improvement.

These investigations of variations in performance at regional and TEC levels, and within TEC areas, underline the importance of strategies for promoting realistic and effective progress towards the targets within the local context, and based on locally validated data. While comparisons with performance in other similar contexts may be instructive, it is not the main priority, which is to secure continuing progress, year on year, based on valid and reliable data.

2.3 Improving Data Management and Analysis

In this chapter we have approached the issue of variations in performance, at regional and sub-regional levels, from the perspectives of both the national and the local data managers. The two perspectives are in line in showing that there is a wide range of variation, between regions, between counties and between TECs. The national, LFS-based analyses have shown that much of this variation can be explained by the inclusion of background variables known to be associated with qualification outcomes.

What has also become apparent, however, is the very great difficulty which faces data managers and analysts at national or local level in ensuring that they have accurate and comprehensive data which fits the requirements for monitoring and analysing progress towards the targets. Furthermore, local and national staff use different sources and techniques. While this may be appropriate to the different purposes at each level, the discrepancies are not always explicit or understood. In this final section of the chapter, we highlight measures which are already being taken to improve data management, and suggest measures which might be taken in the medium to longer term.

2.3.1 Management and analysis of the current data systems

The statistical analyses carried out for this project used a variety of datasets which had been originally defined for other purposes. It is worth summarising some of the problems encountered in the course of acquiring and harmonising datasets from various organisations.

- During the fairly short timescale of the project, it was more difficult than expected, or even impossible, to gain access to certain datasets.
- Certain crucial variables (such as local area information, age or details of route or type of institution) were missing from some of the datasets, which made matching and comparing results from different datasets almost impossible.
- Certain datasets hold data at an individual level, but the data was made available only in aggregated form, typically at the TEC level.

Work is currently under way to update and improve some of the national databases and make them more consistent and useful for this kind of national monitoring function. We suggest, however, that **a national strategy for qualifications databases might help to iron out some of the inconsistencies in policy and practice which caused difficulties for this project**. Some of the problems could be attributed to the short-term, 'one-off' nature of this project, so we further suggest **that a long-term strategy for monitoring the issues covered by this project should be set up, with access to relevant datasets built in and agreed on a continuing basis.**

One outcome of the project was a consideration of how far the different datasets gave consistent pictures of the state of progression towards the targets, in particular with regard to regional variations. Looking at the situation in Scotland (ASCETT, 1996), there is clearly a discrepancy between the figures derived from LFS (70 per cent FT1 and 51 per cent FT3) and those derived from an exhaustive Scottish qualifications database (57 per cent FT1 and 32 per cent FT3). Although qualifications from other sources may help to bridge this gap, the discrepancy remains fairly large.

It is more difficult to make such a direct comparison in England, as the qualifications databases are more disparate, but it seems that the results show less of a discrepancy than in the Scottish case (see Section 2.1.2). The fortunate conclusion is that there is no reason to invalidate the use of LFS data for generating estimates of target achievement rates, although since the LFS is based on a sample of individuals, estimates obtained by this means are subject to statistical errors, which may be quantified.

Because of the nature of the available data, this project has followed the lead of much other work in using LFS data for most of its analysis. The main advantage of this was the fact that data was available at the individual level, covering all sectors and age groups, and could be modelled using sophisticated techniques. One of the main problems encountered was the difficulty of getting good local information about the LFS respondents. For the latest three surveys acquired, information was available about the GOR and county in which the respondent resided. Earlier surveys, however, did not include this data and the only usable geographical variable was region of usual residence, which did not correspond in all cases with GOR.

It is clear from most analyses that variations in performance become greater at lower levels of aggregation. For example, the analysis reported here has shown that variation is insignificant at the GOR level, higher at the county level, and highest between individuals or between different time-points for the same individual. One crucial level of analysis is likely to be the TEC or the LEA. Participation rates in full-time education at age 16 vary widely between LEAs (see GB. DfEE, 1996), from 48 per cent to 93 per cent, and this is likely to be associated with varying degrees of progression towards the targets. Much of this variation may be explained by differences in background variables, but some may remain at the TEC or LEA level. Unfortunately, this level of analysis was not available from the LFS data, which left a large lacuna in the analysis.

We recommend, therefore, that every effort be made to incorporate information about the TEC and/or LEA within which each individual respondent is situated when downloading LFS data for analysis. Although only a small sample of individuals is selected within each TEC/LEA, accumulation over a number of surveys would ensure that sufficient numbers for meaningful analysis were obtained. In the current analysis, 60,000 data values were obtained from eight surveys, giving about 600 responses per TEC.

We also recommend that the form of analysis carried out in this study be duplicated for further work using the LFS; that is, multilevel analysis with logistic regression, which makes it possible to control for background variables and estimate parameters of interest and their likely errors.

So far we have considered data at national level. Discussion with data managers at GO and TEC levels suggested that, in some ways, their task would be eased by common national systems for data management. At present, analyses are based on a

range of statistics drawn from different sources, each of which may be subject to 'error' to some degree. However, national systems are necessarily large-scale and can be subject to delay. By definition they cannot draw on local knowledge.

TECs have twin priorities for their target-related data. They have to meet their contractual obligations to report on progress towards the targets to their GOR. They are also expected to use the data to inform local strategic planning for raising attainment across the whole age-range. For the reporting requirement, guidance is given on the procedure and the timing of reports. Now that data on school and college-based qualifications is being supplied to TECs through the DfEE, the schedule has been extended so that this data can be fully incorporated. But for local planning, TECs want to have up-to-date information. Some TECs feel this can at present be obtained only if they collect the data themselves, from schools and colleges as well as through their own systems for managing funded training.

The strength of local data management and analysis is the local knowledge which can be applied in interpreting outcomes and trends. A local qualifications database can be checked and challenged by staff who will be aware of developments in local institutions. However, the investment of time by TEC and institutional staff in collecting and cross-checking data which also has to be supplied in slightly different formats to the DfEE or other bodies is very considerable.

There are further issues about data coverage. Are all young people – including those who 'drop out' of education or training – recorded in the system? Where should individuals belong, for analysis purposes, if they live in one area and study or train in another – or when they move? Initiatives are being taken in some areas to 'track' all young people through the Careers Service procedures, recording their qualifications over time. However, some TEC staff suggested that it would be far more cost-effective to design and implement such a system through a common national framework. **We therefore recommend that further consideration be given to developing such a framework.**

Another approach to tracking starts from the school system. Some LEAs have already begun to develop a pupil database which holds individual records for every pupil in LEA schools, with information on the pupil and the school, to which can be added test results and qualifications obtained throughout compulsory schooling. Such a system overcomes the problem of transfers between schools, and could provide the foundation for a post-16 tracking system. Furthermore, it meets the requirements of local and

National Targets which focus on the achievements of an age cohort rather than on institutions. The next section considers the options in more detail. It is at least possible that a national system could provide TECs with detailed data, so that they could concentrate mainly on evaluating it with local partners.

2.3.2 Planning for the future

The analyses for this study started out from certain principles which should form the basis for any more far-reaching changes to data collection and management. It is worth making these explicit here.

When aiming at a target, one needs to have an accurate picture of one's position relative to the target or else it is very hard to hit it. This emphasises the importance of good, reliable, up-to-date and nationally consistent data to the achieving of FT1 and FT3 by December 2000. In particular, we need data at the level of the individual for the following reasons:

- The targets are expressed in terms of percentages of individuals reaching certain qualifications by certain ages.
- With individual-level data, it is possible to overcome the problems of double-counting.
- Individual-level background information can be used to look at factors influencing progress towards the targets.
- Data can be aggregated easily in various ways for various purposes; for example, by cohorts and/or regions.

In addition to the need for individual-level data in order to make sense of this complex area, it would be advantageous to have individual information on a longitudinal basis; that is to say, with data not only on what each person has achieved, but when they achieved it and by what route. With such information it becomes possible to talk about **how** targets are achieved, and the advantages and disadvantages of different kinds of routes for different people. Some databases include this element to some extent (for example, FEFC's ISR and the DfEE's academic database, plus LFS partially), but because each one covers a different sector, the amount of overlap and the extent of crossing from one to the other cannot be judged. When prior academic attainment data becomes available from the ISR, it will become possible to make some estimate of overlap and crossing.

The ideal resolution of the above arguments would seem to be a national system for recording individuals' progress through the qualifications labyrinth. With modern data management technology this should not be impossible, but for the problems of data capture and maintenance. For example, the Highlands and Islands Enterprise Board (HIE) has been working on just such a system, merging together information from all sources within its area of remit with a geographical database, to develop something which can provide many of the statistics which government and other agencies find useful from consistent data held at the individual level. HIE are constructing a training database which will include both information about training providers and about trainees and students, and will enable the latter to be investigated in terms of age, sex, geographical location and subject of study. This is not to say that HIE have solved all the problems associated with such a development, or that scaling it up to the whole nation would be a trivial task, but this work must provide food for thought for all those involved in this field.

Another approach currently under consideration for the post-16 age group has grown out of the UCAS Tariff and Profile initiative, which began in 1996 (UCAS Tariff and Profile Initiative Newsletter, March 1997). This project, established to develop a new system to support entry to higher education which would accommodate a wider range of qualifications than A-level, has devised an 'electronic tariff' which the developers consider could meet the needs of a wide range of users, including employers. The project sees individuals 'registering' at 16, with qualifications being entered in the database over time by examination boards and awarding bodies. However, the proposed format of the data might not fit with the requirements of target analysis. More fundamentally, the database would have to be expanded to include all those not applying for higher education.

Another starting point for a database system would be to allocate a number to each pupil to be used thenceforth for all public examinations and qualifications included in calculating National Targets. This would have the advantage of including all young people in the system. Moreover, the principle of linking results from different examinations for the same individual has already been established. However, the idea of creating and using numbers which would uniquely identify individuals and their achievements draws attention to the issue of data protection and the rights of the individual. Who would manage the system, be responsible for its accuracy or have access to it? Could individuals choose to opt out, thus reducing its validity? These and other issues relating to data protection would have to be fully discussed with all those concerned before a national system could be developed.

Short of setting up an integrated national system on this or some other basis, it might be possible to gain some of the benefits by suitable changes to the existing systems, such as:

- making it easier to match individual records between existing databases, by means of some form of unique identifier (for example, National Insurance number);
- filling in some of the gaps between current systems with individual, longitudinal databases (work-based training is an obvious area);
- harmonising the background variables collected about each individual.

A national system on the lines recommended here should also meet the needs of local analyses. There would certainly be advantages in basing both national and local analysis on the same definitions and criteria. The Highlands and Islands Enterprise Board project suggests that it might in due course be possible to enrich a qualification database, at national, regional or TEC levels, by attaching to it a wide range of economic and social data.

Main findings and conclusions from Chapter 2

Collecting, defining and analysing FT data

- **To evaluate progress towards the targets, we need information on what individuals have achieved, over time, and the routes they have taken.** This really requires the development of a unified national qualifications monitoring system or, failing that, more consistent databases for all types of qualifications, to allow data on each individual to be accurately matched. Background information is also needed on the individual, the area and the institution and route taken.
- **At national level, the Labour Force Survey is the best current dataset.** The LFS is the most valuable because it provides individual information on a longitudinal basis. Moreover, it appears to be reasonably consistent with other qualifications data. Its value would be enhanced if an individual's TEC area and LEA could be identified.
- **The quality of data for local targets is improving.** TECs, which are responsible for local targets, collect data directly from schools and colleges. They also use data supplied by the DfEE and FEFC. As a result of efforts at national and local level, data is becoming more accurate with less double-counting. However, securing valid, reliable data and up-to-date FT data for local purposes remains a challenge.
- **Local data collection can cause tensions.** TECs need to persuade providers of the value of FT-related data and its analysis, since definitions differ from those needed for institutional purposes. GORs are working to ensure common criteria for all TECs in their area.
- **Valid comparisons between national and local outcomes are hard to make.** Different data collection and analysis methods are used at national and TEC levels. This is because local and national purposes for measuring target-related performance differ. However, it is important to specify and explain discrepancies in GOR outcomes derived from national and local analyses for GORs. It would be even better if systematic comparisons could be made between local and national statistics.
- **Analysis needs to take account of variations in performance at several levels.** Institutional effectiveness, local socio-economic contexts and individual factors may all have an effect on performance. All these need to be taken into account in the analysis. Multilevel techniques should therefore be considered, certainly for national analyses.

Measuring regional variations in FT performance

- **Apparent regional variations are not statistically significant.** Using LFS data and multilevel modelling, these can be explained by variations at lower levels and the effect of background factors.
- **There are some significant variations at county level.** These were found in a small number of counties where performance was better (or worse) than expected even when a range of background factors had been taken into account.
- **Variations are measured and investigated at GOR and TEC levels.** At these levels, managers feel they have a sound grasp of variations between and within regions. More effective analytic methods are being used in some areas to inform overall targets strategy.

3. BEHIND THE TARGETS: INVESTIGATING VARIATIONS IN ACHIEVEMENT

So far we have seen that the 'headline' regional variations in target attainment, evident in national data, are best understood as an indication of differences at other levels within regions, and – most importantly – differences between individuals. In other words, in order to interpret the regional variations and to consider their implications for action at all levels, we need to understand the local, institutional and individual factors relating to attainment. Perhaps not surprisingly, given their size and internal diversity, GORs are not systematically different from each other in target outcomes, once these factors have been taken into account. We therefore need to develop a fuller account of how these factors operate.

In this chapter, we investigate these factors in more detail. We start (Section 3.1) with the national data, summarising the results of statistical modelling of the LFS data in order to fill in the picture outlined in Section 2.1 above. The value of the approach adopted is that it makes it possible to take account, simultaneously, of factors or variables relating to regions, local areas and individuals. Any results shown have therefore already allowed for the effect of all the other variables included in the analysis.

The national analyses set the scene for the results of investigations within five regions (Section 3.2). These investigations took the form of interviews with managers at GOR, TEC, LEA and institutional levels. The managers were asked what they considered to be the most important factors promoting and constraining progress towards the targets in their areas. As we shall see, there were common priorities and concerns, but the importance of local context, at TEC and LEA levels, also emerged. In other words, it was seen as important to tailor policy to local circumstances in order to maximise progress.

3.1 Factors Associated with Progress Towards Targets: Analysis of National Data

3.1.1 Individual characteristics

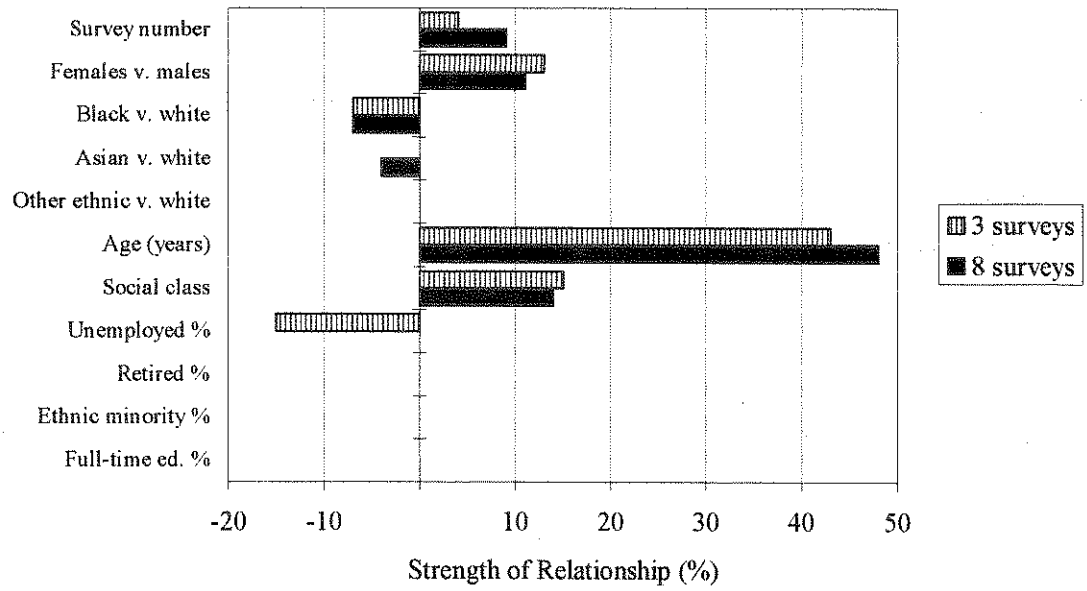
Multilevel models fitted to the LFS data, over either three or eight surveys, allowed us to estimate the relationships between the probabilities of achieving FT1 or FT3 and a range of background variables. In this section we will focus on those characteristics which related to individuals, as derived from information available from the LFS data.

These variables covered the areas of females versus males; ethnicity (black, Asian or other non-white ethnic group versus white); age (at time of survey); and social class. The social class variable from LFS needed to be treated with caution, as it was basically derived from the head of household, and may be only a rough guide for the young people of interest. With this caveat, it was treated as pseudo-linear, with five values, ranging from 1 (unskilled) to 5 (professional), with missing values treated as 2 (semi-skilled).

Appendix C summarises the results of logistic multilevel modelling for both FT1 and FT3. Figures 3.1 and 3.2 attempt to illustrate these results graphically, showing a measure of the strength of the relationship between the probability of achieving FT1 and FT3 respectively and each of the background factors in the model.

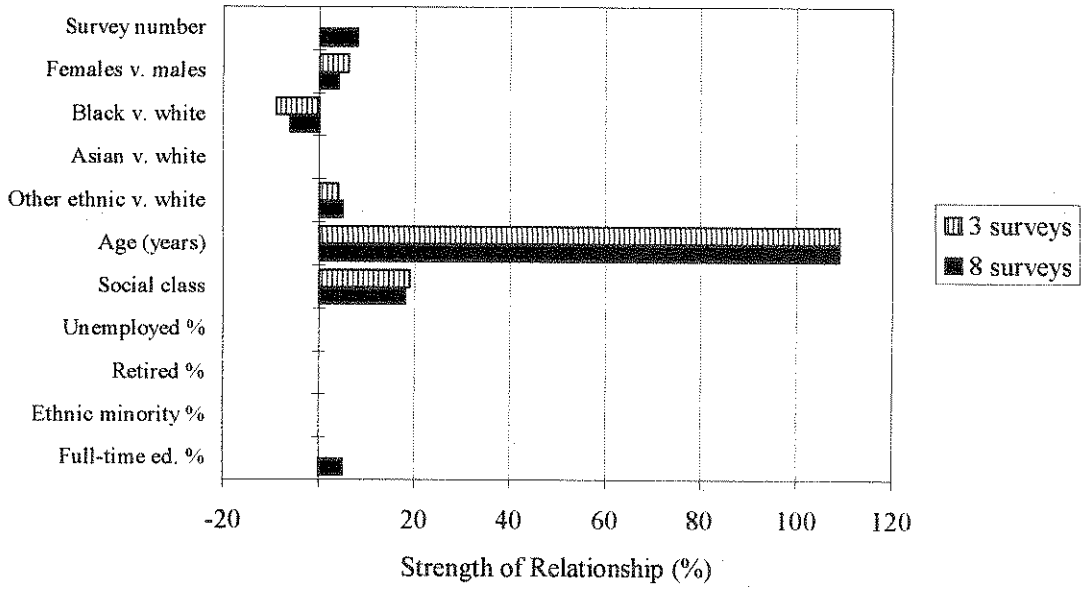
The background variable with the strongest relationship with FT1, and even stronger for FT3, was age. That is, the probability of achieving the target increased with age. This age effect is not surprising, as it just reflects the fact that older individuals have had longer to gain qualifications. There were also strong positive relationships with sex (females have higher rates of achieving targets on average than males), social class and the time of the survey (except FT3 with just three surveys). In all cases there was a significant negative relationship with the black ethnic group, who seem to have reduced probabilities of hitting the targets. In one case this was also true for Asians for FT1, but the other non-white ethnic group seemed to have an enhanced probability for FT3.

