

The Occupations, Earnings and Work Histories of Young Adults — Who gets the good jobs?

by

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Dr. V. KEDDIE. *Acting Chief Research Officer*

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Summary of the Research Findings

This paper presents the results of a research project which has examined those factors that determine whether or not a young adult is in an above-average paying job. The project was based upon an analysis of the occupations which 12,500 young people had entered by the age of 23 years, together with information on their social and educational background, work histories and the local labour markets in which they have lived.

The research measures the relative importance of social and family background, educational ability, school leaving age, work history, geographical mobility and local area unemployment as factors which could influence the distribution of good jobs in the population of young adults. It is shown that the most significant factor in this respect is the result of a standard test of English and mathematics taken at about eleven years. This piece of information is the single most important guide to an individual's later earnings prospects. Next in importance is their school leaving age and whether or not they had had a discontinuous record of employment since leaving school. Social background influences are subsumed by these factors.

The study also investigates the link between work history and occupational earnings. After controlling for a wide range of influences on earnings potential, it is shown that a record of **continuous employment with one employer** correlates most highly with above average occupational earnings. Young people who switch jobs appear to put themselves at a disadvantage. Further, job changing in areas of high unemployment exposes young people to a personal risk of unemployment which again reduces their chances of gaining access to the better-paying occupations in early adulthood.

A significant proportion of the study group had moved between local labour market areas in their teens and early twenties. After controlling for many other factors, it is shown that such mobility does lead into higher-paying jobs and that the direction of such labour market migration is towards areas of low unemployment.

The report concludes with an assessment of these findings in terms of the current debate about standardised educational testing.

Chapter 1

Introduction

The research presented in this paper breaks new ground. It examines, in detail, the relative importance of a wide range of influences on the ability of young persons to make a successful transition from school to work. It derives its findings from a national birth-cohort study of a large group of young persons who were last interviewed at the age of 23 years, and examines the relationships which exist between the social and economic experience of children as they grow up and their relative position within the distribution of occupations in early adulthood. Particular attention is paid to the link between local labour market conditions, the school leaving decision, work histories and job prospects.

1.1 Background to the Research Project

The project originated from an interest in the long term impact of locally high unemployment on employment opportunities and occupational prospects in such labour markets. In particular, it has been suggested by many commentators that certain groups, notably the less skilled and unqualified may be 'locked out' of the labour market at an early age, principally because of a low level of labour demand in the area in which they live and seek work. This may seem an obvious proposition, but it is one which is based upon local studies of young school leavers or redundant workers. By definition, local studies focus primarily on persons who do not move from such areas and often consider only a fairly short period in the working lives of those persons studied. Detailed investigation of this proposition required that two essential prerequisites should be fulfilled; the information on individuals' occupations and earnings must relate to a substantial part of their working lives and must be nationally representative.

Only two sources of information fulfilled these conditions, the national birth cohort studies of children born in 1946 and 1958. The 1958 birth cohort, being a larger national study than the 1946 birth cohort and with the facility to relate occupations and earnings to local labour market conditions, forms the basis of this enquiry. This study, known as the National Child Development Study, has already provided a wealth of information concerning the health and education of children and young persons. In 1981, at the age of 23½ years, study

members were recontacted and provided detailed information about their education, training and jobs held since the date of their previous contact at the age of 16 years.

1.2 The National Child Development Study

The group of persons who provided the research material for this investigation are referred to as the National Child Development Study (NCDS) birth cohort. Initially numbering more than 18,000 persons, this group (and their parents, teachers, doctors, etc.) have provided information on a number of occasions since their birth in 1958. At the time of their last interview, in the latter half of 1981, more than 12 thousand were traced and, among many other facts, provided information on their work histories since leaving school and their current or most recent occupation.

