

PART VFIFTH YEAR EXAMINATIONS

15Method of Analysis

This study has followed the careers of children who transferred to 20 multi-ethnic secondary schools at the age of 11 in the autumn of 1981. This final part deals with attainment in the fifth year, as shown by examination results. By this time, 18 schools remained in the study.

The central objective of the project as a whole was to measure differences between schools in the outcomes they achieve, in academic and other terms, after taking full account of differences in the attainment and background of children at the point of entry. A second objective was to understand the reasons for school differences and if possible to describe processes underlying school success. A third objective was to describe the educational experience of children belonging to ethnic minority groups. The information collected in the fifth year was confined to examination entries and results, and attendance. Hence the analysis in this part concentrates on academic results as the outcome and on the extent of school differences.

Pupils included

Information was collected for fifth-year children shown on the registers of the 18 schools at the beginning of the school year 1985/86, including any shown as absent for long periods. The main analysis is based on this whole group. Some of these children attended school rarely, and in particular those who were not due to take any public examinations generally left at Easter. It seems correct to include this important group in the analysis, since any variation between schools in the proportion of children who do not attend in the final year, or leave at Easter without taking any examinations, is a reflection of genuine differences in outcomes. However, we have in addition repeated the main analyses of school differences (Chapter 17) after first excluding Easter leavers. This shows how far differences between schools remain after discounting any differences in the proportion of children who drop out during the fifth year before examinations.

Entries and results collected

The examination year for the study children (1986) was, of course, before the introduction of the General Certificate of Secondary Education (GCSE).

We tried to collect information about all public exams for which the pupils were entered. While we were able to obtain complete information about O level and CSE (and about the new 16+ exam in the rare cases where this applied) the returns for other public exams were somewhat incomplete. The present analysis is confined to O level and CSE except that the 16+ exam is treated as equivalent to O level or CSE as appropriate.

Classification by country of origin

In earlier analyses pupils were classified by country of origin on the basis of answers to questions in the survey of parents conducted in the second year. Although this information is very reliable, it is available for only about half of pupils present in the fifth year. As a supplement, we asked teachers to assess the country of origin of fifth year pupils. There are 1,340 pupils whose country of origin was assessed by teachers and whose parents were also interviewed in the second year. Among this subset we can use the information from the survey of parents to check the validity of the teachers' assessments. Table 15.1 shows the results of a cross-analysis of the two measures.

It is reasonable to assume that the classification from the survey of parents is accurate, because it is based on responses by the people themselves to detailed and carefully worded questions. Making this assumption, we find that the teachers' assessments were reasonably accurate in the case of children originating from the UK (91 per cent correct) and south Asians (88 per cent). The level of accuracy was much lower for pupils originating from the West Indies (56 per cent) and it was extremely low for pupils of other or mixed origin (18 per cent). The last result is not at all surprising, since pupils of mixed or other origin are hard to classify, but it is disappointing that teachers could not identify pupils of West Indian origin more accurately. One-third of the pupils originating from the West Indies were thought by teachers to originate from the UK, and 14 per cent were thought to be of mixed or other origin. This may be partly the result of simple failure of memory,

but it may also be related to problems of definition and interpretation. Teachers were told that the classification referred to the country the family came from originally, not where the child was born, but it is possible that they tended to classify children born in Britain as of UK origin, especially if they thought they were white or of mixed race.

On balance it seems worth making use of the teachers' assessments of country of origin in the analysis. A composite classification by country of origin was derived from the answers to the parental survey questions, if available, or otherwise from the teachers' assessments. In one school where the teachers' assessments were found to be particularly unreliable they were not used. There are altogether 2,426 pupils included in the analysis of exam results. All but 28 of these can be classified by country of origin on the new basis. It is possible to estimate the proportion that are correctly classified by making use of the cross-analysis between the results of the parental survey and teachers' assessments. These estimates are shown in Table 15.2. They suggest that overall 95 per cent of pupils are correctly classified by the new measure. The level of accuracy is lowest for West Indians (83 per cent).

The measure of social class, like the original classification by country of origin, derives from the survey of parents, but there is no way of providing an alternative measure of social class for pupils not covered by that survey. This means that analyses that take in social class have to exclude pupils not covered by the second-year parental survey, and for any such analyses the teachers' assessments of country of origin do not come into play. This applies to all of the multivariate models described in Chapter 17.

Attendance

The number of half days the pupils attended school in the third and fourth years and in the first two terms of the fifth year was recorded from the school registers. This information was used mainly to identify the pupils that are to be included in the analysis. Tabulations of exam results by third- and fourth-year attendance show little relationship. There is a fairly strong relationship between fifth-year attendance and exam results, but this is not very revealing: the pupils who were not present could not, of course, sit any exams.