Figure 3.1: Relationships between FT1 and background factors



Source: NFER analyses of LFS data

Figure 3.2: Relationships between FT3 and background factors



Source: NFER analyses of CFS data

To make the results of this logistic multilevel analysis more accessible, it is possible to express them in terms of probabilities for individuals with different characteristics achieving the targets. Examples of the model for different types of individual are given below, in terms of the predicted probability of passing FT1 by age 20 at the time of the last survey:

Male, white:	78.1%
Female, white:	81.1%
Male, black:	67.0%

and in terms of the predicted probability of passing FT3 by age 22:

Male, white:	57.7%
Female, white:	60.7%
Male, black:	41.5%

The results from this analysis are highly consistent with those obtained from other detailed multilevel investigations of pupil performance at GCSE (see Schagen, 1995 and 1996, and Kendall, 1995). Other pupil-level characteristics found to be significantly related to attainment in Year 11 in those studies were:

- prior attainment at start of secondary school (positive);

- eligibility for free school meals (negative);
- special educational needs (negative).

The eligibility for free school meals may be regarded as a surrogate for social class, and thus the findings of the current study tie in with these others in this respect. Some studies have also found that, even within the Year 11 cohort, attainment is significantly related to age, with summer-born students under-performing relative to their older colleagues.

3.1.2 Regional and institutional factors

In addition to the individual-level background variables described above, it was possible to derive from the LFS data certain regional variables which could be included in the multilevel model, to characterise the socio-economic make-up of each region. Each of these was defined as a percentage of the total persons aged 16+ in the given region, and related to unemployed persons, retired persons, ethnic minorities, and persons in full-time education.

Appendix C shows the somewhat surprising result that very few of these regional variables had any significant relationships with FT1 or FT3, once individual-level variables were allowed for. The exceptions were a negative relationship between unemployment rate and FT1 in one case, and a positive one between percentage in full-time education and FT3 in another. Both of these can be interpreted in a straightforward way. The relationship between unemployment and lack of qualifications is probably mediated via the general socio-economic status of the region. The fact that regions with higher proportions in full-time education appear to be reaching higher levels of FT3 is probably more directly causal.

Unfortunately, it was not possible to carry out any similar analysis on the LFS data in terms of variables at the institutional level, since there is no data on the actual institution attended by each individual. However, the question of which school-level factors appear to affect performance is a long-standing one within the field of school effectiveness research (see e.g. Reynolds and Cuttance, 1992) and it is probably more fruitful to summarise the results of this research than to attempt to duplicate it within the short term of this project.

Value-added studies of secondary schools carried out by Kendall (1995) and Schagen (1995, 1996) have shown that the school-level variable which is most strongly related

to pupils' performance, once pupil-level factors including prior attainment have been allowed for, is the percentage of pupils eligible for free school meals, which has a negative effect. This is clearly a surrogate for general social deprivation, and ties in with some of the above findings at the individual level.

There have been many studies of school effectiveness, reviewed for example by Sammons *et al.* (1995), Tabberer (1994) and Scheerens (1992). For OFSTED, Sammons *et al.* identified the following characteristics commonly associated with effectiveness:

- firm and purposeful leadership which enables a participatory approach;
- shared vision and goals, which help create unity, consistency and collaboration;
- a learning environment which is orderly and attractive;
- concentration on teaching and learning, and a focus on achievement;
- purposeful teaching which is efficient, clear, structured and adaptive;
- high expectations and intellectual challenge;
- positive reinforcement, with fair discipline and feedback;
- monitoring progress, of the pupil and the school;
- pupil rights and responsibilities, promoting pupil self-esteem and enabling pupils to have positions of responsibility;
- home – school partnerships, which involve parents in their children's learning;
- a learning organisation, with school-based staff development.

Some recent analysis by NFER of the school inspection database for OFSTED, which will be published later this year, also throws light on the features of schools which produce better than expected results at GCSE, in terms of school and subject department processes.

The school effectiveness research industry has a relatively long history and has succeeded, more or less, in uncovering institutional factors which may be associated with higher levels of performance via the academic route. The same is not true for the

vocational route to FT1 and FT3, as there is little or no existing research in this field and not even an exact equivalent for the concept of an institution. Possibly the most fruitful level to look at in terms of vocational qualifications is that of the TEC, and fortunately we did have available TEC-level information from a number of sources. This comprised the following, each at the individual TEC level: numbers achieving FT1 and FT3 via Youth Training or Modern Apprenticeships (YT/MA), TEC 'performance indicators' (e.g. cost per NVQ, IIP recognitions and commitments), and LFS data on total numbers 16 to 19, unemployment rates and other background variables.

Combining these data sources at the TEC level enabled us to estimate the percentages of the cohort of young people achieving FT1 and FT3 through YT/MA within each TEC, plus a number of background variables, comprising IIP recognitions and commitments within large organisations, as a percentage of the target; the total cost of YT per leaver; the unemployment rate; the percentage of retired persons; the percentage of ethnic minorities; and the percentage in full-time education in the TEC area. No multilevel structure was assumed for modelling this data, which was available for 74 TECs in England. Conventional multiple regression techniques were used to model the percentages achieving the targets through YT/MA in each TEC.

The results were quite interesting. For FT1, they showed a negative relationship at the TEC level with ethnic minority numbers and with percentages in full-time education. There were positive relationships, however, with unemployment rate and with IIP commitments. Most of these apparent effects can be rationalised, but the relationship with IIP commitments may indicate something deeper, in terms of an association between getting employers committed to staff development and training and more young people achieving FT1 through the work-based training route.

FT3 showed less evidence of interesting relationships than FT1. TECs with higher unemployment rates tended to get more young people achieving the targets through this route, but TECs with higher proportions of ethnic minorities got lower target achievement. Possibly the latter effect may be associated with the higher status given by certain ethnic groups to the academic route for qualifications.

3.1.3 Route and qualification type

The previous logistic multilevel analyses concentrated on target achievement as a single outcome, with no consideration of the route taken to achieve it or the type of qualification gained. It is possible to do some differentiation within the LFS data

relative to qualification type, in particular between individuals who achieve FT1 or FT3 through GCSEs/A-levels (the 'academic route') and those who gain the targets via NVQs or other vocational qualifications (the 'vocational route'). This includes some 'double counting' (see Section 2.2.2), and so it was felt useful to derive two further binary outcome variables for each target:

- achieving the target via the academic route (GCSE/A-level);
- achieving the target via the vocational route **only** (NVQs etc., but without GCSE/A-level).

Logistic multilevel analysis on the same basis as previously was carried out for these separate target indicators, using the same set of background variables and based on two datasets (last three surveys or all eight surveys). Results are also shown in Appendix C.

Results for the academic route were in many ways very similar to those for the overall target achievement results. The main difference seemed to be a slightly less strong effect of age for FT1. This is not surprising, as the vast majority achieve five-plus GCSEs A* to C in Year 11, and only a small percentage afterwards. Turning to the results for the vocational route, some more interesting differences appeared. For FT1, the sex effect was reversed, with females less likely than males to achieve the target through vocational qualifications only. The age relationship, however, appeared stronger than for the academic route. Again, this is not surprising, since vocational qualifications are generally taken after the end of compulsory education and vary in length and starting age. There was a not unexpected negative relationship with regional rates of staying on in further education, and a more surprising positive relationship with regional proportions of retired persons. The FT3 vocational route showed little relationship with any background measure (possibly because very little data is available for this outcome), with the exception of age and class.

Of particular interest were the apparent rates of change over time, signified by the coefficients of the variable which related to survey number. The academic route results were broadly consistent with earlier findings in this respect, with a general tendency for increasing chances of achieving the targets in more recent years. For the vocational route, however, the evidence was more mixed. For FT1, there was even an indication of a possible decrease over time in individuals achieving FT1 through vocational qualifications only. FT3 gave evidence of a positive trend over time for both routes, when analysed over all eight surveys.

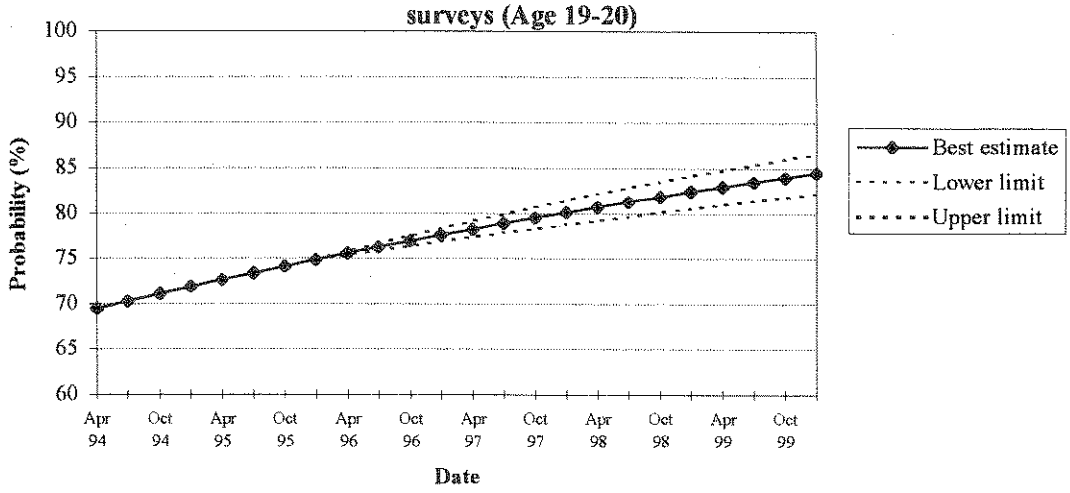
3.1.4 National projections for FT1 and FT3

One of the interesting features of the logistic regression models fitted is that they show what is normally a significant relationship between the probability of achieving the given target and both respondent's age and the survey number (equivalent to calendar time). This implies that not only are respondents more likely to achieve targets as they get older, but also that the probability has been increasing with time. This leads to the possibility of using the model to project probabilities into the future, extrapolating the current rate of change over time.

However, to use the model for projection we need to define the characteristics of the population for whom we are making the projection. Essentially, this means that we need to define an 'average' individual. It is possible to do this, based on the LFS data, in terms of sex, ethnicity, class, etc. The main issue is what to do about age, which has a large effect on the projection probability. The option chosen for illustrative purposes was to use the average age of the final year-group for the target of interest – 19-year-olds for FT1 and 21-year-olds for FT3. In practice, this means running the predictions with average ages of 19.5 and 21.5 respectively.

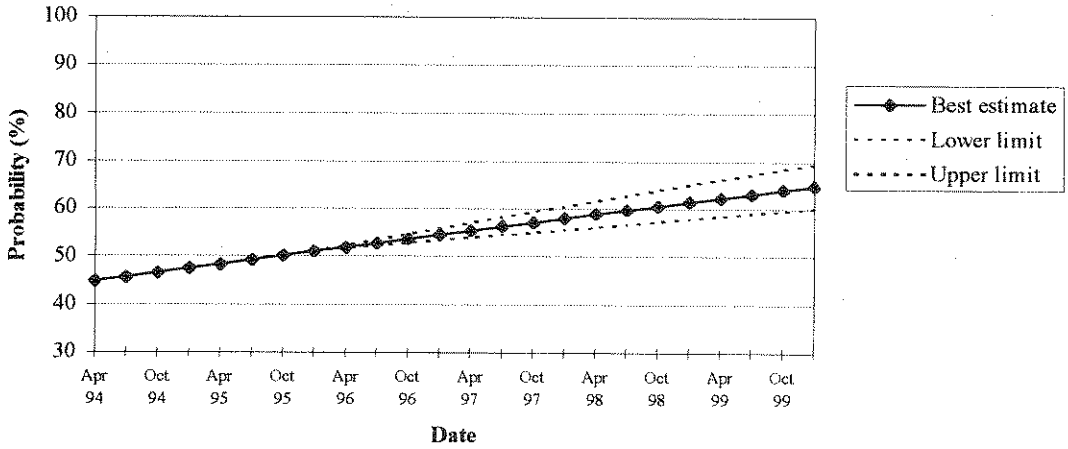
Appendix C includes projected probabilities over time for FT1 and FT3, based on the last three surveys and all eight surveys. Examples of the projections are given in Figures 3.3 and 3.4, which show the probabilities for FT1 and FT3 projected to the year 2000, based on data from all eight LFS surveys used.

Figure 3.3: Model projected probability of passing FT1 based on 8 surveys (Age 19-20)



Source: NFER analyses of LFS data

Figure 3.4: Model projected probability of passing FT3 based on 8 surveys (Age 21-22)



Source: NFER analyses of LFS data

The following features can be noted, based on the projected plots:

- The projected probabilities of 'average' individuals at the end of the relevant age ranges achieving FT1 and FT3 in the year 2000 are close to the target percentages for those age ranges.
- These projections are in fact extrapolations, based on historical LFS data. They take no account of new factors which may intervene between now and the end of the century.

Note that these projections are just estimates and should be treated as such.

More complex multilevel models were then fitted, to test the hypothesis that rates of change over time varied from region to region.

When fitted to the eight-survey dataset, some significant regional differences in rates of change were found. These results are given briefly below, in terms of the outcome variable concerned and the region(s) for which significant differences were detected.

Probability of achieving FT1 (NVQ only)

Rates of change significantly higher than average were found for two regions: East Midlands and West Midlands. However, a significantly lower rate of change was estimated for the 'Rest of the South East' region.

Probability of achieving FT3 (academic route and overall)

A higher than average rate of change was found for the South West region, for both FT3 through A-levels and overall FT3 achievement.

The West Midlands link with FT1 achievement via the vocational route is consistent with evidence from the interview data, which shows that considerable progress is being made in post-16 vocational achievement, and plans are under way to expand pre-16 vocational options in some LEAs (see also page 65). The interview data throws less light on the FT3 projections for the South West.

3.2 Factors Associated with Progress Towards Targets: Evidence at Local Level

Analyses of the national data reported above suggest that, statistically, most of the variation is at individual rather than area level. It was also pointed out that this data did not readily permit analysis at the institutional level, but that there is evidence from many other studies to indicate that variation between institutions, particularly schools, is very important. In other words, schools with similar pupil intakes and apparently similar resourcing can differ significantly in the level of performance achieved by their pupils. Indeed, the analyses prepared for the DfEE/SCAA 'benchmarking' programme suggest that within categories of broadly similar schools (in terms of pupil intake) the differences on the GCSE five or more A*-C criterion between the highest achieving 25 per cent of schools and the lowest achieving 25 per cent may be as much as 16 percentage points.

In the regional investigations for this study, however, we were particularly interested in the interplay between all those with a part to play in raising attainment within a local area: this meant investigating overall education and training policy and provision within GORs, TECs and LEAs, institutional contributions and what individuals and their families bring to the process. What did managers in key positions across the areas consider to be the factors affecting both performance and rates of improvement in performance in their area? While it is clearly important to take account of the local economic and social context, particularly the local labour market, we want to focus on factors which appear to be both important and also open to intervention. We have grouped the areas identified by managers into negative factors (barriers and constraints) and positive factors (opportunities and growth points), looking first at learning up to 16 (related therefore mainly to performance at FT1) and then at post-16

education and training (for FT1 and FT3). We start with some vignettes of specific areas, to illustrate the range of factors at work.

Area 1: Outer London borough
This multi-ethnic area is characterised by deprivation and a tradition of young people leaving school as soon as possible with few or no qualifications. There is an education forum chaired by the LEA and two active headteacher networks whose meetings have included development planning and value-added issues on their agenda. Schools and colleges are working hard to improve achievement but face considerable challenges in doing this.

Area 2: Northern town serving a rural area
The traditional industries have closed down and there is high unemployment accompanied by a culture of limited horizons and low aspirations. The schools and colleges are attempting to promote an achievement culture and improve motivation through target setting, frequent progress reviews and the development of learning skills.

Area 3: Midlands industrial borough
In an area of declining heavy industry, high unemployment and/or job insecurity, schools had struggled with – and perhaps failed to challenge – a culture of low educational aspirations. In recent years, the LEA, forced on the defensive by major cuts in staff, had taken the initiative in partnership with the TEC to support and challenge schools, employers and the community to develop a learning culture and raise attainment.

3.2.1 Factors affecting learning and achievement up to 16

Barriers and constraints

Cultural factors. Strong views were expressed about the underlying cultural attitudes. In almost all areas and sectors, managers would express concern about resistance or indifference to learning among some young people. The main difference between areas was in the extent of this challenge. In the GOR of Area 3 above, the malaise was seen to be rather widespread: *'it's not hip to be a learner'*. In Area 1, by contrast, where average levels of achievement were high, concern was focused on particular areas or estates, and on certain sub-groups of young people, particularly those with fragmented families or inter-generational unemployment. It was said that some London estates had 60 per ent male unemployment. This problem was reinforced, in the view of the LEA, by a polarisation between schools, so that those pupils with least motivation and most need of support for basic skills were concentrated in certain schools. Even in Area 3, with much lower averages, there were some particularly well-known spots where a culture of low expectations persisted, as those who overcame their problems moved out and were replaced by others who had yet to start on this road. In other areas of 'old industry', the problem was identified as a certain parochialism, expressed in a reluctance to travel for training, and a certain

fatalism about the disappearance of 'jobs for life'. Where there was perceived to be a widespread and pervasive lack of motivation for learning, local planners recognised the need to bring about a wholesale culture change, within schools and the wider community, and there were signs that they were coordinating strategies to bring this about. In areas with generally good performance and limited pockets of low achievement and disaffection, there was a risk that the problem could be masked or not adequately addressed. Moreover, lack of commitment to achievement could also manifest itself in apparently favoured suburbs, and had been identified by some managers as more of a problem for boys.

Some LEA managers pointed out the culture of low pupil expectations had also been found among school staff. As one put it, this did not necessarily imply lack of commitment, but a focus on '*care rather than challenge*', an approach with which some LEA staff had colluded.

Cumulative underachievement. In areas with relatively low levels of school-based achievement and major cultural challenges, there was particular concern about the need for early intervention and sustained support and challenge throughout primary school. Secondary schools felt that their task was made almost impossible because of too many pupils' low levels of literacy and other basic skills on entry. Familiar barriers to progression in the move from primary to secondary schooling (the subject of current research at NFER) were mentioned in several areas. Increases in formal exclusions, but also less formal processes through which schools sometimes allowed some disaffected Year 10 and 11 students effectively to drop out of school, were seen as the consequence of long-term patterns of underachievement.

Lack of tracking and targeting. As patterns of school provision and parental choice become more complex, particularly in urban areas, some managers were concerned that it was becoming increasingly difficult to track and monitor the progress of individual pupils, especially when they changed school. There was therefore a need to create systems at LEA level to support and encourage systematic tracking procedures in schools, particularly – but not only – for pupils at risk.