This study investigates the relationships between parental social background, educational ability, the decision to leave school, work history, geographical location and occupational earnings. In doing so it covers much 'old territory' from the research perspective. For example, there is a widely recognised association between the occupations of parents and the occupations of their children (Glass, 1954; Goldthorpe and Llewellyn, 1977). Further, much research in the social and educational fields has already been derived from the earlier surveys (referred to as 'sweeps') of the NCDS birth cohort (e.g. Pringle *et al.*, 1966; Fogelman, 1976). In contrast however, for reasons which will be made apparent in chapter four, there has not been much research in this country into the link between work histories and factors such as social background, educational ability and geographical mobility. Until recently there has been very little information about the possible relationship between the early work histories and occupational earnings of young people. Most surprising, however, is the lack of knowledge about how these relationships may vary across the country. For example, one would suspect that those members of the birth cohort who live in the high unemployment areas in the north of England, Wales and Scotland may have found it much more difficult to move into well-paid jobs by the age of 23 years than those living in the south east. Correspondingly,

one would expect that fewer members of the birth cohort in the latter area would have experienced a significant spell of unemployment in their work history and may have experienced more opportunities to move into the more highly paid occupations.

There is an inherent weakness in a longitudinal study of this nature. The cohort originally consisted of more than 18,000 members. For the sweeps of the cohort at ages 7, 11, and 16, known as NCDS1, NCDS2, and NCDS3, there was little reduction or 'attrition' in the size of the sample. This arose because contact was maintained through the bureaucracy of the education sector to which all members of the cohort belonged. Between ages 16 and 23 there was a dramatic reduction in the size of the sample, by about one-third. This loss arose mainly because of loss of contact with the study member. Such loss of contact is undoubtedly a selective process. Possible problems for the research project arising from this 'attrition' of the sample are considered in later chapters.

1.3 The Nature of the Project

This research project examines the effect of local labour market conditions on the progress that young persons have made in the transition from full-time education to economic independence. It is an enquiry into their economic well-being as they move from youth to adulthood. This is a more restricted view of the influence of local labour market conditions on occupations and earnings than was the original intention, narrowing the research to a particular age group. Nevertheless, there are compelling arguments in favour of this approach, primarily associated with the quality and quantity of social, educational and economic information derived from the successive interviews with the birth cohort.

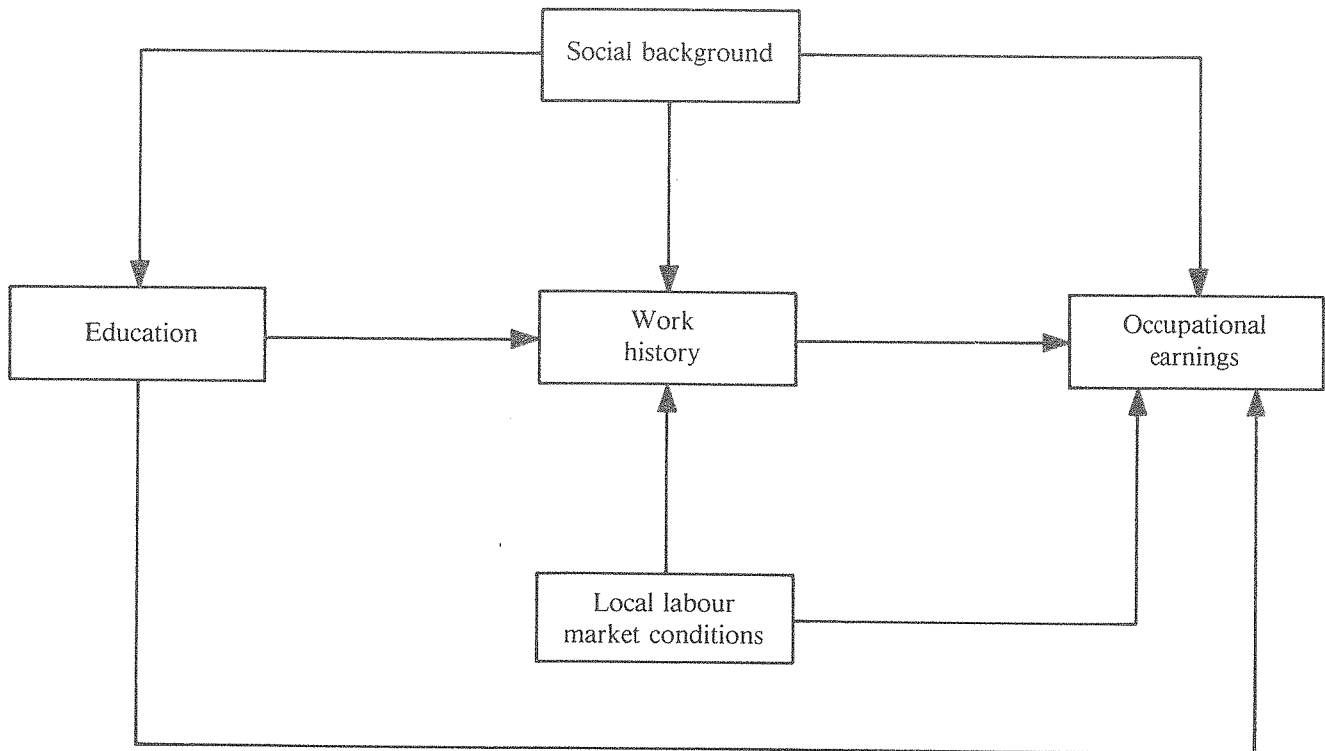
The study presents a nationally representative picture of the progress made by the birth cohort over the seven year period from 1974 to 1981. It could be argued that this seven year period was unique in the recent history of Britain's labour market, commencing with a period which had just seen the upper age for compulsory education raised from 15 to 16 years and ending with a period which saw the virtual collapse of recruitment by the manufacturing sector, a traditional source of initial employment opportunities for young people. In response to this criticism it can only be said that there is much knowledge to be gained from the way in which young people and employers responded to this changing environment. If the behaviour of employers and employees is now conditioned by the experiences of 1979-81, then it is well worthwhile seeking to gain some understanding of the dynamic behaviour of young people through these years of rapid change.