Method of analysing exam results

Double entries

A considerable number of pupils were entered for both CSE and O level in the same subjects - especially English and maths. Where a pupil was double-entered, the practice is to count only the exam in which the better result was obtained. For example, in calculating the number of higher grade results obtained by a particular pupil, a pair of CSE and O level higher grade results in English counts as only one higher grade. The only exception is in tables showing O levels and CSEs separately: these tables show the total number of O levels or CSEs obtained, including any double entries.

Higher grades

This analysis adopts the convention used in *Statistics of Education* that O level grades A - C and CSE grade 1 are 'higher grades'. Whether a pupil is entered for CSE or O level is to some extent a function of school policy. The number of higher grades obtained (whether O level or CSE) is a measure of attainment that is as independent as possible of school policy in this respect. Of course, a pupil who does not have the opportunity to sit the O level exams may still be at a disadvantage on this measure, since it may be harder to get grade 1 in a number of CSE exams than to get grade C in the equivalent O levels.

Subject groups

The same subject grouping is used for the present analysis of examination results as for the earlier analysis of option choices (see p207-208).

Overall exam score

For the purpose of analysing differences between schools it is necessary to have a single, summary measure of a pupil's exam results. In constructing this measure, all subjects are treated as having equal value. This is clearly an unrealistic assumption - in particular, maths and English are generally thought to have central importance. However, any system of weighting, designed to give some subjects more value than others, would be arbitrary. Instead, separate analyses of the maths

and English results are presented to supplement the analysis of the overall exam score.

There is also a problem in deciding on a system of equivalence between CSE and O level. The score needs to reflect the important differences between grades A, B and C at O level, yet it also needs to take account of CSE results other than grade 1. There is no official guidance about equivalence, except that CSE grade 1 is equivalent to grade C or above at O level. The following scoring system was used.

Score	O level	CSE
4	A	
3	B	
2	C	1
1	D, E	2, 3
0	Failed	4, 5, Failed

The overall score is the sum of the scores for the individual subjects. However, in the case of double entries (CSE and O level in the same subject) only the best of the two results is added into the score.

On this system, CSE grades 4 and 5 are not given any value, while CSE grade 1 is made equivalent to O level grade C. This is not entirely satisfactory. Some of the CSE grade 1 results may well be better than O level grade C results, but as CSE grade 1 is not sub-divided, this scoring system probably cannot be improved.

As a check on this point, we have carried out an analysis of the CSE and O level results obtained by children who sat both exams in English, and similarly for maths (Tables 15.3 - 15.5). In both cases, there is a high correlation between the two results ($r = 0.71$ for English, $r = 0.62$ for maths). Hence, the great majority of double-entered children either got higher grades in both CSE and O level, or lower grades in both (89 per cent in the case of English, 82 per cent in the case of maths). In the case of English, the proportion who got a higher grade in CSE but not in O level is about the same as the proportion who got a higher grade in O level but not in CSE (4.7 per cent compared with 6.2 per cent). In the case of maths, the proportion who got a higher grade in CSE but not in O level is a bit higher than the proportion who got a higher grade in O level but not in CSE (11.7 per cent compared with 6.8 per cent).

These cross-analyses confirm that the minimum standards required for a grade 1 at CSE and a grade C at O level are similar, but a more detailed analysis also shows that a considerable number of grade 1 CSE results are equivalent to an O level grade above C. Thus, 38 per cent of double entrants who obtained a grade 1 CSE in English also obtained a grade A or B at O level. While the minimum standard required for a higher grade at CSE and O level is about the same, a higher than minimum standard cannot be registered by the CSE grading system.

It is clear from these findings that the scoring system does undervalue a proportion of CSE grade 1 results. However, the defect does not seem to be very serious. The alternative would be to assign the same score to O level A, B and C grades and to CSE grade 1, but the preceding analysis shows that this would be much more defective than the system actually adopted.

English and maths scores

Individual scores for English and maths were also derived by assigning the same values to the grades as in the case of the overall exam score. These individual scores therefore have a range of 0-4. In the case of double entries, only the best result is counted.

Structure of the analysis

There is an enormous amount of detail in the pattern of exam results. The purpose of any analysis is to support general statements – in this case, mainly about differences between schools in the results obtained. In order to be able to generalise, we have to ignore some of the detail, and the procedures described in the last section are methods of getting rid of some of the detail so that the general patterns may emerge.

At the same time, it would be dangerous to conduct all of the analysis and discussion at a high level of abstraction. Pupils do not achieve overall exam scores; they achieve results in particular subjects. It is possible that some schools have good or bad exam results overall; it is equally possible that particular schools do well or badly in particular subjects. It is important, therefore, to look at the results in some detail as well as using powerful statistical methods to measure differences between schools overall.

Chapter 16 considers tabulations of the exam results in some detail. Chapter 17 presents the results of multivariate models designed to measure the extent of school differences after taking full account of the social background of pupils and their attainment at an earlier stage of their school careers. The multivariate modelling ignores some of the detail described in Chapter 16, though the individual English and maths results are taken as outcomes as well as the overall exam score.