Teaching, learning and curriculum: meeting OFSTED goals. Inevitably, the quality of classroom experience, in meeting pupils' learning needs and setting appropriately challenging learning targets, was a matter of key concern for all managers. It was felt that the GCSE-based curriculum was not meeting the needs of a substantial minority of KS4 pupils. It seemed that many of the lessons learned through

TVEI and other initiatives about the importance of work-related learning for all young people, and extended pre-vocational opportunities for some, were being lost.

Lack of commitment to National Targets. Some TEC managers expressed the view that only senior managers in schools were aware of the National Targets, and that even here there was still a common misunderstanding that FT1 had to be achieved at 16. Given the priority which GCSE performance tables had in schools, it was perhaps understandable, if mistaken, that the FT1 target was seen as inappropriate and irrelevant to schools. TEC managers acknowledged that the targets had sometimes been pushed too hard initially, and that a more collaborative approach was needed. Some TECs felt they had relatively little leverage over LEAs or schools; although one GO manager suggested that, conversely, a number of TECs did not see education as their core business.

Opportunities and facilitating factors

When asked to comment on the factors affecting progress towards the targets, many interviewees were more inclined to enumerate negative rather than positive factors. However, there were some broad and common themes.

A changing national climate. Senior managers recognised that the introduction of a range of interventions at national level was having a major and cumulative impact. These included the OFSTED inspection programme, school performance tables, promotion of value-added analyses and benchmarking and GEST programmes to support school effectiveness initiatives.

School self-review and target setting. Partly in response to OFSTED inspections, schools were putting in place their own self-review and improvement programmes, some of them making use of externally designed value-added analyses.

LEA information and analysis systems for schools. Almost every LEA approached during this study had already established, or was in the process of developing, an analysis and information service for schools, to provide them with contextualised evidence on inputs and student performance. Some examples of how these systems were harnessed to promote target setting and raising attainment are given in Section 4. Information could be targeted at quite specific objectives within schools, such as identifying low-achieving departments or pupils, or evaluating gender differences in performance. It was suggested that the key to their success was winning the

commitment of schools to self-review and target setting through a process of negotiation.

Active partnerships between TECs and LEAs. There were marked differences in the relationships between TECs and LEAs, but where the leaders were working actively together to harness their joint capacity, and to obtain additional resources, in pursuit of common goals, the potential for regeneration and renewal seemed remarkable. While many managers were seeking Single Regeneration Budget (SRB) funding, only a minority were clearly directing their bids to raise attainment as part of a concerted strategy.

3.2.2 Factors affecting post-16 achievement in full-time and work-based routes

Performance and progress towards the targets in post-16 education and training were also influenced by many of the factors identified above. There were other issues, however, more specifically relevant to post-16 provision, and familiar in recent debates about 16-19 provision.

Barriers and constraints

Effects of competition. While competition between providers was seen to have both strengths and weaknesses, there were concerns about the lack of a level playing field, and the consequences of this for raising attainment levels. To TEC managers with responsibility for training, the different levels of funding between education and training routes could be a bone of contention. Moreover, financial incentives in FE colleges, it was felt, did not favour targets sufficiently: only eight per cent of the funding was related to the achievement of qualifications. More generally, schools with sixth forms – especially those with new sixth forms – were seen to be exercising undue influence on pupils to stay on, even when other options might be more appropriate (Schagen *et al.*, 1996). LEA staff were concerned about the cost-effectiveness of small sixth forms and the very great difficulty of developing a coherent plan of full-time provision for an area. The problem was even more complex in urban areas, and most particularly in London, where college mergers and closures were likely to result from what one GO manager called the 'post-16 turbulence' as young people moved across boroughs seeking post-16 courses.

Credibility of the work-based route. In areas with high levels of participation in full-time education, where young people and their parents strongly endorsed the

academic route to FT3 and higher education, it was felt to be difficult to promote work-based training, except as a 'last resort'. Schools were thought by TECs to reproduce this view. This attitude was also found in more rural areas, where there were practical constraints in taking up training places, most obviously in transport costs. It was suggested that staying on at school was seen as both easier and preferable in rural areas, even though the range of opportunities might be limited.

Maintaining contact with young people. Although Careers Services maintain records of young people's post-16 destinations, several managers expressed concern that too many young people fall through the system. In one northern city, with a fairly settled population, it was thought that as many as 12 per cent of the Year 11 cohort were lost from the information system at 16+. The Careers Service had set themselves the target of reducing this loss to no more than 2 per cent. In another large conurbation, a manager responsible for projects with disaffected young people suspected that some were in practice lost from the system even earlier, during their last two years at school, or indeed had dropped out of schooling. It was said that in one London borough, there were 300 young people of school age not in school.

Problems in guidance and progression. While careers education and guidance was generally seen to be improving, worries remained about the advice given to young people about post-16 opportunities. In an area of rather low expectations, it was felt by TEC managers that FT1, achieved through vocational qualifications, was too often seen as an end in itself, rather than as a step on the way to FT3 and beyond. In another TEC, doubts were expressed about the progression routes offered by GNVQs, particularly from Intermediate GNVQ obtained in Year 13 at school. Inadequate guidance was linked to problems of retention on college courses. In one college, a research study had suggested that patterns of retention were linked to the school from which students had come at 16.

Several FE college managers commented on the difficulties students faced in progressing from one course level to another. This affected both new entrants and those progressing within the college system. Some new entrants had to make the jump from GCSE to advanced courses, while others lacked basic skills or found the study skills for GNVQ unfamiliar and demanding. There was particular concern about progression with GNVQ. The chair of the GNVQ coordinating group on one London college commented: *'It is a big jump going from Foundation to Intermediate and there is a chasm between Intermediate and Advanced.'* A faculty head in another

college spoke of the need for 'mezzanine flows' between Levels 1 and 2 and between 2 and 3 if National Targets were going to be achieved.

Conflicting priorities. It was pointed out that education and training providers had their own organisational priorities which were not necessarily in line with the achievement of Foundation Targets. Meeting growth targets might be a more pressing objective for colleges, which could be achieved by enrolling more adult students. There was also concern that provision was supplier - (and customer-) led rather than demand-led, to meet employer needs.

Opportunities and facilitating factors

Commitment to qualifications. Managers in high-achieving areas recognised the importance of the prevailing commitment to staying in learning and obtaining further qualifications. In one shire county, this commitment had led to more rapid improvement in FT3 than in FT1, including a doubling of GNVQ Level 3 numbers in two years. In other areas, success in GCSE was seen as an important motivator, giving young people the confidence to progress to further study.

Commitment to target setting. While TEC managers accepted that school and college priorities were not necessarily identical with Foundation Targets, the development of a target-setting culture established the agenda for a common concern with raising attainment, for all young people.

Effectiveness focus in colleges. As a result of external requirements and internal review, there is a growing focus in colleges on improving retention and performance, including internal target setting. In one northern FE college, for example, staff appraisal is used to encourage tutors to improve their outcomes, in terms of student performance, year on year. In the last year, they recorded a success rate of 89 per cent (on the basis of enrolments) across their vocational courses.

Expansion of vocational qualifications and routes. In addition to the expansion of GNVQs, TEC managers were generally optimistic about the potential of the work-based route to enhance progress towards the targets. One factor was the improving 'conversion rate' for Youth Credits; that is, the proportion of trainees obtaining a qualification at NVQ Level 2 or 3. In one large TEC this had improved from about four per cent in 1990 to 70 per cent in 1996. Another was improved progression within training, with more young people achieving NVQ Level 3 (or above). Most

importantly, at least some TEC managers saw Modern Apprenticeships as offering a significant new progression route to FT3. While the profile of the first two cohorts appeared to vary in different areas, with some having a large number of older (18+) entrants, in one large TEC, half the Modern Apprentices were 17 or less, and the scheme was seen to offer a new progression route at 17+ to those who had reached FT1 by staying in full-time education for one year.

Development of 'recovery' initiatives. In more proactive areas, where post-16 providers and TECs were working together on the targets, it was recognised that the next major area of development would be with those currently dropping out of education and training at or before 16. Opportunities had already been taken through the SRB and other funding mechanisms to develop 'second chance' initiatives, usually on a pilot basis, and preparations were under way for the Relaunch programme and National Traineeships.

Leadership role of the TEC. Some TECs were managing to use their resources strategically to promote more effective practice in the complex area of post-16 provision. This included support for tracking systems, promoting collaboration with and between colleges and leadership for programmes of 'recovery' initiatives.

3.2.3 The importance of context

This review of the factors constraining and promoting progress towards the Foundation Targets has sought to bring together the most salient influences, as identified by managers at all levels of the system. In doing so, however, it risks obscuring the specific effects of some very diverse local circumstances. The strategies used may need to be very different in an area of old industries, with a population reluctant to move to find training, from these appropriate to an area of outer London, with a highly mobile population, prepared to travel across the city in search of courses or training. Equally, local boundaries may affect the way policy is developed. Active partnership and the development of effective local area strategies always require dynamic leadership and collaboration from major partners, but the task of achieving this may seem more manageable in a compact area where LEA and TEC boundaries coincide than in less clearly defined territories. Lastly, local traditions and aspirations are likely to influence the role played by the three main qualification routes, with vocational – and more especially, work-based – routes having a wider appeal in some regions than in others.

In the next chapter, we shall consider strategies used in a variety of contexts and consider how far general principles can be derived from this range of experience.

Main findings and conclusions from Chapter 3

Findings from the national statistical analysis

- **Regional factors** related to target achievement were unemployment (negative relationship for FT1) and the percentage of individuals in full-time education (positive for FT3).

- Analysis of **TEC data** indicated a relationship between target achievement via work-based training and institutional commitments to Investors in People.

- Analysis involving **individual background factors** showed that females, older individuals and those of higher social class were the groups with enhanced probability of achieving FT1 and FT3; this is consistent with other research. Black individuals appeared to have a reduced probability, but the results for other ethnic groups were mixed.

- **School factors** could not be analysed in this study, but research has identified institutional factors linked to effective performance. These include leadership, shared vision and goals, focus on teaching and learning, high expectations, positive reinforcement, monitoring progress, promoting pupil self-esteem and home-school partnership.

- For the **vocational routes**, there is little or no research on institutional factors linked to higher levels of performance. The complex provision structure (involving colleges, training providers and employers) has implications for data management and analysis.

Factors related to target achievement, as identified by managers at local level

Negative factors

- The factors linked to poor **school-age performance** included deep-seated cultural attitudes, cumulative underachievement, inadequate tracking systems, the quality of teaching and the appropriateness of the 14-16 curriculum. Misunderstandings about FTs persisted among school staff.

- For **post-16 achievement**, the concerns were about the effects of competition between providers, the perceived credibility of the work-based route, gaps in tracking and guidance systems, difficulties in progression and perceived conflicts between providers' goals and the achievement of targets.

Positive factors

- At **school level**, up to 16, positive factors included national initiatives, school self-review and target setting, the provision of LEA information and analysis systems for schools and the development of active partnerships between TECs and LEAs.

4. ROUTES TO SUCCESS: STRATEGIES TO IMPROVE PROGRESS

The selection of areas and institutions for the visits in Phase Two was made with the overall goal of the National Targets in mind. If these are to be reached, it is particularly important that areas or regions which are currently well below average make marked improvements in the next few years. Managers at LEA and TEC levels were therefore asked to identify schools and colleges which were improving achievement against the odds.

To achieve major improvements in challenging contexts, a consensus is needed on effective strategies, and the contexts in which they work. A major difficulty in achieving this is that few initiatives, large- or small-scale, have been rigorously evaluated in terms of their impact on student performance. Indeed, even when evaluation is attempted, it may be hard to achieve a reasonable degree of certainty about the impact of a specific initiative, since any measured improvement in performance is almost certainly the outcome of a large number of factors. Where some direct evaluative evidence has been provided, this will be indicated. However, other forms of corroboration can be used. For example, many of the strategies mentioned below have been widely adopted, successfully implemented and judged by professionals to have had an impact on motivation and/or performance.

As the review in Section 3.2 made clear, local contexts are highly diverse, and while some strategies may be applicable in almost any setting, others will apply more selectively. Equally, the scope and scheduling of some strategies are much more extensive than others and both may be needed. For example, short-term measures to raise the performance of current 'borderline' C grade GCSE candidates, important though they may be, are of a very different order from a programme to enhance motivation and achievement from the pre-school years onwards – a programme which will show its full fruits only a decade or more from now.

While the targets are realised only from age 15 onwards, in the form of formal qualifications, they depend on ten or more years of education. Many of the key strategies discussed here rightly concern mainstream school provision. These initiatives were often presented as part of a 'raising attainment' programme – indeed, this phrase was incorporated into, or associated with, many school and LEA strategies. Similar approaches were being adopted in colleges, particularly in terms of tracking and intervention. The link with National Targets was often explicitly made only by senior managers.

In this chapter, we shall look first at strategies for raising attainment up to the age of 16, mainly by secondary schools and LEAs (Section 4.1), and then at what is being done with young people after 16, in full-time education and work-based training (Section 4.2). Issues involved in developing effective local area strategies, involving a range of partners, will be reviewed (Section 4.3) and the chapter will end with a discussion of issues relevant to targets policy.

4.1 Raising Attainment up to 16

Schools selected for visits were well aware of the challenge they faced and had taken steps to bring about long-term improvement.

***'It's all right to be clever'*: changing the culture in secondary schools.** How does a school move to an achievement culture? Clearly there is no single answer, and any one school will have its own approach. This is how one 11-16 comprehensive addressed the task:

- The school is in a small town in a rural area in the north of England with a relatively high unemployment rate for the county. It has 600 students, 20 per cent eligible for free school meals. In 1988, 14 per cent of Year 11 obtained FT1; in 1996, the figure was 46 per cent, about the county average.
- The head had realised that in order to survive, the school had to improve. He identified these factors and strategies as contributing to the success:
- staff wanted to succeed
- head introduced new commendation and certificate system, encouraging attitude of 'it's all right to be clever'
- staff were expected to take responsibility for student performance
- active staff training and appraisal system
- expectation and achievement of parental support
- good LEA support in performance analysis
- programme of action research on language development
- mentoring for borderline C/D GCSE candidates
- reduction of GCSE subjects per student from 10 to 9.

An urban school in a former coal-mining area had faced an even stiffer challenge, with only eight per cent reaching the FT1 level at 16 when the head arrived in 1989. The low aspirations and range of family problems in the area meant that a complete culture change was needed.

Creating a culture of learning was at the heart of the school's strategies. These had included an attack on reading skills (since one-third of Year 7 entrants were poor readers), with the introduction of paired reading (with 90 students from Years 9-11 paired with Y7 pupils for 20 minutes three times a week). The aim of the initiative, which was being monitored by staff, was to develop a reading culture.

This was one of a range of initiatives which were felt to have had an impact on overall attitudes and attainment. By 1996, 21 per cent of Year 11 were reaching FT1 level, and the headteacher had set a new target of 31 per cent.

Similar culture changes were felt to be needed by schools in other contexts. A Catholic school in London had increased the percentage reaching FT1 level from 25 per cent to 71 per cent between 1986 and 1996. One key aspect of their strategy was to demonstrate that *'it's now OK to work hard'*. The school differs from the previous one in that it is heavily over-subscribed and now has an intake which is skewed slightly towards the more affluent. Some of the strategies adopted are set out below:

- **staffing**: school made sure it recruited outstanding teachers
- **monitoring**: use of student data and valued-added analyses
- **a 'Pacific Rim' approach**: target **all** students and expect them all to achieve well
- **cardinal rule** – students must not interfere with the learning of other students
- **heads of department**: more responsibility for results, as well as development

Other schools had also introduced reward systems to increase motivation and self-esteem. One school had devised an Achievement Week to address the negative attitudes which had started to appear in Years 8 and 9. A large boys' school had allocated all Year 11 students to one of three colour-coded groups – green, amber and red – on the basis of their motivation and commitment, with the 'red' group getting special attention in the form of a ten-hour weekly homework contract.

While these examples are taken from secondary schools, there were LEA reports of primary schools which had made major strides in changing teacher, pupil and parental expectations. In one school in a very disadvantaged urban setting, with high pupil turnover and falling rolls (due to housing changes), a determined head had used participation in a funded school improvement project to focus on raising attainment in two classes. Not only had test scores improved, but children's motivation to learn had increased and parents were enthusiastic; now the whole school would implement similar approaches.

Targeting all pupils or certain groups. A key issue in schools' efforts to enhance motivation and raise attainment levels was how to balance measures aimed at all pupils with initiatives targeted at particular groups. We have seen that one of the schools above had adopted a 'Pacific Rim' approach, expecting all pupils to achieve. While this included setting appropriately differentiated targets for individuals, it differed from the approach taken in some other schools which targeted specific groups: for example, underachievers, middle ability boys and groups seen to be at risk of failure especially those already in Year 11. Commonly used strategies included close monitoring of performance, providing mentors for regular one-to-one review, and various types of 'alert' system, so that tutors, subject teachers and parents were aware that all was not well.

One school provided a special two-day residential for Year 11 students identified as less motivated underachievers. This was thought to develop their skills and improve motivation and self-esteem through a series of challenges, simulations, games and problem-solving exercises. The residential was run by teachers and employers.

A large school with a major Raising Attainment programme identified not only underachievers but also Depressors - those who interfered with the work of others - and students for Commendation. Staff have also identified Resonant Boys, who were both underachievers and Depressors.

One intervention programme paired the Year 11 students with Year 6 pupils to whom they acted as literacy tutors. Evaluation of the programme suggested it had had a positive impact on attendance and motivation.

Effective learning and an appropriate curriculum. Concern was expressed in some schools that not enough was being done to make the KS4 curriculum accessible to all pupils, and to provide them with an effective foundation for post-16 learning. Strategies included staff training in more effective teaching methods.

Teachers in one London school have been trained in how to structure lessons more effectively especially for boys who, it is felt, tend to waste time in class. This school also provides students with templates to help them structure their written work. TVEI money was used for INSET on teaching and learning styles.

In a school with relatively low achievement, INSET is being provided to help staff review lessons in key stage 3. Staff will review each other's lessons using a common observation sheet. They will also look at how boys and girls learn.

The boys' school which was visited had invested in an enrichment programme to improve generic skills such as study skills and the ability to work in a group. Senior managers carry out OFSTED-style reviews of departments' teaching and learning

methods. Sometimes a subject could be restructured in ways which led to marked improvements in student outcomes:

> Five years ago, the new head of science in an 11-16 school assembled a new team of five staff and introduced a modular GCSE (Salters' science) with a strong practical focus. Students are expected to make presentations and prepare visual displays which reinforce learning. There is a key words policy to enhance scientific vocabulary and concepts. Year 9 and 11 students go through a revision programme, in addition to the feedback after each module. Underachievement is spotted and support offered. Over the last seven years the 5+ *A-C attainment in science has increased from 38 per cent to 50 per cent.

On a broader front, a Midlands LEA with low attainment at FT1 was planning to expand vocational provision with KS4 for all their schools, to offer more opportunity for effective progression.

Putting targets to work: schools, staff, students. Almost all the schools visited had developed their information systems to track and analyse student performance, and to use this evidence to set targets. The largest school visited, with an intake of about 350 pupils from 15 primary schools in the area, had made the use of transfer information the starting point of its raising attainment policy. The monitoring and target-setting process started from a collection of 'Key Data' for each pupil, collated with primary schools and incorporating test scores obtained in Year 7. A key feature of the policy was that all staff were expected to use this and other student data to inform their teaching and planning – and to involve students in target setting and review. The staff who were interviewed identified the main features of their approach to using data to support a raising attainment strategy:

- Use good quality student data which you can trust.
- Make sure the staff understand what the data means.
- Develop appropriate software to underpin the monitoring and tracking process.
- Ensure that all the data analysis and tracking has an effect on what happens in the classroom.