A focus upon the economic status of the group of 23 year olds may seem too narrow to enable general conclusions to be drawn about the operation of labour markets and employer policies. At the age of 23 years, most young people have much ahead of them in terms of family development, income and occupations, the locations in which they choose to live and their future health. However, it is arguable that by this age the die has almost invariably been cast in terms of the occupations they are likely to follow. For most of the study group, their education is complete—few will return to full-time study. Some may have 'shopped around' to find the type of work which suits them, others will have 'settled down' into stable employment in a particular type of work. On the whole, the age of 23 years can be regarded as the upper end of the fuzzy boundary between youth and adulthood.

The approach that has been adopted in this study is essentially quantitative, relying upon the use of broad classificatory systems to describe the occupational earnings of young persons at age 23 years, the types of work histories they have experienced, the nature of the local labour market in which they have lived and worked and a variety of other indicators of their educational and socio-economic status. The issue to be explored, the link between occupational earnings and local labour market conditions, is approached in the following manner. First, it is assumed that there is a dominant influence which has a bearing upon a child's educational attainment, upon the decision to leave school at 16 years or to stay on, upon the type of work history experienced upon completion of full-time education and later upon the position of that person in the distribution of earnings by occupation at the age of 23 years. This influence is loosely termed 'social background' and encompasses the values and attitudes towards education and work transmitted from parents and 'significant others' (peers, siblings, teachers, etc.). The influence of social background is assumed to be at its strongest during the early, formative years of the child's education, but could continue to impact upon the school-leaving decision, an individual's subsequent work history and choice of occupation. Second, it is assumed that there is a continuous relationship between educational ability, the decision to leave school, subsequent work history and a person's position in the distribution of occupations, and that it is the links in this relationship which may be moderated by the effect of local labour market conditions. For example, after controlling for the effect of social background, it may be the case that a high level of joblessness in a particular labour market could cause some potential school leavers to stay on at school, could increase the probability that they experience unemployment in their post-schooling work history and may decrease the

Figure 1.1

Theoretical Model of the Links between Social Background, Education, Work History, Local Labour Market Conditions and Occupational Earnings



opportunity for them to gain access to good jobs. This hypothesis can be elaborated to suggest that certain groups in the labour market (e.g. university and college graduates) are 'insulated' from local labour market conditions. They may seek work in a national market, displaying greater geographic mobility with little direct linkage between the general demand for labour in their locality, their work history and their occupational status.

Diagrammatically, this theoretical view of the process of entry into the labour market is described in Figure 1.1.