A number of schools were taking part in externally managed 'value-added' analysis for pre-16 performance, and learning how to use the findings as part of their target-setting procedures. Senior management teams could use the data, or other in-house analyses of GCSE performance, to set departmental targets or to encourage departmental heads to set their own targets. In one school the head noted that, as a result of this process, differences in performance between departments had narrowed, and there was now a common target of 51 per cent of students achieving GCSE A*-C in English, maths and science.

As well as using performance data to set school and subject targets, many of the schools had begun to involve students in regular target-setting – either in preparation for GCSE or, in some cases, from Year 7 onwards.

In one Midlands LEA, a school with below-average GCSE results had recently established a target-setting culture which applied as much to individuals as to the institution. All pupils were involved in setting individual learning goals, working regularly with one member of staff. Year 10 and 11 students received the most frequent one-to-one review of their individual targets. Each member of staff tutored three students from each year group. Half an hour was set aside for the tutoring each Tuesday afternoon. For Year 7 pupils, the programme incorporated study skills and exam technique. There was evidence that pupils appreciated the one-to-one review and were improving their ability to monitor their own progress.

At the boys' school visited, Year 11-13 students were set targets for effort and attainment. The head interviewed all students at least three times to review progress and set additional targets.

These two schools differed in the extent to which pupils themselves helped to set targets. One teacher heavily involved in her school's 'raising attainment' programme explained why she felt it was so important for students to be involved in managing their learning and progress, a process which was being encouraged through the use of student planners:

- Students need to know what progress they are making.
- Students need to understand what and how things are assessed.
- Students need to see the relevance of and reason for what they are learning, otherwise they will quickly lose interest and become demotivated.

Senior managers were aware that teachers themselves needed training to develop pupils' skills if these initiatives were to contribute to an overall raising attainment programme.

The short programme of visits to schools which had been identified locally as relatively effective in challenging situations suggested that most senior managers think that they are using a greater range of data more critically than ever before to monitor progress and performance and to work towards targets at school, departmental and pupil level. Managers stressed that targets have to be both challenging and feasible, so as not to demotivate staff and students. The target-setting and improvement culture was felt to be enhanced by formal development frameworks such as Investors in People, encouraging all staff to participate.

4.1.2 Long-term success: LEAs, schools and community

In taking these initiatives, schools were seldom acting in isolation. All were aware of their position in school performance tables, in comparison nearby schools. Many were receiving further information and support from their LEA. What evidence was there of systematic policies at LEA level to improve progress towards the targets? LEA strategies tended to fall into three areas: supporting target setting through LEA-wide data collation and analyses which set school performance in context; pilot projects to promote 'raising attainment' strategies; and strategic policy development beyond the remit of individual schools, for example in promoting progression from primary to secondary school, strengthening community education or providing for excluded pupils.

Assessing the challenge – more effective analysis and deployment of information. Many LEAs had taken the lead in providing an analysis of performance for all their schools, but the process varied considerably in sophistication and in the way the results were presented to schools. Many used the NCER data as a basis for analysing GCSE and A-level performance. Some were assisting schools to buy in value-added schemes, in secondary and primary sectors. By contrast, one LEA had only one secondary school (there were 17 GM schools in the area), and the TEC carried out analyses of performance. In most instances, the analysis and review system was still evolving.

A north-western, urban LEA with 22 secondary schools and above-average GCSE performance had been a member of NCER for some years. They are now moving into more complex analyses, by gender and extending targets to the higher and lower ends of the ability range. Outcomes are related to the percentage on free school meals and intake/performance measures. A booklet is produced for each school and discussed with the head.

Two Midland LEAs with low GCSE averages had both introduced comprehensive programmes of data collection, analysis and review as part of 'raising attainment' and school improvement initiatives. In the first, the extensive analysis programme already covers each key stage, using baseline assessments, end of key stage results and a Year 4 skills testing programme in a sample of schools; and in secondary schools, KS3 results, GCSE, A-level (value added) and vocational qualifications analyses, complemented by funding for school-level value-added analyses. A handbook has recently been produced to help schools use these analyses. In the other, smaller, LEA, 90 per cent of the primary schools have joined a value-added scheme, and secondaries are also adopting this approach. The LEA undertakes a range of analyses and support activities, and is seeking to identify and track pupils at risk, in order to help schools to target support.

LEAs were keen to stress that schools needed to set and manage their own targets, linked to raising attainment strategies. '*Target setting works best as part of a process... if schools set targets, they own the responsibility for them and for achieving the outcomes*', as an LEA adviser put it. One of the West Midlands LEAs, where

overall attainment levels were below the national average, described the aim as *setting targets to improve on previous best*, to indicate the importance of realistic and continuous improvement. An important aspect of the LEA input was to suggest the level of challenge which would be appropriate, based on the data. The process had been assisted, in this case, by grouping schools with broadly similar contexts into clusters to facilitate valid comparisons. The school improvement programme will now encourage schools to collaborate actively in these clusters in order to identity and disseminate good practice which is seen as effective within that context.

The main purpose of feeding back performance data to schools, according to LEA staff, was to help them to set their own targets. More recently, this process has acquired a sharper focus with the Government's proposal, in September 1996, to require schools to set and publish targets for improving their pupils' performance. The Education Act 1997 allows the Secretary of State to introduce such a requirement by regulation. Although decisions have yet to be taken on the detail of those regulations, LEA managers were well aware that there would be important implications for them and for schools. This extension of target setting might well contribute to the achievement of National Targets, but was seen as distinct from it.

There were differing views on the value of securing the explicit commitment of school and college staff to Foundation Targets, but one LEA had taken this step, under the headline, *Making the Link:*

> The TVEI/advisory section of the LEA had produced a guidance manual for schools on Foundation Targets. This was intended to remove '*threat and remoteness of Targets*' and had been followed up with staff development. The document takes one page for each target and in a few sentences explains how a link can be made with school activities which are happening already. It was felt important that 11-16 schools recognised the importance of their contribution to FT3, as well as FT1. The principle is to develop a 'stepping stone' approach under which providers at all stages recognise their role in later attainments. The annual review which the LEA holds with schools will review progress of this initiative and monitor achievements against targets.

Even among the small sample of LEAs contacted for this research, it was apparent that some had moved much further than others in preparing to support schools in programmes of benchmarking and target setting. One service which some LEAs were working on was a pupil tracking system which would uniquely identify and record the characteristics, experience and achievements of each individual through compulsory schooling. Such a system could strengthen the analyses of performance relevant both to school targets and to National Targets.

Strengthening the learning community. LEA leaders in areas of low average performance stressed the importance of long-term programmes to refocus whole communities, rebuild self-esteem and promote a new commitment to learning.

City Challenge and SRB funding has been used in one area of urban deprivation to develop a range of community initiatives for young parents and their children, linked to primary schools. These Multi Agency Centres and Family Education Centres are designed to work with parents to develop language and literacy skills, as well as provide a focus for other work with parents.

Other LEAs mentioned home – school partnerships for early learning, and a range of literacy programmes in primary schools as part of their strategy for raising attainment. In this context, little evidence was presented of the impact on attainment of these initiatives, some of which are relatively recent, but other studies (Brooks, *et al.*, 1996) have pointed to the effectiveness of involving parents in their children's learning as early as possible in primary schooling.

The underlying aim of these programmes was to 'catch them early': to pre-empt the need for recovery and remedial initiatives for older pupils and in this way to contribute to higher levels of attainment in the (much) longer term. In the mean time, it was necessary to meet the needs of young people currently at risk, through exclusion, drop out or other forms of non-participation. In practice, initiatives to meet the needs of these groups often involved or required the participation of other partners such as the TEC or colleges, as well as outside funding.

An important issue facing LEA and TEC managers was the need to find ways of sustaining the progress initiated by these projects, which nearly always rely on short-term funding. Initiatives which are linked in to permanent structures – such as schools or colleges – may prove more sustainable in the longer term.

4.2 Post-16 Progression and Achievement

The divergence of routes at 16 introduces further complexity to raising attainment and promoting progress towards the targets. In this section, we report on a small selection of strategies which providers had adopted and which seemed relevant to this aim.

The right start: assessment and induction. Students staying on at school could be provided with a wide range of information and assessments to use in making their choice of course. Similarly, sixth-form staff were well placed to help students make the transition, since they already knew them.

In one large sixth form, a spreadsheet of key data from Year 11 was produced for A-level guidance. Using this information, the head of the sixth form and three other staff interviewed all applicants individually. Form tutor records of progress in each subject were started for each student, who was responsible for drawing and maintaining an action plan.

Colleges faced an even greater challenge than schools. They did not know the applicants, who came from a much wider ability range. They offered a much broader spread of courses, and 16-19 students were only one part of their constituency. Moreover, they were under even greater pressure to increase their numbers. At the same time, they were also expected to improve retention and achievement. In response to these pressures, some colleges had taken radical steps to improve their initial guidance and induction procedures.

In the two London colleges which were visited, one key issue was the level of applicants' basic skills.

In one college with 1600 full-time students, 70 per cent of the intake is now from ethnic minorities; ten years ago it was predominantly white working class. Many have English as a second language. Entrants' skills were assessed through basic skills tests, with about half at Level 1 (basic literacy). As a result, more precise screening and selection procedures had been introduced, with support structures for all who need it.

Induction was seen as particularly important for these and other students below FT1 level. One college had introduced a common induction programme for all Level 1 students (GNVQ and NVQ). Another strategy was to pre-empt difficulties for more vulnerable students.

In the other London college, it was estimated that 70 per cent of the full-time students were deficient in basic skills. In response, the college introduced foundation provision and extra learning support. Mapping of needs led to the introduction of 40 new foundation-level courses.

A smaller northern college, with 880 full-time students, had an initiative to identify 'at risk' students as early as possible, as part of a project to improve retention. All students were interviewed on entry and signed a learning contract. If the student was perceived to be 'at risk', target dates for key pieces of work were made explicit.

But it was also important to see that GNVQ and A-level students were helped with the transition to new ways of learning.

One London college had set up common procedures for induction for all GNVQ courses, as part of a wider programme for coordinating GNVQ systems throughout the college. This was felt to have helped performance from the outset. In the other college, a similar approach had been taken to the management of all A-level and GNVQ courses. Subsequently, enrolments had doubled.

Relaying the foundations. Promoting progress towards the targets might suggest a focus on Level 2 and Level 3 courses. But as we have seen, this was not appropriate for many entrants to some colleges. Here, a longer-term perspective was needed. As part of their drive to raise attainment across the board, some colleges were investing heavily in foundation and pre-foundation courses, learning support structures and special projects for disaffected young people. One London college had 50 Additional Support Lecturers, trained specifically for this task, supporting 555 students.

In one large Midlands city, a range of initiatives had been developed, with the support of the TEC, to target young people who had dropped out of education and training and who had low skill levels. These included pilot 'recovery' programmes for pre-16 drop-outs, which were already proving successful in leading at least half of the group straight into training or college, projects to support skill training for young unskilled employees and a new large-scale key skills programme.

If such young people were to reach the level of the targets, it was essential to bring them back on to a learning track with opportunities for progression.

A large northern college in an old industrial area had had considerable success in expanding provision at foundation and pre-foundation level. Recruitment on GNVQ foundation courses had doubled, and achievement had improved from 36 per cent to 72 per cent. On the pre-foundation course, only one of the 28 students had dropped out. Some of the expansion had come from an ESF-funded programme to combat disaffection in partnership with three other EU member states

For all these and other young people 'at risk', accurate tracking and guidance were as crucial. As well as institutional tracking systems, the database maintained by Careers Services could provide a continuing record. However, the most vulnerable young people might well be missing from the database. Some Careers Services were developing more effective procedures for including or revisiting these missing cases. Warwickshire Careers Service had already set up their 'Double Take' pilot project by 1995, and have now extended it to the whole county. It has enabled them to reach hundreds of those whose destination was unknown, and offer them guidance and support on an individual basis (GB. DFEE,, 1997b).

Retention and progression. Several colleges faced retention problems, especially on Level 1 and 2 courses. Some courses had particular challenges; in one college, there was only 50 per cent retention on the GNVQ Level 2 health and social care course, much lower than other options at this level. In each case, the colleges had taken steps to improve retention. One starting point was a better information base, logging attendance and performance. This could be used to analyse retention patterns. Some

colleges had set up retention projects or working parties to develop an integrated approach.

> The smaller northern college, with relatively good retention rates, was nevertheless sufficiently concerned about 'at risk' students' to have joined a TEC programme to improve their retention through 'early warning' procedures and tutorial support: each student has a personal tutor whom they meet weekly. Tutors pick up on absenteeism and uncompleted work, and keep in touch with parents.

> A London college where retention had improved from 65 per cent to about 80 per cent had taken steps to improve motivation and satisfaction for 16-19 students. These included an enriched curriculum, improved guidance, unitisation of courses to create short-term targets and certificates for achievement. A voluntary 'study buddy' scheme had been introduced in which, second-year students mentor first-year students, in return for a small payment. This was thought to be helpful but it had not been formally evaluated. Retention had improved particularly in IT (from 50 per cent to 90 per cent) and in construction.

Another strategy mentioned in more than one college was paying more attention to the tutor's role. One college had drawn up service standards for tutors, which it was hoped would promote common levels of support and monitoring. For some students, other staff complemented the tutor's role.

> In a college with a huge proportion of ethnic minority students, four part-time youth workers fulfil an advocacy role for four minority groups: Kurds, Turks, Greek Cypriots and Afro-Caribbeans. They advise and guide these students and mediate learning issues with their tutors where necessary.

It was suggested that modularisation was an important factor in promoting motivation and success, on both GNVQ and A-level courses.

> Modularisation was seen as one key reason for the continuing improvement in A-level achievement in the London college catering mainly for ethnic minority students. The A-level score per student had improved from 6.5 in 1993 to 10.9 in 1996. Business studies, maths, biology and chemistry had all gone modular, and others were following suit. Only law and English would remain as linear courses.

For all students, effective guidance and career planning were also recognised as essential to progression through and beyond the 16-19 stage.

One senior college manager, however, expressed concern that improved retention was not feeding through into achievement and progression. As we noted in Chapter 3, progression was seen as a key challenge, particularly on GNVQ courses. As a result of attention to monitoring and support, 80 per cent of Health and Social Care students in one college had made the transition from GNVQ Intermediate to Advanced last year. In another college, there were good progression rates across the board – 82 per cent of GNVQ Foundation and 87 per cent of Intermediate students progressed on to a higher level programme.

Equally important was progression within courses, particularly on two-year advanced courses. As well as tutorial support, some colleges were using value-added systems formatively to produce estimated grades for A-level students. It was felt that an equivalent system was needed for GNVQ students. Stress was laid on students' own responsibility for progression: tutors could play a major role in promoting students' capacity to manage their learning, on all types and levels of course. On college-managed NVQ courses, it was said, students could do this better if the learning environment was as much like work as possible.

Target setting, evaluation and quality assurance. For schools' sixth forms and for colleges, the importance of target setting as part of institutional development planning and review was well recognised. Here we focus on college strategies.

In a medium-sized college, with impressive levels of attainment, the staff appraisal system was used as a key mechanism for target setting and review. In a process of 'stepped improvement', tutors were expected to achieve better outcomes than the previous year. Retention targets were also set at college level, for example no more than six per cent drop out at A-level and Advanced GNVQ.

A large northern college had developed a comprehensive quality assurance programme focused on achievement.

The college has a corporate Quality Assurance unit and a Quality Leaders Group representing all faculties and services. This group is studying retention. Each programme and course has targets for enrolment, retention and achievement. The cross-college targets are 85 per cent for retention and achievement. Programmes falling below 75 per cnet have immediately to undergo a triennial evaluation of teaching and learning.

In this college, targets were built into strategic planning, and faculty managers, who were provided with national and local information on targets, had to make an explicit link between their targets and National Targets. The college summarised the strategies which were helping it to enhance achievement and thus contribute to the targets.

- Better tracking of students' progress
- Infrastructure to support low achievers
- Target setting by programme leaders
- Value-added review of A-level
- Marketing of the link between learning and financial rewards
- Joint programme with the Chamber of Commerce to provide Modern Apprenticeships

To support target setting and review, the colleges were developing their tracking systems, although they recognised that more effort was needed. In particular, students

could play a fuller role in setting targets for their own performance, drawing on their personal performance record.

Promoting the post-16 work-based route. The most distinctive new initiative in work-based learning, from these investigations, is the Modern Apprenticeship scheme. Managers felt the scheme was 'easy to sell to employers' (although some recognised that very few employers had yet been reached), and were pleased that in general they had reached their target numbers. In fact, one large TEC had considerably exceeded its target for the current year and was looking for further expansion, with opportunities for progression to NVQ Level 4 from this year. As yet, there had been little local evaluation of the impact of the scheme on performance, and TEC areas differed considerably in the profile of their Modern Apprentices.

No detailed investigations were made of local Modern Apprenticeship schemes for this study, but a recent national research survey of Modern Apprentices (Saunders *et al.*, forthcoming) showed that they perceived the scheme as offering occupational benefits such as 'learning real skills in the workplace', career prospects and good quality training. The overwhelming majority of apprentices reported themselves satisfied or very satisfied with their apprenticeship. From the evidence available in the study, it was concluded that Modern Apprenticeships constitute a successful way of reconstructing the work-based route for young people who already demonstrate certain propensities and aspirations. Modern Apprenticeships could be seen as 'the right opportunity at the right time' for these young people.

Some TEC managers described other opportunities for progression through work-based training, mainly via Youth Credits.

> In one West Midlands TEC area, participation in a national project to link funding for training to qualification outcomes had been accompanied by a massive improvement in qualifications. The percentage of young trainees obtaining a qualification had risen from four per cent in 1990 to 70 per cent in 1996. Moreover, some were achieving NVQ Level 3.

In general, expectations for the contribution which the work-based route could make to achieving Foundation Targets were greater in the West Midlands than in the other four regions studied. This fits in with other qualitative and statistical data which points to the importance of vocational and work-based qualification in current and projected progress towards targets in the West Midlands.

4.3 Building a Local Area Strategy

Many of the institutions, LEAs and TECs which were implementing these initiatives were doing so as part of a broader, long-term strategy for raising attainment. Some of these programmes, such as the Birmingham school improvement programme, are on the largest scale, in their scope (a whole LEA school system) and timescale. Moreover, planners and policy makers at each level wishing to bring about major change draw on support from as wide a range of partners and resources as possible. Indeed one mark of dynamic leadership is the capacity to find these resources, as a primary head had demonstrated, obtaining EU funding to get his school on to the Internet and develop transnational links with his pupils. Most TECs had a range of links with LEAs and schools, through specific initiatives and through Education Business Partnership programmes. But how far did these programmes, links and partnerships add up to a concerted local area strategy to raise attainment and improve progress towards the National Targets? In several areas, it was stressed that targets were more a means than an end, with the specific objectives being different for education providers (who wanted to maximise attainment in their institutions) and the employment-focused TEC leaders (who saw their goal in terms of increasing skills needed by employers). Indeed, in one GOR with relatively high levels of achievement, the current priority was to raise awareness of, and commitment to, targets among employers, and to encourage an experiment to evaluate the impact on the 'bottom line' of mass access to accreditation of existing skills.

All TECs are being asked to go further than this, in the current programme to set up targets task forces with a wide range of key local partners, to lead the drive for progress. In some areas, however, active partnerships had already developed from the strategic forums which preceded these task forces. What were the key features of these active partnerships, and how much impact were they having on performance?

4.3.1 Beyond the talking shop: developing a partnership which works

Some TECs recognised that their strategic forum was still a 'talking shop'. Indeed, one large London TEC's forum was in abeyance. Until the new task force started work, area partnerships operated at borough level, in the form of education and training forums of varying effectiveness.

By contrast, one Midlands TEC area with low average attainment and a steep hill to climb in relation to Foundation Targets had used the strategic forum framework to

develop a comprehensive and actively developing area strategy, firmly focused on raising attainment at all levels. To some extent, necessity had proved the mother of invention in this instance.

The Director of Education has been involved in the strategic forum (which he chairs) since it started four years ago. It had two priorities – to set targets (define the task) and to work on process, i.e. what should actually be done to realise targets.

The situation had changed markedly for the LEA from 1990/91, with massive cuts which led to the merger of Education and Community Services and drastic reductions in support services in order to save school budgets. While that may have included loss of some dead wood, it meant that there was very little resource left for strategic planning and support. The only way to do it was via partnerships – hence the importance of the TEC and the strategic forum.

At the same time, this was the moment of a major shift in the LEA towards a more challenging approach – but without the resources to jump-start the process. Through a process of lateral thinking the TEC saw the need to change the underlying culture of the area, to achieve similar goals.

A Raising Expectations and Achievement (REACH) conference was held for headteachers, to focus on the basic goal of raising attainment and demonstrate the value of school targets. From this start, the partnership enterprise had evolved as a TEC-sponsored forum to include training providers, industrialists, both colleges, HE, and the Careers Service, as well as schools. The forum oversaw various projects. By 1995/6 it was restructured into five subgroups with separate agendas.

The education manager at the TEC attributed the turn round from a situation where there had been little communication and some distrust between LEA and TEC mainly to the leadership of the Director and his senior colleagues.

The fruits of this partnership were already evident in the concerted and successful drive for regeneration funds focused on the long-term strategy for raising attainment, and, it was suggested, a changing culture within schools. The next area for development was the KS4 group, with its specific focus on improving GCSE attainment through target setting.

The partnership approach was necessarily more complex in a nearby city in the same GOR, with larger resources but many more partners and layers of management. Nevertheless, many common features were evident:

- **A shared focus on target setting.** Even if leaders from different sectors differed in their view of National Targets as a priority, a shared commitment to moving forward through target setting at all levels, from the local area level, to institutions, staff and students, provided the energy and direction for strategic planning.

- **Dynamic leadership.** Leaders in strategic positions who were prepared to use partnership frameworks as a vehicle for change, and demonstrate public

commitment to this partnership approach, taking account of the range of priorities among local stakeholders.

- **Harnessing resources to tasks.** It was seen as essential to balance strategic planning with action to take the programme forward. This involved investing existing and new funds into actions to meet defined targets, in any of the areas outlined in Section 4.2. This might include joint TEC/LEA appointments and secondments, as well as support for joint projects.

At a conference to promote the targets, both TEC and LEA leaders demonstrated their commitment to the shared agenda, and illustrated how partnership at that level was contributing to improvement in schools, and was urgently needed to address the challenge of disaffection and low expectation among some students and parents.

4.3.2 Synergy and success: some outcomes of partnership

The two TEC areas discussed above were in the West Midlands county area which had significantly low levels of performance at FT1 in the modelling of national data. In each case, the need for an effective local strategy was urgent, in order to raise attainment by a significant amount. It is not possible at this stage to demonstrate overall increases in performance across the area, and some projects will bear fruit in terms of Foundation Targets only in the longer term. But there is already evidence of more effective support for change within institutions at all levels, within a common framework, with the benefit of common approach and interchange of experience, particularly between TEC and LEA staff.

Other areas could also point to the benefits of shared action programmes based on partnership planning.

For example, one northern TEC, had developed a 14-19 initiative as a result of partnership through the strategic planning forum, targeting lower achievers in schools and through the Youth Service and the Educational Welfare Service.

A London TEC led the bid for SRB Round 3 funding called Skills for the Millennium. The essence of the bid is to establish better partnerships with LEAs and to help develop whole institutional targets. Another aspect is the coordination of key skills provision by building on progress to date, developing further programmes and giving more recognition to achievement.

As TECs develop their task forces, drawing on good practice guidelines developed by NACETT and DfEE, it will be important to monitor the impact on target outcomes of these apparently successful and dynamic partnerships.

4.4 Identifying Effective Strategies

This review of strategies to raise attainment and to promote progress towards the targets is inevitably limited in its scope, based as it is on discussions with some senior staff in a small sample of areas and institutions. Furthermore, in keeping with the targets agenda, it has touched, however briefly, on the whole range of education and training for young people up to 21. Within the last few years, there have been national reports and studies on each aspect of this review, using far larger databases and drawing on much greater depth of evidence; for example – on strategies to raise attainment through target-setting (Ashby *et al.*, 1996) and through projects for those 'at risk'. However, it suggests some key findings and raises issues which need to be considered.

4.4.1 Key findings

This brief investigation focused particularly on areas and institutions which have made significant strides in raising attainment levels in fairly challenging circumstances. However, there are signs that many strategies that seem to have proved successful in these circumstances may well be relevant more widely. The difference has more to do with the way in which they are translated into specific programmes and approaches.

One underlying point, made by managers at all levels, is that the targets have to be seen and used as a means to an end - raising levels of attainment - and not as an end in themselves. For that reason, the findings summarised below relate more directly to that end than to the more specific focus of the targets.

Motivation to achieve

Successful managers of institutions and programmes had recognised the fundamental importance of motivation, both for pupils and for staff, and invested heavily in strategies to promote students' commitment to learning. These included positive incentives in the form of support, rewards, advocacy and recognition; a conducive climate ('it's all right to be clever') and resources for learning; and clearly defined requirements for all learners. Using staff appraisal or value-added review to strengthen staff motivation made sense once staff could see that the whole institution was working for improvement. As one primary headteacher had proved to her staff, pupils and parents, hard work could indeed be both rewarding and enjoyable. Nevertheless, these leaders recognised that many children and young people have to overcome formidable

barriers to achievement, and imaginative strategies will be needed to help them sustain their motivation.

Focus on learning skills

As one LEA leader put it, the dislocation that had grown up between the National Targets and the school agenda could be attributed to the failure to make the link between target setting, as a concept, and classroom-level strategies to extend pupils' learning. Senior managers were keen to encourage their staff to develop learners' key skills, encourage them to take responsibility for their learning, assess their performance and set and evaluate learning targets. Some course leaders had revised their teaching approach to encourage learners to be more self-aware and critical in their response to the curriculum and to provide them with appropriate materials and methods. But there were signs that progress was uneven, between subjects and programmes. Moreover, planning for progression in learning skills is still relatively unusual. It appeared that most was being achieved in this respect at the level of basic skills, whether in reading at Year 7 or at foundation level in post-16 programmes. More generally, much depended on tutorial programmes to support learning skills across the curriculum. The need for clear standards or criteria for skills and substantial professional development for the tutorial role was stressed by a number of senior managers.

Effective collection and use of evidence

The most marked development in recent years in the schools and colleges we visited is the systematic collection and use of evidence on individual performance in policy evaluation and planning. This was most evident at senior and middle management level. It included activity at GO, TEC, LEA and institutional levels, and involved collaboration between these levels. Effective strategies for raising attainment were associated with good quality information, systematic and appropriate analysis and intelligent interpretation of the results to evaluate practice. Above all, the process calls for sound decisions and systematic procedures at the level of data collection, to ensure that appropriate measures are recorded for all relevant individuals, in order to track and evaluate progression in learning. Ensuring that these principles are translated into effective professional practice, at all levels, is a major challenge for the immediate future. In particular, this involves enabling teachers to make learning more effective through more systematic use of attainment information at classroom level.

Exceeding expectations

Many of the managers we spoke to were firmly committed to a programme of continuous improvement in standards of attainment, for the organisation as a whole

and for each grouping within it. Very often, this was based on internal year-on-year comparisons, with the target being set a little further ahead – either by senior managers, or through a process of consultation. Target setting was more likely to prove effective, as means of raising attainment, when it was based on a sound body of evidence, such as analyses showing predicted outcomes. 'Benchmarking', as discussed in DfEE/SCAA proposals currently under discussion (SCAA, 1997), provides another starting point. The procedure proposed for this purpose takes performance levels of the highest performing group of schools as a benchmark for all schools. However, in order to make the comparisons fair and useful, schools are to be placed in broad groupings with others having similar characteristics, and the benchmarks set for each category. While this process has yet to be finalised and implemented, at least one LEA has already applied the principle to its own schools. The strength of this local approach is that schools can begin to use the results to initiatiate their own practical investigation of strategies that work in similar schools.

Finally, the principle of exceeding expectations can and has been applied, in some cases, to individual teachers and students. In other words, provided the other principles outlined above are heeded about motivation, learning skills, and the use of evidence, it is fair and appropriate to call on individuals regularly to exceed what they themselves and others expect they can achieve.

4.4.2 Issues for discussion

We end with a few of the issues which have recurred in this chapter, and which are about the priorities and balances that managers and policy makers may have to consider.

The first concerns the **timescale and scope** of policy focus. Plans to raise attainment may vary from long-term to very short-term initiatives. They may also range from small-scale interventions affecting small groups of individuals to policies relevant to whole age groups or institutions. In addition, some interventions are designed to make learning 'right first time', others to provide second or repeated chances to recover from earlier failure or underachievement.

It could be argued that making progress towards the targets, which focus now on outcomes that can be achieved within three years, puts a premium on short-term interventions that will maximise achievement of the relevant age groups with that timescale. However, in efforts to meet the underlying goal of raising attainment over

the longer term, perhaps interventions with much younger age groups, which can bear fruit only in qualifications achieved some years on, will have the greater impact. Clearly, this is a matter of balance rather than choice, but more active debate within local strategy groups and task forces could be valuable.

The second issue relates to **14-19 progression routes**. Careers education and guidance was not a central part of this investigation, but GOR and TEC managers were asked to comment on it. Equally, school and college managers had their own views on guidance and progression routes. Given the range of post-16 providers, many of the issues can be usefully deliberated only within an area forum, and this is beginning to happen in some areas. Some challenges to progression for individuals may be solved by better guidance and information, but other problems cannot be resolved in this way. Is the gradient from one course level to another manageable? How much weight should be given to student preference, employer demand and institutional priorities in planning course provision? What are the implications of leaving full-time education at 16, 17 or later? Indeed, is it relevant to distinguish so sharply between full – and part-time provision when some so-called full-time students earn for 15-20 hours per week? It may well be that an institution can only go so far towards effective strategies for progression and achievement until some of these issues are more satisfactorily resolved, at least within the local area.

Lastly, there is the issue of **context**. This has two aspects. First, there is the balance between the levels of organisation and area or region. We have argued that, for many purposes, strategic partnership among all the agencies a local (TEC/LEA) area is likely to prove more effective than these agencies in working separately. At the same time, little will happen unless each institution and group accepts responsibility for improvement. Secondly, there is the issue of institutional, local and national contexts and targets. Clearly, it is essential to compare like with like, but the benchmarking approach suggests that there is still scope to aim for the best within a grouping of schools or colleges judged to be broadly similar in their context. On a wider front, how distinctive should an area be in its strategies? For example, should an area with a strong tradition of work-based training and vocational courses aim to improve its performance mainly by developing this tradition, or challenge it by promoting the academic route more strongly? To what extent should policy makers in the area set the agenda, and what is the role of employers and young people themselves in determining the pattern of provision? In these discussions, regional as well as national leaders clearly have a contribution to make.

Main findings and conclusions from Chapter 4

Schools which had improved their performance from a low base stressed the following strategies:

- **Changing the culture:** staff made it clear that *'it's all right to be clever'*, rewarding achievement, and setting clear guidelines. Some schools focused on specific groups of underachievers while others expected all pupils to exceed expectations.

- **Focus on learning:** more explicit teaching on basic and key skills, to enable pupils to manage their learning effectively. This might involve major in-service training. Reviews of teaching strategies to make the curriculum more accessible were also valued.

- **Target setting for all:** target setting was proving effective in improving outcomes when staff and pupils, as well as managers, were fully involved in analysing assessment information and using it to improve the quality of teaching, learning and achievement.

Some LEAs were supporting schools effectively through performance-data collection and analysis and funding pilot projects to raise attainment. Sustaining such programmes in the long term remains a challenge.

Managers of **post-16 provision** related improved performance to:

- **Effective induction and placement:** colleges stressed the need for accurate assessment of entrants, skills and common induction strategies for course groups (e.g. all GNVQ students). Some colleges had to provide basic skills courses for many entrants as well as a wide range of Level 1 courses to provide a 'recovery' track.

- **Improving retention and progression:** by targeting courses with poor retention some colleges had considerably improved both enrolment and retention. Although there was concern about progression from one level to another, some colleges had improved their outcomes through tutoring and support.

- **Target setting, evaluation and quality assurance**: colleges were building targets into strategic planning, but more work was needed on tracking and getting students involved in target setting.

- **Work-based training** was proving successful when linked to outcome-related performance or Modern Apprenticeships

Area strategies were being developed in two areas with low average performance. These were led collaboratively by LEA and TEC managers and were characterised by **a shared focus on target setting, dynamic leadership and the harnessing of resources to tasks.**

In general, **common characteristics** of successful programmes were identified as: **motivation to achieve, focus on learning skills, effective collection and use of evidence and a stress on exceeding expectations.**

Three key issues were raised:
- **balancing long-term and short-term priorities** (in programmes to raise attainment)
- **smoothing 14-19 progression routes** (by local cooperation and national planning)
- **balancing local and national priorities** (recognising national standards in local planning)

5. RECOMMENDATIONS AND CONCLUSIONS

5.1 Measuring Progress Towards the Targets

Although the Foundation Targets appear to have been specified clearly and unambiguously, there are continuing issues facing those who measure progress towards them. One is the question of local data collection versus national statistics. Historically, local information has been derived in various ways, some more defensible than others. Recent tighter guidelines on data collection may have led to a greater convergence of methods, but local and national statistics on target achievement cannot always be compared. It can be argued that local statistics are more valid for local purposes, and that they are collected in ways which reflect the local situation and local concerns. On the other hand, if meaningful local targets are to be set, it is essential to relate them to the National Targets and to have some way of assessing progress against national statistics.

Another important issue is the contrast between different ways of collecting information about target achievement. For example, the 'annual' method allows for all relevant qualifications gained in the most recent academic year by all young people within the defined age range, whereas the 'cohort' method attempts to estimate the total qualifications gained by individuals up to the present. These two methods give different results, and users of such statistics need to be aware of the basis on which they have been calculated.

***Recommendation 1*: Procedures should be developed for relating local statistics on target achievement systematically to national statistics.**

When comparing results from national sources of data, we encountered many difficulties in trying to compare like with like, due to inconsistencies in the way in which data is collected and presented. Such analysis as was possible seemed to indicate, however, that different national datasets gave broadly consistent pictures of target achievement. The LFS dataset remains the best available source of information on national progress towards the targets, despite representing only a sample of young people.

***Recommendation 2:* For national analyses using current data, the LFS should remain the central data source because of the range of relevant data it contains.**

It became very clear, however that the only way to measure progress towards these or subsequent Foundation Targets was to record the relevant characteristics, contexts and achievements for all young people.

Recommendation 3: **Serious consideration should be given to setting up a unified qualification monitoring system, with data collected on individuals in all areas of education and training, at least from 16 onwards.**

Detailed multilevel analysis of the LFS data indicated that apparent variations between GORs could be explained by the effects of background factors and variations at lower levels, such as the county. For both FT1 and FT3, there were a few counties which performed significantly better, or worse, than the rest, when all the other factors had been taken into account. Further sophisticated analysis of this type is recommended, especially if individual TEC areas can be identified within the LFS data.

Recommendation 4: **Statistical evaluation of progress towards Foundation Targets should use multilevel techniques, in order to take account of a wide range of associated factors and the possibility of differing effects at each level.**

Failing this, work should be done to make existing databases more consistent and to allow matching of individual data from one to another.

Whilst there is a considerable corpus of research on school effectiveness which has gone some way to uncovering institutional factors that may be associated with higher levels of performance via the academic route, there is no corresponding body of research and knowledge relating to progress via the vocational route to FT 1 and FT 3. This study found that the TEC is the most appropriate level to examine in terms of vocational qualifications, because various organisations – colleges, training providers and employers – are involved in their delivery. By combining a range of data sources at the TEC level, we can estimate percentages of the cohort of young people achieving FT 1 and FT 3 through YT/MA.

Recommendation 5: **Further research is needed into the factors associated with higher levels of performance against FT1 and FT3 via vocational qualifications.**

5.2 Factors Associated with Progress Towards the Targets

Statistical analysis of the LFS data showed that the relationships between the probabilities of achieving FT1 and FT3 and individual background factors are consistent with other research, with enhanced probabilities for females, older

individuals and those of higher social class. Factors associated with ethnicity also appeared to be related in some cases, with individuals in black ethnic groups having a reduced chance of achieving targets.

Analysis of regional factors showed that the unemployment rate was negatively related to FT1 (regions of higher unemployment had reduced probabilities of achieving FT1), while the percentage of individuals in full-time education was positively related to (enhanced the probability of achieving) FT3. Some analysis of TEC-level data on work-based training indicated a positive relationship between institutional commitments to IIP and target achievement via this route.

A range of institutional factors associated with performance linked to the targets has been derived by school effectiveness research. These include leadership, shared vision and goals, concentration on teaching and learning, high expectations, positive reinforcement, monitoring progress, promoting pupil self-esteem, and home – school partnership.

The models fitted to LFS data can be used to project possible changes over time in the probabilities of achieving the targets. These suggest there is a reasonable probability of achieving both targets. However, the projections should not be treated as predictions, since they take no account of existing or new initiatives which may affect target achievement. Nevertheless, they indicate a methodology for generating projected target achievement figures which has certain advantages, including a built-in estimate of the likely errors in the projections.

Recommendation 6: **The methodology used in this study for generating projected target achievement figures should be further evaluated and compared with other approaches, in order to enhance the accuracy of projections.**

5.3 Strategies for Improving Target Achievement

GOs, LEAs, TECs, schools and colleges are developing and using various strategies to raise attainment and improve achievement. Taken together, these micro- and macro-level strategies should affect the achievement of the targets. There are two issues worth consideration: first, as local contexts are highly diverse, strategies will not be effective unless they are developed in response to local needs and circumstances; and secondly, the impact of individual strategies and initiatives is likely to be greater if they are coordinated. Therefore, one of the major challenges facing the targets task forces is to achieve coherent programmes in their areas.

Recommendation 7: **TEC targets task forces should use the NACETT/DfEE guide and other resources to provide an FT-related strategy for raising attainment in the area. The strategy should include all partners and cover all ages up to 21, and be coherent, relevant to local needs and long-term, in order to make the most effective use of short-term funding.**

Recommendation 8: **Further consideration should be given to providing guidance on local target setting, in order to encourage TECs to set local, interim targets which key partners recognise as both challenging and realistic.**

GOs, LEAs and TECs are playing strategic roles in raising awareness of the National Targets and in drawing the key education and training providers together in order to exchange information and practice on data collection and measurement issues and to discuss ways of improving performance. LEAs and TECs are supporting target setting through their involvement in data collection and analysis, through initiating local projects to raise attainment and through strategic policy development such as promoting progression from primary to secondary schools and strengthening community education.

Recommendation 9: **Care should be taken at national, regional and local levels to ensure that programmes to promote institutional target setting, the achievement of key-stage targets and the achievement of National Targets, are complementary, with links and common strategies made explicit.**

Recommendation 10: **Equally, any work to develop a national target-related database (*Recommendation 4*) must be compatible, where relevant, with the design of data-collection systems for monitoring 'value added' performance in schools, LEAs and colleges.**

Schools are trying out a range of strategies and interventions to raise attainment and achievement. This usually involves strengthening or changing the learning culture in the school and creating a positive and more purposeful atmosphere. In some cases, this also involves raising teachers' and parents' expectations of what pupils are capable of. There is evidence that schools are trying to improve pupils' learning and study skills as well as their examination techniques. Furthermore, given that the quality of classroom teaching is crucial to improving pupils' performance, some schools are reviewing the effectiveness of teaching and learning styles.

Schools and colleges are developing infrastructures which enable them to collect, collate and analyse student data and use this information to track and review their progress. Teachers and tutors are gaining experience and expertise in dealing with increasingly sophisticated data and using it critically to assess student performance, to

predict results and as the basis for intervention and providing support. Target setting is also becoming a key part of institutional infrastructures and quality assurance systems. As well as using targets in monitoring student progress, managers are increasingly setting targets at department, faculty and institutional level in order to lever up performance and improve outputs.

Recommendation 11: **In order to extend and sustain good practice in schools and colleges, particular attention should be given in initial and in-service training to the skills needed to enable teachers to use target setting to raise pupils' expectations and enhance learning.**

Colleges are working hard to increase retention and raise achievement. Threshold strategies are often the first intervention, where institutions assess applicants' skills and identify what type of extra learning support, if any, is needed. There is also evidence of colleges strengthening their tutorial systems in order to monitor students' progress more closely. This approach helps to keep students on track and provides early warning signals if students have problems, thus enabling appropriate action to be taken as fast as possible.

Other strategies being used by colleges include better induction programmes so that students are made fully aware of what is expected of them in terms of coursework and assessment, improved key skills provision, and the provision of more progression routes and links through the introduction of pre-foundation and foundation courses.

Finally, all the evidence from this study suggests that if FT 1 and FT 3 are going to be achieved and if this achievement is to be sustained in the long-term, then effective practice at the institutional and area level will have to be evaluated more systematically than at present and widely disseminated to policy makers and practitioners. In addition, appropriate professional development will need to be provided to ensure that managers, teachers and tutors have the relevant data analysis, tracking, and review skills to support the raising of attainment and achievement.

Recommendation 12: **Techniques for analysing and interpreting performance data should be widely disseminated through resource materials and workshops, in order to help organisations to improve performance.**

REFERENCES

ADVISORY SCOTTISH COUNCIL FOR EDUCATION AND TRAINING TARGETS (1996). *Annual Report 1996*. Glasgow: ASCETT.

ALLNUTT, D. (1995). 'Official UK data on education and training.' In: IMAC RESEARCH *Education and Training Statistics Conference Papers* (Statistics Users' Council Annual Conference, 22nd November 1995). Esher: IMAC Research.

ASHBY, P. BENEFIELD, P. and TABBERER, R. (1996). *Targets for School Improvement: a Select Annotated Bibliography*. Slough: NFER.

BROOKS, G., GORMAN, T., HARMAN, J., HUTCHISON, D. and WILKIN, A. (1996). *Family Literacy Works: the NFER Evaluation of the Basic Skills Agency's Demonstration Programmes*. London: Basic Skills Agency.

CRAGGS, P. (1995). 'Monitoring progress towards the National Targets for Education and Training.' In: IMAC RESEARCH *Education and Training Statistics Conference Papers* (Statistics Users' Council Annual Conference, 22nd November 1995). Esher: IMAC Research.

GREAT BRITAIN. DEPARTMENT FOR EDUCATION AND EMPLOYMENT (1996). *Participation in Education of Young People Aged 16 and 17 in Each Local Education Authority and Region of England: 1990/91 to 1994/95* (Statistical Bulletin 8/96). London: HMSO.

GREAT BRITAIN. DEPARTMENT FOR EDUCATION AND EMPLOYMENT (1997a). *1996 TEC Performance Tables*. London: DFEE.

GREAT BRITAIN. DEPARTMENT FOR EDUCATION AND EMPLOYMENT (1997b). 'Double take: exploring the issue of disaffection', *Insight*, **38**, 22-3.

GREEN, A. and AINLEY, P. (1995). *Progression and the Targets in Post-16 Education and Training* (Post-16 Education Centre Report No.11). London: University of London, Institute of Education, Post-16 Education Centre.

KENDALL, L. (1995). *Examination Results in Context*. London: AMA.

NATIONAL ADVISORY COUNCIL FOR EDUCATION AND TRAINING TARGETS (1996a). *Skills for 2000: Report on Progress Towards the National Targets for Education and Training*. London: NACETT.

NATIONAL ADVISORY COUNCIL FOR EDUCATION AND TRAINING TARGETS (1996b). *Skills for 2000: Supplement to the Report on Progress Towards the National Targets for Education and Training*. London: NACETT.

PAYNE, J. (1995). *Qualifications Between 16 and 18: a Comparison of Achievement on Routes Beyond Compulsory Schooling* (Youth Cohort Report No.32). Sheffield: Employment Department.

REYNOLDS, D. and CUTTANCE, P. (1992). *School Effectiveness: Research, Policy and Practice.* London: Cassell.

SAMMONS, P., HILLMAN, J. and MORTIMORE, P. (1995). *Key Characteristics of Effective Schools: a Review of School Effectiveness Research.* London: University of London, Institute of Education.

SAUNDERS, L. with LINES, A., MacDONALD, A. and SCHAGEN, I. (forthcoming). *The Impact of Modern Apprenticeships on Young People's Take-up of Work-based Learning.*

SCHOOL CURRICULUM AND ASSESSMENT AUTHORITY (1997). 'Benchmarking and Target Setting in Schools.' Paper presented at the Schools Conference, Birmingham, March 1997.

SCHAGEN, I. (1995). *QUASE: Quantitative Analysis for Self-Evaluation. Technical Report of Analysis 1995.* Slough: NFER.

SCHAGEN, I. (1996). *QUASE: Quantitative Analysis for Self-Evaluation. Technical Report 1996: Analysis of GCSE Cohorts 1993 to 1995.* Slough: NFER.

SCHAGEN, S., JOHNSON, F. and SIMKIN, C. (1996). *Sixth Form Options: Post-compulsory Education in Maintained Schools.* Slough: NFER.

SCHEERENS, J. (1992). *Effective Schooling: Research, Theory and Practice.* London: Cassel.

SPOURS, K. (1995a). *Post-compulsory Education and Training: Statistical Trends* (Learning for the Future Working Paper No.7). Coventry: University of Warwick, Centre for Education and Industry.

SPOURS, K. (1995b). *Post-16 Participation Attainment and Progression* (Post-16 Education Centre Working Paper No.17). London: University of London, Institute of Education.

TABBERER, R. (1994). *School and Teacher Effectiveness.* Slough: NFER.

UNIVERSITIES AND COLLEGES ADMISSIONS SERVICE (1997). Tariff and Profile Initiative Newsletter, March 1997. Cheltenham: UCAS.

WOODHOUSE, G. (1995). *Multilevel Modelling Applications: a Guide for Users of MLn.* London: University of London, Institute of Education.

Appendix A
Programme of Qualitative Data Collection

GROUP	ACTIVITY
Government Offices (GOR)	Interviews with Education Advisers in five Government Offices (London, Merseyside, South West, West Midlands, Yorkshire and Humberside). Review of target reports and other relevant documents.
TECs	Interview with staff at eight TECs, in four of the five Regions. These included education and operations managers and staff responsible for aspects such as data collection and analysis, research, EBPs, Modern Apprenticeships and higher education. Some TECs were visited on at least two occasions.
LEAs	Interviews with senior advisers/inspections and other staff in at least two LEAs in each Region. A total of 12 LEAs were visited or telephoned. Review of reports and data on performance and on a wide range of projects related to raising attainment.
Further Education Colleges	Visits to four colleges, interviewing a range of staff in each, including vice principals, heads of faculty, working party chairs (GNVQ, assessment, assistant principals e.g. student support quality), programme directors (A-levels, GNVQ, vocational programmes). Review of wide range of data and reports relating to target setting, performance, quality assurance and special projects on raising attainment.
Secondary Schools	Visits to nine secondary schools, interviewing a range of staff in each, including headteacher other senior mangers, e.g. heads of year, deputy heads, heads of sixth forms), heads of department, Special Needs Coordinator, careers coordinators, assessment coordinators. Review of school reports related to raising attainment, OFSTED reports, data on academic performance and destinations.
National Bodies	Telephone interviews with senior staff at Further Education Funding Council, two examination boards offering vocational qualifications (the Edexcel Foundation and the City and Guilds of London Institute), DfEE, UCAS. Review of a range of published and unpublished reports and other documents.
Conferences	Attendance at one TEC conference on targets and a DfEE regional schools conference on benchmarking and target setting (Birmingham, 17 March, 1997).

Note: Interviews in Phase One were mainly by telephone with a few visits and in Phase Two mainly during visits to the areas selected for further investigation.

Appendix B

Comparison of LFS and SERAP Academic Databases

The Labour Force Survey (LFS) data was obtained for eight surveys from March 1994 to February 1996. This data was available at the individual level, and comprised a sample of all people of the relevant age range, covering all types of education, training or employment, or none. The datasets for comparison were all aggregated to the TEC level or higher, and comprised:

1. DFEE Academic database – young people achieving FT1 or FT3 via GCSEs or A/AS-levels.
2. FEFC database of young people in college achieving FT1 or FT3.
3. DFEE RHOMIS database of young people achieving FT1 or FT3 via work-based training.

Individuals between 16 and 21 in the LFS survey were allocated to Cohorts according to date of birth:

Cohort 0	born between 1 September 1974 and 30 August 1974 (and therefore mostly taking GCSEs in Year 11 in summer 1990)
	up to
Cohort 6	born between 1 September 1980 and 30 August 1980 (and therefore mostly taking GCSEs in Year 11 in summer 1996).

Individuals were identified who had achieved foundation targets by the academic route (FT1 defined as having five or more GCSEs; FT3 as having two or more A- or A-level equivalents) or by the vocational route (FT1 defined as NVQ Level 2 or higher; FT3 as NVQ Level 3 or higher).

DFEE Academic data was available for cohorts 0 to 5, as defined above, and was compared with the LFS data collected in the September-November quarter of 1995.

Table B1: Percentages achieving FT1 and FT3 via academic qualifications – comparison of LFS and DfEE Academic Databases

	Estimated from LFS		From Academic data	
Government Office Region	**FT1**	**FT3**	**FT1**	**FT3**
Merseyside	47%	28%	42%	26%
Yorkshire & Humberside	49%	27%	38%	22%
East Midlands	47%	22%	40%	25%
West Midlands	43%	21%	41%	25%
South West	57%	31%	51%	32%
London	50%	30%	39%	25%
East/South East	55%	29%	51%	33%
North East/North West	50%	26%	43%	25%
Total – England	51%	27%	44%	28%

The LFS data is from the third quarter (September to November, 1995) for which there are 8,186 individuals aged 16 to 21. As an example 286 were in Merseyside of whom 199 were Cohorts 2 to 5 (FT1 age) and 165 were Cohorts 0 to 3 (FT3 age). Of the FT1 age group 93 (47 per cent) had achieved the target (LFS variable NUMOL = 2) while 47 (28 per cent) of the FT3 group had achieved the target (LFS variable NUMAL =2).

For England the figures were 2,751 of 5,422 (51 per cent) had FT1 and 1,374 of 5,043 (27 per cent) had FT3.

The SERAP academic data showed (for Merseyside) 30212 in Cohorts 2 to 5 with GCSEs (FT1) and 18,550 in Cohorts 0 to 4 with A/ASs (FT3). Strictly, the base should be the total numbers in the cohorts but these numbers were not available. The number of 16-to-10 year olds from the LFS data (corresponding to 4 cohorts) was used instead. Thus the percentages of 42 and 26 were derived.

For England the figures were 970013 and 602878 for GCSEs and A/ASs respectively giving percentages of 44 and 28 for the population of 2191402.

DFEE Foundation Target projections using DfEE foundation target data for individuals with academic age 16 in 1991/92 and 16 in 1995/96, that is those corresponding to Cohorts 5 and 1 respectively, can also be compared. For Cohort 1 25% had achieved FT3 compared with 28 per cent according to the Academic database and 26 per cent according to LFS. For Cohort 5, the DfEE figure was 45 per cent compared with 46 per cent according to the Academic database and 48 per cent according to LFS.

The RHOMIS YT/MA data, like the FEFC data, relates to awards in a particular year without reference to age. Again it is not possible to compare these datasets directly .

Some individuals achieve the Foundation Targets by means of both academic and vocational qualifications, i.e. there is an element of double counting if numbers for the two types of route are simply added together. The LFS data (for 16-to-21-year-olds) gives some indication of the extent of the problem. In the June – August 1995 survey, 31 per cent of those with vocational FT1 also had academic FT1. (Correspondingly, 4.4 per cent of those with academic FT1 also had vocational FT1.) Only three of the LFS sample had both vocational and academic FT3.

Appendix C

Details of Statistical Analysis of Labour Force Survey Data

Introduction

To investigate statistically the factors which appear to be related to progress towards the targets and regional variations in that progress, it is necessary to use a technique which makes full allowance for all the possible sources of variation. In addition, we need data which is both consistently collected and sufficiently detailed to allow modelling of all the important underlying factors. This means in practice that we need data on individuals, ideally measured at different stages so that we can investigate changes over time.

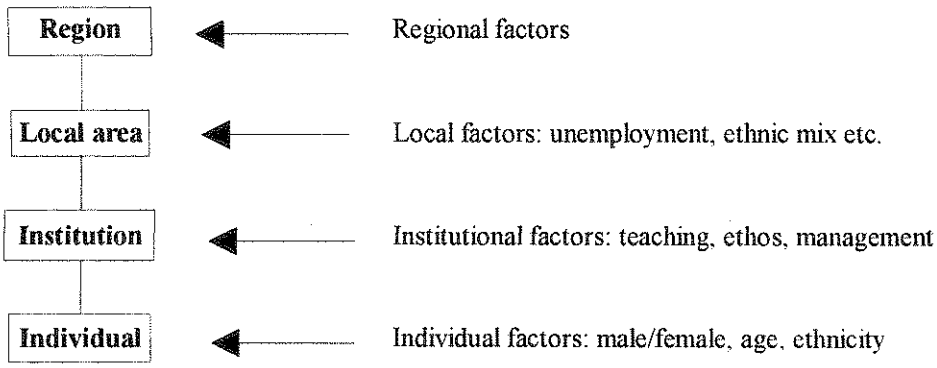
The Labour Force Survey (LFS) data was the only available dataset which met these requirements: information is available on individuals, normally at more than one time point, and the survey covers all types of young people. Because it is a sample and not a full population survey, there are corresponding sampling errors and uncertainties in any results which are obtained.

To model this situation and take account of all the possible factors which may influence individual progress towards the targets as well as all the possible sources of uncertainty, it was necessary to use a sophisticated statistical technique known as *multilevel modelling*. This technique was developed to handle the situation, which is quite common in educational research, where not only are there a large number of factors potentially influencing the outcome of interest, but also they may operate at a number of different *levels* (see, for example, Woodhouse, 1995).

Figure C1 shows schematically the kind of situation to which multilevel modelling may be applied. Individuals undergoing education or training may be assumed to be grouped together into institutions, which are clustered into local areas, which in turn are grouped into regions. At each level there may be similarities between objects. For example, institutions within a given local area may have more in common than institutions in other local areas. Furthermore, factors may be related to the outcome (attaining FT1, or whatever) at different levels – some may relate to the individual, others to the institution, and others to the local area or region. Figure C1 gives a few examples of the kinds of factors which might operate at each level.

Multilevel modelling is sometimes known as *hierarchical linear modelling*, because of the assumed hierarchy of levels it includes. It has two important features which make it particularly valuable for the present study. In the first place, it allows us to assess the relationships between a whole set of background or 'explanatory' variables and the measure we are interested in (the 'outcome variable') in one run, controlling for all variables simultaneously. We may estimate the uncertainty in the relationships fitted and tell which variables appear to be significantly related to the outcome variable and which do not. In these aspects, the technique is equivalent to *multiple regression*.

Figure C1: Illustration of levels and factors within a typical multilevel model



The second feature of multilevel modelling is its ability to model explicitly the hierarchical nature of datasets. Instead of assuming that the data is a random homogeneous selection of cases, we may model the fact that individuals are grouped together in counties, which themselves are grouped into Government Office Regions (GORs). The multilevel model can be specified so that that it assumes that as well as there being differences between individuals in the same county, there are overall differences between counties and GORs. The capacity to define these levels of modelling comprises the distinguishing feature of this technique, one that is particularly relevant to the aims of this research.

Figure C1 shows institution as one of the levels in the model, but unfortunately the LFS data does not give us access to information about the institution attended by each individual. This important element in modelling achievement is therefore missing from the models that can be set up based on the LFS. Regional information is also slightly problematical. TEC and LEA indicators are also not available, and other regional indicators depend on the exact survey analysed. For the final three surveys which were available (June 1995 to February 1997), two levels of regional indicator were recorded:

- Government Office Region (GOR)
- County Indicator (CID).

For the first five surveys (March 1994 to May 1995), the only regional indicator was:

- Region of Usual Residence (URESMC).

Values of CID are nested within GOR, so that these two variables give us a hierarchy of regional information. These variables are not defined for the five earlier surveys, so that the only regional information available is given by the variable URESMC (Region of Usual Residence). This does not exactly correspond to GOR, and in a couple of cases it is not uniquely defined by the County Indicator, (CID). By combining four of the regions into two, it was possible to develop a modified version of URESMC which could be uniquely matched to the county variable and hence to the relevant census data. Table C1 shows the relationship between GOR and URESMC. Since we needed to make the most use of the available LFS data, it was necessary to use URESMC as

the regional variable, which meant that we were unable to determine variations at a more detailed regional level when the full dataset was used.

All analyses were therefore carried out twice, once using only the last three surveys with the detailed regional data, and once with all eight surveys but more limited regional information.

Table C1: Relationship between LFS regional variables GOR and URESMC

	Government Office Region (GOR)				
Region of Usual residence (URESMC)	North East	North West	Mersey-side	Yorks. & Hber'side	East Midlands
South Yorkshire				27%	
West Yorkshire				46%	
Rest of Yorks.				27%	
East Midlands					100%
Greater Manchester		47%			
Merseyside			100%		
Rest of North West		43%			
North East	100%	10%			

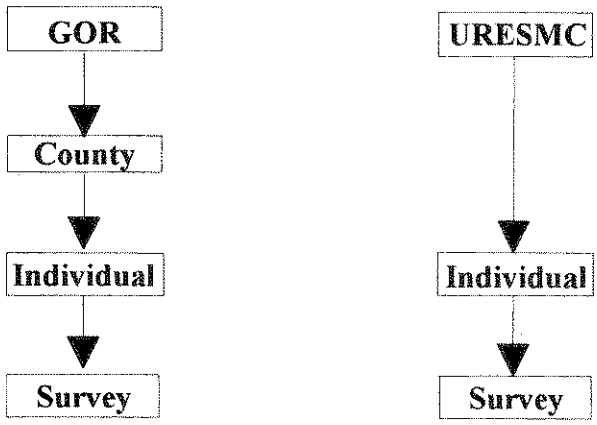
	Government Office Region (GOR)				
Region of Usual residence (URESMC)	West Midlands	South West	Eastern	London	South East
East Anglia			43%		
Rest of South East			57%		100%
South West		100%			
West Midlands (Met)	54%				
Rest of W. Midlands	46%				
Greater London				100%	

(Percentages are of residents in each GOR allocated to each value of URESMC)

In the case of the LFS data, individual respondents can appear in more than one survey, so there is an extra level in the model which represents different surveys for the same individual. Figure C2 illustrates the different levels in the two multilevel models used – one for just the last three surveys, with both GOR and CID as regional and local indicators, and the other for all eight surveys, with just URESMC as the regional indicator.

Another feature of multilevel modelling is its ability to simulate differential relationships within higher-level units. For example, we might hypothesise that rates of change over time might vary from county to county or from GOR to GOR – it is a relatively simple task to test this out with a suitable multilevel model.

Figure C2: Illustration of levels assumed in multilevel models



Model 1 - 3 surveys **Model 2 - all 8 surveys**

In this discussion of multilevel modelling we have assumed that the outcome measure we are studying consists of a numerical value on some kind of scale – for example, a test score or other measurable quantity. However, the focus of our interest is on whether or not individuals achieve FT1 or FT3, which can be modelled as *binary* variables which only take the values 0 (not achieved) or 1 (achieved). Conventional regression or multilevel modelling techniques are not appropriate in this case, so it is necessary to include an extra feature. This is so-called *logistic transformation*, which enables us to deal with binary variables in essentially the same way as scale scores. An unfortunate feature of this technique, however, is that the results are slightly more difficult to interpret than those of conventional regression models.

Results of Analysis: Factors associated with Achieving Targets

Logistic multilevel models were fitted to the LFS data, over all eight surveys and over just the last three, to estimate the relationships between the probabilities of achieving FT1 or FT3 and a range of background variables. The models were run twice, based on different numbers of surveys, because of the change in regional variables which could be used, as explained above.

The background variables available from the LFS for each individual and used in multilevel analysis are described below:

- **SURVEY:** Survey number in which individual appears (values 1 to 8). The changes associated with this variable can be regarded as measures of change over time in Target achievement.
- **SEX:** This took the value 1 for males and 2 for females.
- **BLACK:** Ethnic background – 1 for black, 0 otherwise.
- **ASIAN:** Ethnic background – 1 for Asian, 0 otherwise.
- **OTHER:** Ethnic background – 1 for other non-white category, 0 otherwise.
- **AGE:** Age in years at time of survey (to two decimal places).
- **CLASS:** Social class, from LFS data, on range 1 (unskilled) to 5 (professional). Missing values were coded as 2.

In addition to the individual-level background variables described above, it was possible to derive from the LFS data certain regional variables which could be included in the multilevel model. Each of these was defined as a percentage of the total persons aged 16+ in the given region, and a brief description of each is given below:

- **UNEMP:** percentage unemployed;
- **RETIRED:** percentage of retired persons;
- **ETHNICPC:** percentage of ethnic minorities;
- **FTEDPC:** percentage in full-time education.

Table C2 summarises the results of logistic multilevel modelling for both FT1 and FT3, using both the data from the last three surveys (with more detailed regional variables GOR and CID) and the data from all eight surveys (but with the less detailed regional variable URESMC). The table shows only relationships between background variables and FT1 or FT3 which are statistically significant at the five per cent level. (See the technical note following Table C2 which explains the values in the table.) The table values may be regarded as measures of the relative strength of the relationship between achieving the target and each background variable. Positive values imply an increase in target probability associated with the background variable, and negative values a decrease.

Table C2: Logistic multilevel results for background variables

	FT1		FT3	
Background variable	**3 surveys**	**8 surveys**	**3 surveys**	**8 surveys**
SURVEY	4	9		8
SEX	13	11	6	4
BLACK	-7	-7	-9	-6
ASIAN		-4		
OTHER			4	5
AGE	43	48	109	109
CLASS	15	14	19	18
UNEMP	-15			
RETIRED				
ETHNICPC				
FTEDPC				5

Technical Note

In a conventional regression model, these relationships would be expressed as regression coefficients, i.e. estimated rates of change in the outcome per unit change in the background variable. Such coefficients are not as easy to interpret in the case of logistic regression, as here, where they refer to changes in the logarithm of the odds ratio for passing each target. To give an impression of the relative strengths and directions of each relationship, the coefficient of each background variable is divided by the standard deviation in that variable and multiplied by 100 to give a dimensionless quantity which expresses the estimated relationship.

The background variable with the strongest relationship with FT1, and even stronger for FT3, is age. There are also strong positive relationships with sex (females have higher rates of achieving targets on average than males), social class and the time of the survey (except FT3 with just three surveys). In all cases, there is a significant negative relationship with the black ethnic group, who seem to have reduced probabilities of passing the targets. There is some evidence that this is also true for Asians for FT1, but the other non-white ethnic group seems to have an enhanced probability for FT3.

Table C2 shows the somewhat surprising result that very few of the regional variables had any significant relationships with FT1 or FT3, once individual-level variables were allowed for. The exceptions were a negative relationship between unemployment rate (UNEMP) and FT1 in one case, and a positive one between percentage in full-time education (FTEDPC) and FT3 in another.

Results of Analysis: Variations within and between Regions

A number of different multilevel analyses were carried out, and the more complex variants will be described later. For now, we just consider the variations between and within regions in the probabilities of achieving FT1 and FT3. Table C3 shows the percentages of the total unadjusted variance at the various regional levels in each case, both unadjusted (with no explanatory variables) and adjusted (with explanatory variables at both the individual and regional levels), and whether or not they were statistically significant at the five per cent level.

Table C3: Results of multilevel analysis: variances between regions for FT1 and FT3

No. of surveys	Variable	FT1		FT3	
		Unadj. %	Adj. %	Unadj. %	Adj. %
3	GOR	1.4	0.5	0.1	0
	CID	**1.9**	**1.5**	**3.0**	**2.4**
	Individual	**96.7**	**103**	**96.9**	**102**
8	URESMC	**1.4**	**1.05**	0.15	0.05
	Individual	**98.6**	**110**	**99.85**	**101**

(Percentages refer to the variance at each level as a percentage of the total unadjusted variance over all levels. Values in bold are statistically significant.)

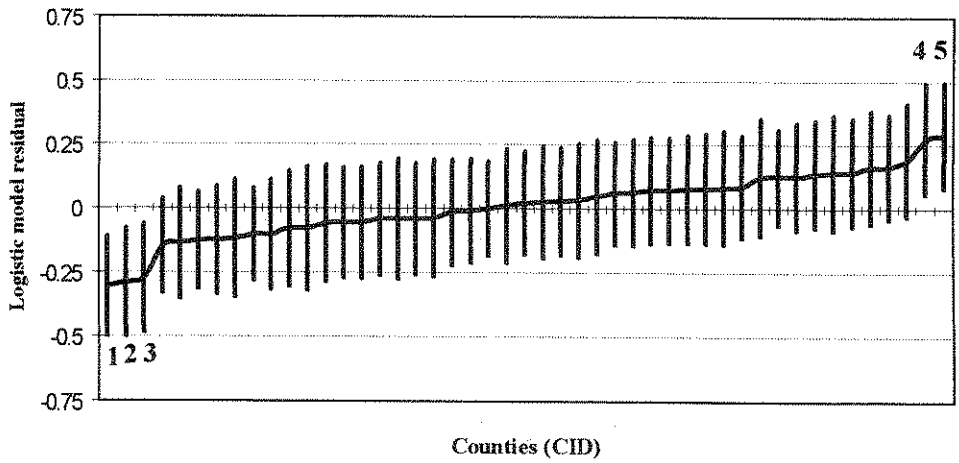
Inspection of Table C3 shows some interesting results:

- There are no statistically significant differences between GORs.
- The differences between CIDs, although small, are statistically significant.
- Variances between regions of usual residence (URESMC) are statistically significant for FT1 but not for FT3.

- Differences which do exist between regions are reduced by the inclusion of background variables in the model (shown by the reduction in variance when adjusted for background variables).
- The largest part of the variation in both FT1 and FT3 is at the level of the individual.

To investigate more closely the apparent differences between counties (CID) in reaching FT1 and FT3, plots representing the differences between each county and the overall results were made. These county-level *residuals* represent an estimate of the amount by which each CID area differs, positively or negatively, from the overall pattern of behaviour, when background variables are taken into account. The multilevel analysis also allows us to estimate the standard error for each such residual, so that a 90 per cent confidence interval for the amount by which each county differs from expected levels of reaching FT1 or FT3 can be computed. Figures C3 and C4 show plots of these residuals, sorted in ascending order. Each vertical line represents a county, with the highest to lowest point on the line representing the 90 per cent confidence interval for that county's residual. Any county whose line crosses the horizontal axis we say is not significantly different from zero – that is, we have insufficient evidence to declare that they are really higher or lower than the average.

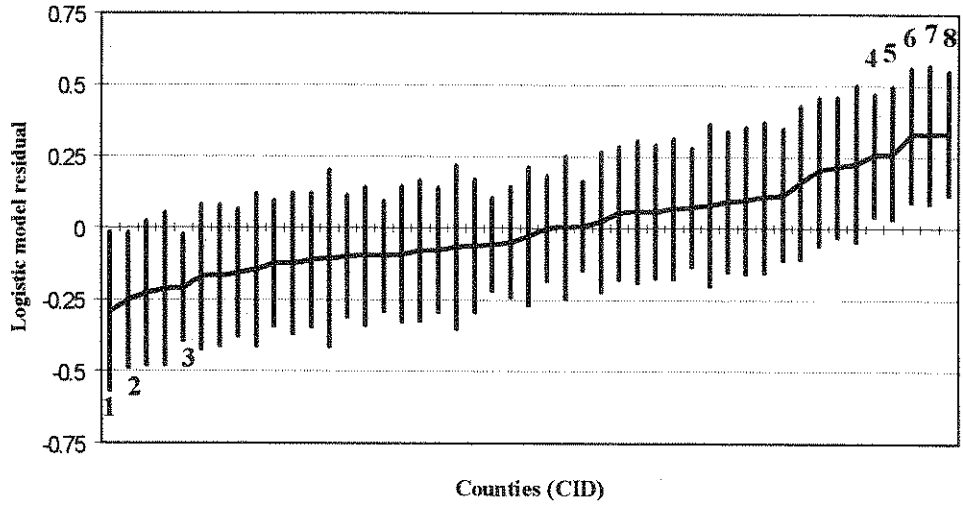
Figure C3: Logistic residuals for FT1 for counties, adjusted for region and individual background variables, showing 90 per cent confidence intervals



Key to counties with FT1 residuals significantly different from average:

Below average:	**1:**	West Midlands
	2:	Staffordshire
	3:	Suffolk
Above average:	**4:**	Outer London
	5:	Devon

Figure C4: Logistic residuals for FT3 for counties, adjusted for region and individual background variables, showing 90 per cent confidence intervals



Key to counties with FT3 residuals significantly different from average:

Below average:	**1:**	Shropshire
	2:	North Yorkshire
	3:	West Midlands
Above average:	**4:**	South Yorkshire
	5:	Cheshire
	6:	Devon
	7:	Oxfordshire
	8:	Avon

These plots demonstrate that for the majority of counties the 90 per cent confidence interval includes the value zero – that is, the county residual is not significant. A few, however, do appear to have statistically significant differences from the overall model, both above and below the zero line. This implies that for those counties the individual probabilities of achieving FT1 or FT3 are significantly better or worse than one might expect.

If we look at the residuals for Government Office Region (GOR), again using a 90 per cent confidence interval, it appears that for FT1 on an *unadjusted* basis, three regions have residuals which differ from average: the South West and the South East are above average, while the West Midlands is below average. When we adjust for background variables, however, the first two differences become insignificant and only the West Midlands remains apparently below average. For FT3 there are no apparently significant residuals at the GOR level.

When we consider the data from all eight surveys, the 'region of usual residence' has significant residuals (using a 90 per cent confidence interval) for FT1 for just three

such regions, when adjusted for background variables. The South West is above average, while West Yorkshire and West Midlands (metropolitan county) are below average. For FT3, there are no regions which are significantly different from average.

In the next sections we shall look again, but in more detail, at regional variations, both in terms of routes to achieving the targets and differential rates of change over time.

Route and qualification type

The previous logistic multilevel analyses concentrated on target achievement as a single outcome, with no consideration of the route taken to achieve it or the type of qualification gained. It is possible to do some differentiation within the LFS data relative to qualification type, in particular between individuals who achieve FT1 or FT3 through GCSEs/A-levels (the 'academic route') and those who gain the targets via NVQs (the 'vocational route'). This includes some 'double counting', and so it was felt useful to derive two further binary outcome variables for each target:

- achieving the target via the academic route (GCSE/A level);
- achieving the target via the vocational route **only** (without GCSE/A level).

Logistic multilevel analysis on the same basis as previously was carried out for these separate Target indicators, using the same set of background variables and based on two datasets (last three surveys or all eight surveys). Results are shown in Table C5 for FT1 and Table C6 for FT3.

Table C5: Logistic multilevel results for background variables relative to different routes for FT1

	FT1 Academic Route		FT1 Vocational Route	
Background variable	**3 surveys**	**8 surveys**	**3 surveys**	**8 surveys**
SURVEY	4	3		-2
SEX	14	14	-14	-23
BLACK	-6	-7		
ASIAN		-3		
OTHER	4			
AGE	30	35	72	79
CLASS	13	12		
UNEMP	-18			
RETIRED			30	28
ETHNICPC				
FTEDPC	13		-24	-17

(Values in the table are logistic model coefficients, expressed as a percentage of the standard deviation in each background variable.)

Table C6: Logistic multilevel results for background variables relative to different routes for FT3

	FT3 Academic Route		FT3 Vocational Route	
Background variable	**3 surveys**	**8 surveys**	**3 surveys**	**8 surveys**
SURVEY		7		7
SEX	7	5		
BLACK	-9	-6		
ASIAN				
OTHER		6		
AGE	102	102	94	100
CLASS	17	14	16	25
UNEMP				
RETIRED				
ETHNICPC				
FTEDPC	13			

(Values in the table are logistic model coefficients, expressed as a percentage of the standard deviation in each background variable.)

Results for the academic route are in many ways very similar to those for the overall target achievement results (Table C2). The main difference may be a slightly less strong effect of age for FT1. This is not surprising, as the vast majority of those achieving FT1 via the academic route do so via GCSEs in Year 11. Turning to the results for the vocational route, some more interesting differences appear. For FT1, the sex effect is reversed, with females less likely than males to achieve the target through NVQs only. The age relationship, however, appears stronger than for the academic route. Again, this is not surprising because those who achieve FT1 through the vocational route tend to do so after compulsory education and over a longer period of time. There is a not unexpected negative relationship with regional rates of staying on in further education, and a more surprising positive relationship with regional proportions of retired persons. The FT3 vocational route shows little relationship with any background measure (possibly because very little data is available for this outcome), except age and class.

Of particular interest are the apparent rates of change over time, signified by the coefficients of the SURVEY variable. The academic route results are broadly consistent with earlier findings in this respect, with a general tendency for increasing chances of achieving the targets in more recent years. For the vocational route, however, the evidence is more mixed. For FT1 there is even an indication of a possible decrease over time in individuals achieving FT1 through vocational qualifications only. FT3 gives evidence of a positive trend over time for both routes, when analysed over all eight surveys.

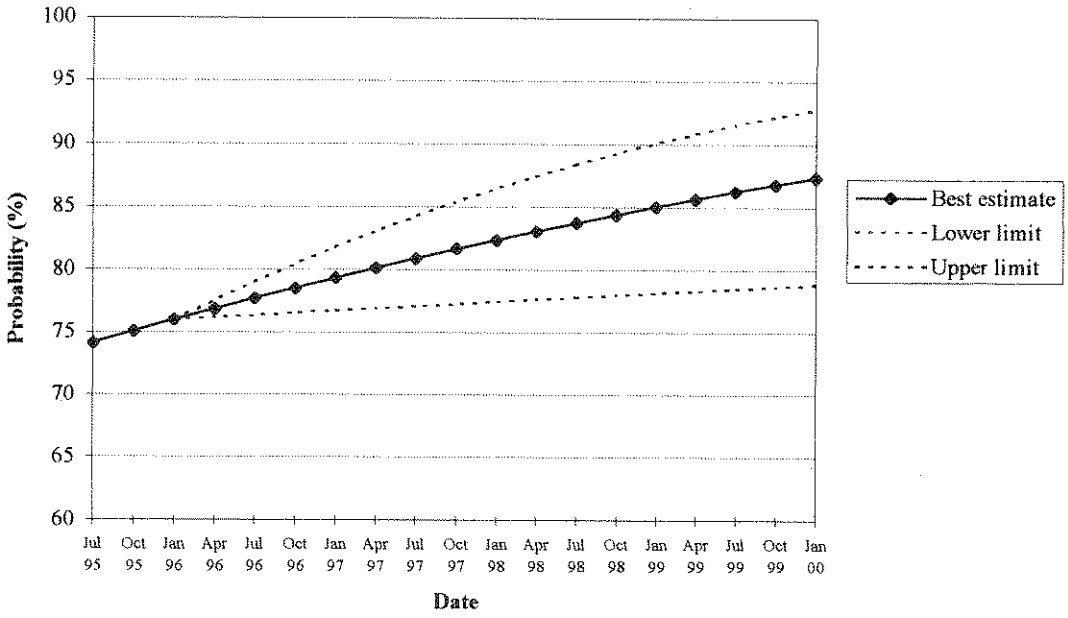
National projections for FT1 and FT3

One of the interesting features of the logistic regression models fitted is that there is normally a significant relationship between the probability of achieving the given target

and both respondent's age and the survey number (equivalent to calendar time). This implies that not only are respondents more likely to achieve targets as they get older, but also that the probability has been increasing with time. This leads to the possibility of using the model to predict probabilities in the future, extrapolating the current rate of change over time.

However, to use the model for projection we need to define the characteristics of the population for whom we are making the projection. Essentially, this means that we need to define an 'average' individual. It is possible to do this, based on the LFS data, in terms of sex, ethnicity, class, etc. The main issue is what to do about age, which has a large effect on the predicted probability. The option chosen for illustrative purposes was to use the average age of the final year-group for the target of interest – 19 year-olds for FT1 and 21-year-olds for FT3. In practice, this means running the projections with average ages of 19.5 and 21.5 respectively. If we were concerned with predicting probabilities for the whole age range from 16 to 19 or 16 to 21, then a lower average age would have to be used.

Figure C5: Model predicted probability of passing FT1, based on 3 surveys (Age 19-20)



Figures C5 and C6 show the projected probabilities over time for FT1, based on the last three surveys and all eight surveys. They also indicate a 90 per cent confidence interval for the projection, based on the standard error in the coefficient of time. Figures C7 and C8 show similar plots for FT3.

Figure C6: Model predicted probability of passing FT1 based on 8 surveys (Age 19-20)

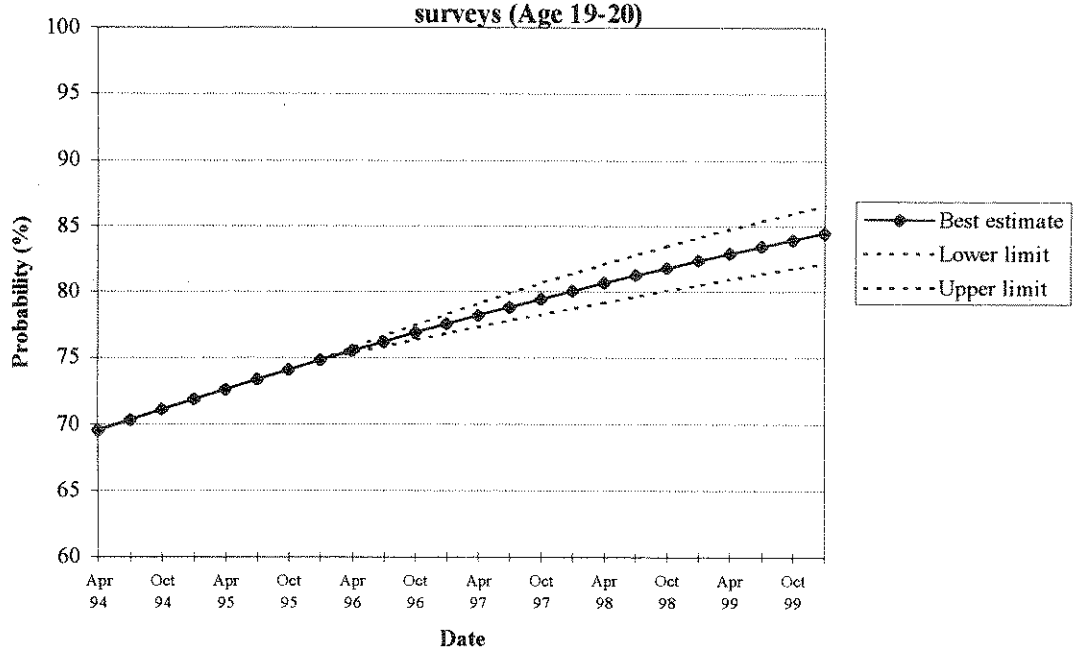


Figure C7: Model predicted probability of passing FT3 based on 3 surveys (Age 21-22)

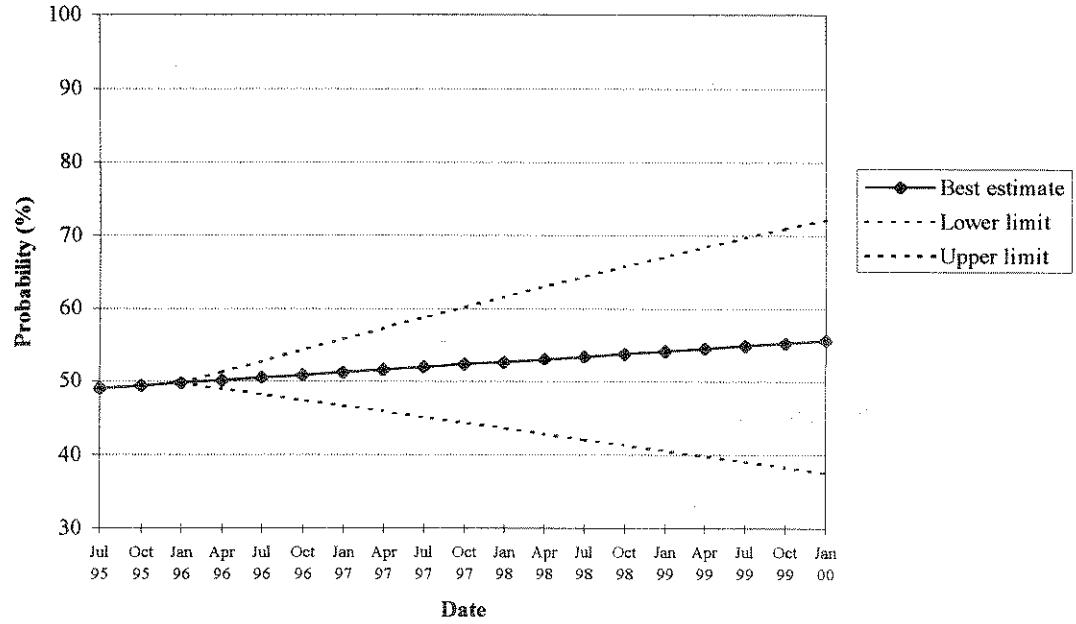
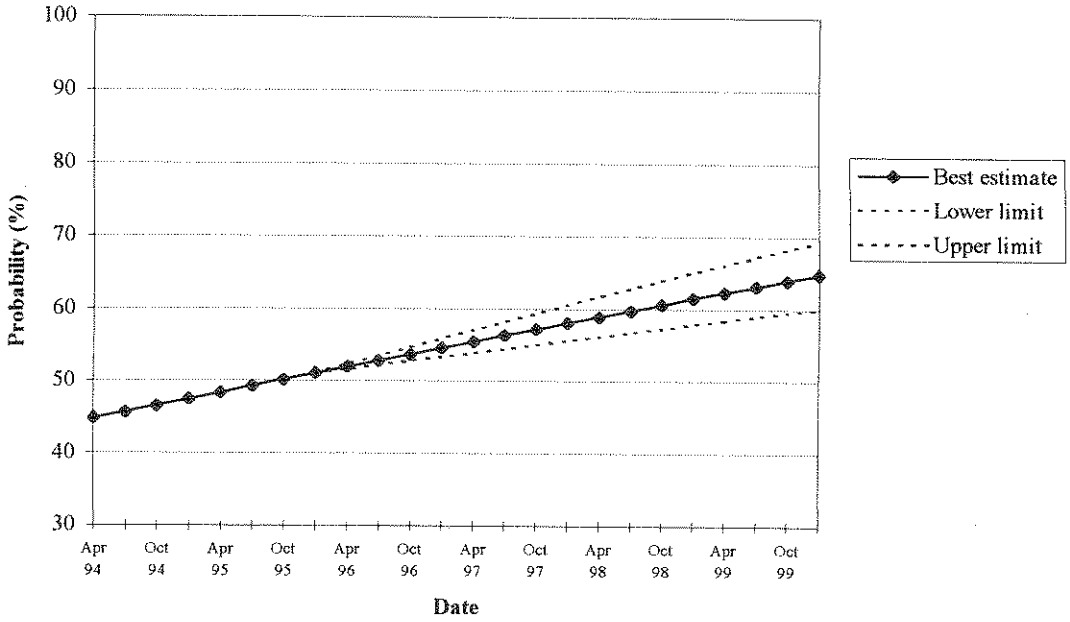


Figure C8: Model predicted probability of passing FT3 based on 8 surveys (Age 21-22)



The following features can be noted, based on the above four projection plots:

- The projections based on the results of all eight surveys have a lower margin of error than those based on just three surveys.
- The predicted probabilities of individuals at the end of the relevant age ranges achieving FT1 and FT3 in the year 2000 are close to the target percentages for those age ranges.
- These projections are in fact extrapolations, based on historical LFS data. They take no account of new factors which may intervene between now and the end of the century.

To illustrate the variation in predicted probabilities with age, Figures C9 and C10 show plots of predicted probabilities for FT1 and FT3 for different age-groups. It is clear that the age effect is stronger for FT3 than FT1.

Figure C9: Model predicted probability of passing FT1 based on 8 surveys depending on age

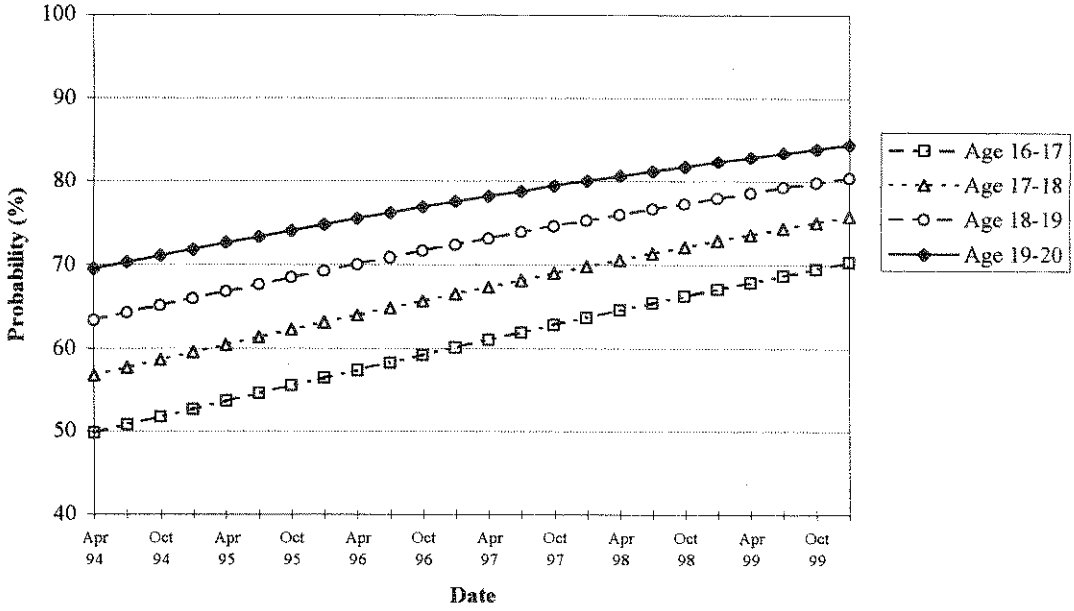
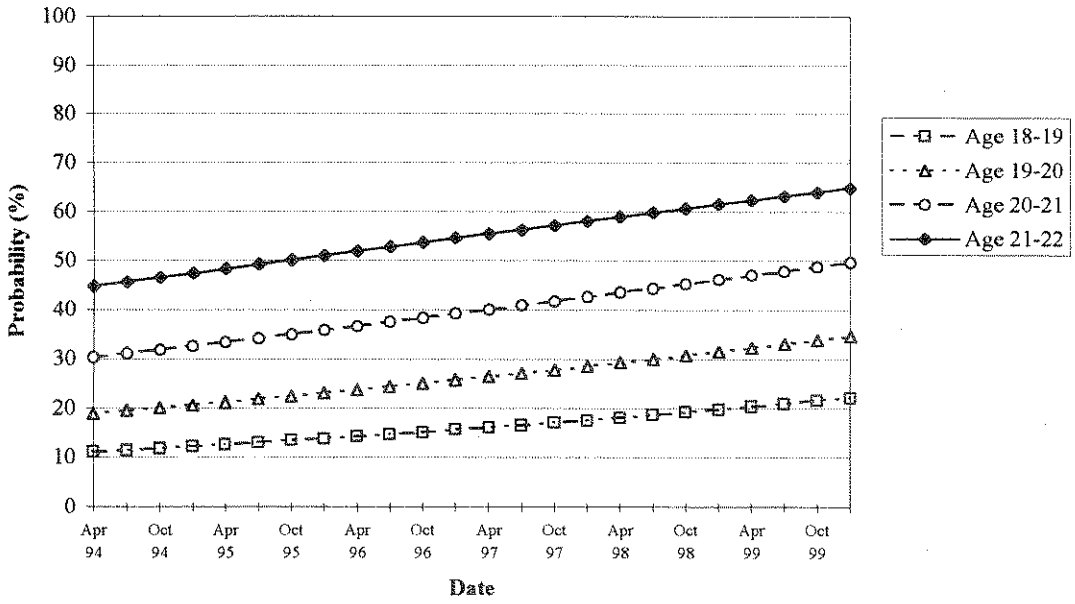


Figure C10: Model predicted probability of passing FT3 based on 8 surveys depending on age



Regional variations in change over time

One of the main strengths of the multilevel modelling approach to analysis is its ability to allow a model to be formulated which enables us to test hypotheses about the data, however complex. In the analysis described in the previous section, we fitted a model with a constant change over time parameter in the logistic outcome variable, and used the model to predict future target achievement rates. However, as one of the aims of

this research is to investigate possible variations between regions, it is reasonable to ask if the assumption of a single universal change over time parameter is reasonable, or whether it is possible that the rate of growth of target achievement varies significantly from region to region. This was investigated statistically by fitting a *random slopes* multilevel model to the LFS data. Such a model assumes explicitly that the rate of change relative to a particular background variable (in this case, date of survey) is not constant, but varies from unit to unit within a certain level. It is possible to test whether or not the rates of change differ significantly from the average, and if so which units have rates of change which are significantly higher or lower than the rest.

The units of interest are regions, and models of this type were fitted to different datasets to see where, if anywhere, there were significant inter-regional differences in the rate of change over time in achieving the targets. It was clear immediately that when the dataset based on just three surveys (including two levels of regional differentiation) was fitted, no significant differential rates of change were found. This was probably due to the limited number of time points (just three) available with this dataset.

When fitted to the eight-survey dataset, with regions just defined by the variable URESMC, some significant regional differences in rates of change were found. These results are given briefly below, in terms of the outcome variable concerned and the region(s) for which significant differences were detected.

Probability of achieving FT1 (vocational qualifications only)

> Rates of change significantly higher than average were found for two regions: East Midlands and West Midlands. However, a significantly lower rate of change was estimated for the 'Rest of the South East' region.

Probability of achieving FT3 (academic route and overall)

> A higher than average rate of change was found for the South West region, for both FT3 through A-levels and overall FT3 achievement.

Figures C11 and C12 illustrate these results graphically, in terms of the projected probabilities of achieving FT1 via vocational qualifications alone, and the overall probability of achieving FT3, with those regions significantly different from the average trend shown. Although the former figure shows a downward trend for achieving FT1 through vocational qualifications alone, this was not statistically significant in the model. It should not necessarily be assumed that this picture represents any true projection of future reality – it merely serves to illustrate the differing trends in different regions.

Figure C11: Model predicted probability of passing FT1 through NVQs only, showing regional variations

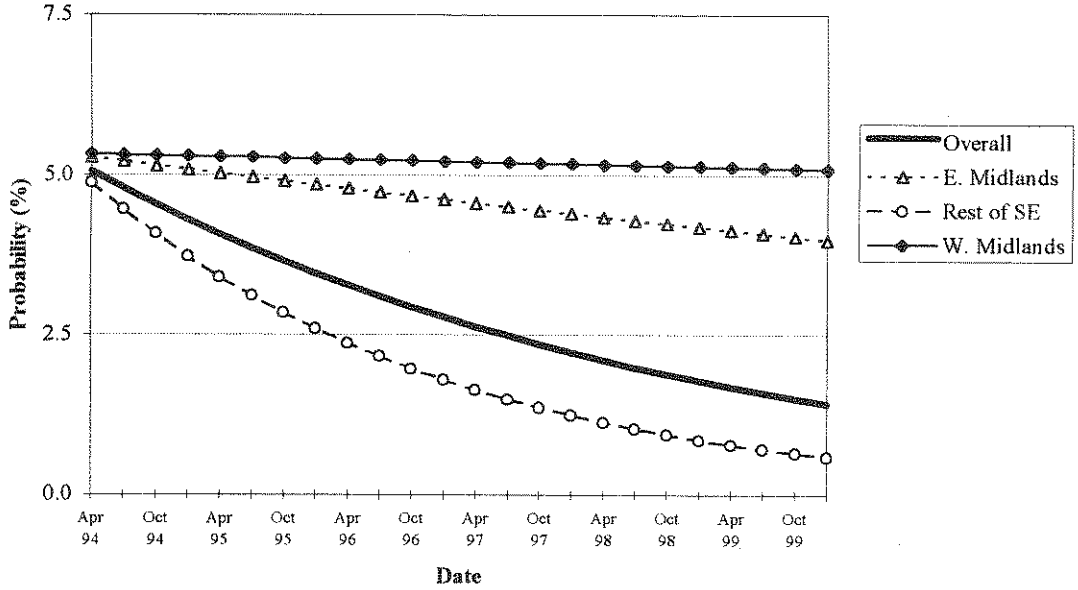
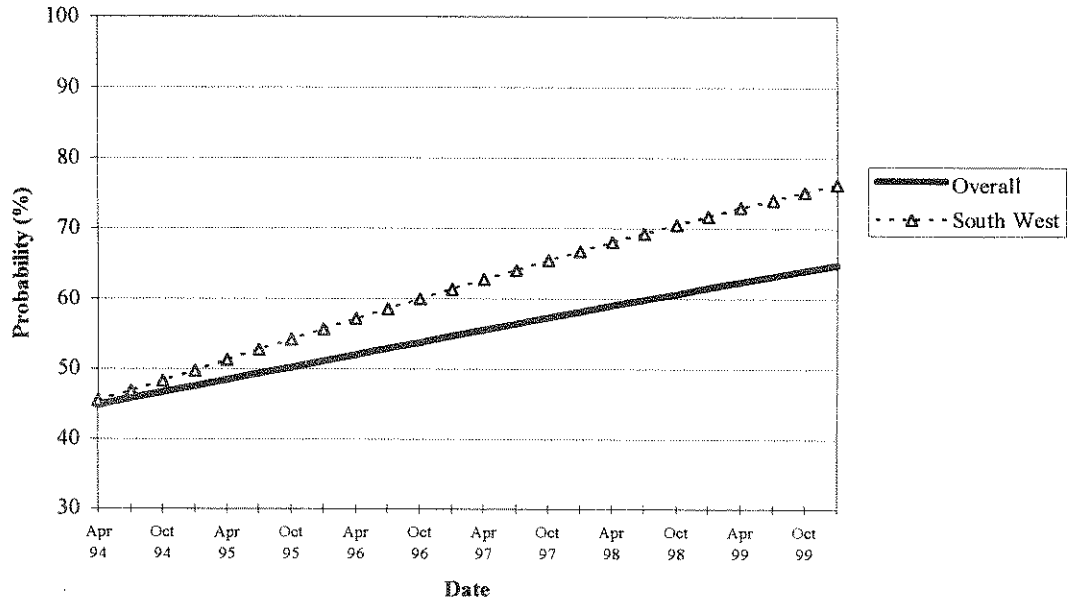


Figure C12: Model predicted probability of passing FT3, showing regional variations



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Hitting the Targets

This report is essential reading for all those concerned about progress towards Foundation Targets at the national, regional or local level. NFER was commissioned to carry out a thorough investigation into the regional variations in progress towards hitting these targets, to research the factors that influence variations in achievement, and to identify effective strategies for raising attainment and reliable methods for monitoring progress towards the targets.

To meet these aims, two parallel strands of research were carried out: a quantitative strand which involved detailed statistical analysis of available datasets, in particular the Labour Force Survey (LFS), and a qualitative strand including interviews with key personnel in Government Office Regions, LEAs, TECs, schools and colleges.

The findings are important, both in terms of recommendations about data collection and analysis locally and nationally, and in terms of identifying a broad range of strategies which are being used at different levels to improve performance and move closer to the Foundation Targets.

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