The project can be viewed as an enquiry into the existence, direction of influence and relative strengths of these postulated relationships which are indicated by the arrows shown in Figure 1.1.

The enquiry can be reformulated as a series of questions which are addressed in this paper. First among such questions is the issue of:

What is meant by a 'good' job?

— this question is pursued in Chapter 2, which details the method of construction of a quantitative measure of 'good' v. 'bad' jobs.

How is educational ability to be measured?

What is the effect of social background and educational ability on the distribution of good jobs?

— these questions are followed through in detail in Chapter 3.

How can 'work histories' be represented?

Which features of an individual's work history affect their access to good jobs?

— Chapter 4 expands upon these issues in depth and develops a classification of work histories for use in Chapter 6.

How should local labour markets be defined?

What aspects of a local labour market appear to influence access to good jobs?

— these issues are pursued in Chapter 5.

Which has the most significant impact upon access to good jobs in early adulthood; social background, educational ability or work experience?

How do local labour market conditions influence these relationships?

— these are the key questions for the research project which are addressed in Chapter 6.

Before considering these issues in detail, the remainder of this introduction considers earlier work on the process of entry by young persons into the labour market, particularly upon the research reported in two recent research papers in this series.

1.4 Related Research on Young Persons in Local Labour Markets

Over the past few years a number of research papers have been published which have been concerned with young persons and their transition from full-time education to work. Ashton and Maguire (1986) examined the progress of 18–24 year olds in four local labour markets. Roberts, Dench and Richardson (1986) conducted a similar study of a younger age group of school leavers, contrasting their experiences with information on recruitment from a large sample of local employers. Additionally, many studies (e.g. Bedeman and Courtenay, 1983; Dex, 1987) have examined the characteristics of young people participating in special employment measures and training programmes designed to cope with the high levels of youth unemployment of the late 1970s and the early 1980s.

This raises the issue of why further study should be conducted in this area? The response to this question is directed first at the *partial* nature of this earlier work. While the studies themselves are extremely detailed in terms of the individuals or organisations they focus upon, they may not be giving a *representative* picture of the process of entry into employment experienced by young people in Britain. For example, Ashton and Maguire's study is heavily weighted towards unmarried young persons at the lower end of their target age group and excludes all persons continuing in full-time education. Similarly, Roberts *et al.* excluded full-time students from their study of 17 and 18 year olds in three local labour markets. By their very definition, both studies also excluded those persons who had left the study areas at some prior time for jobs elsewhere. This raises the question of whether the apparent differences observed between the work histories and job prospects of young persons across the local labour markets they investigated (by definition, the 'stayers') can be attributed to some fundamental difference in the employment structure of the local labour markets or to some strong external influence (proximity to jobs in Central London, for example).

There is an obvious *partial* nature to those studies which are directed exclusively at young people who participate in special programmes such as YTS and YWS. Such research cannot inform us about the general nature of the relationship between education and work, because these studies are concerned with participants who are *selected into* these programmes

through their decisions to leave school around the minimum school leaving age. The potential problems of selectivity bias which arise in this process have been largely ignored in this area of the literature to date.

Finally, there is an inherent weakness built into many studies of the transitions young people make from education to work arising from the nature of the data which are generally available from cross-sectional surveys. Suppose, for example, one wanted to relate the unobserved educational abilities of young people to their later observed economic status. It is not sufficient to enquire retrospectively about school leaving ages and educational qualifications, because these might be determined by expected economic status. In other words, a young person may decide it is not worth his or her while gaining particular qualifications if he/she perceived no market prospect for such qualifications. The observed relationship between qualifications and earnings does little to reveal the socio-economic processes which yield the association.

Many of these problems can be overcome by using information from a large and nationally representative sample of young people, with information about education and work histories collected regardless of marital status, geographical mobility, school leaving age and post-school education. Further, if information from standard tests of educational ability was available for all persons in such a sample and at an early age in their schooling, this would overcome the problem of using qualifications as a proxy for educational abilities. This research paper reports upon an analysis of the transition from school to work using longitudinal information of this nature.

1.5 Methods of Statistical Analysis

The statistical techniques used in this report are relatively straightforward, combining the method of cross-tabulation of data with multivariate analysis. Most of the variables presented in the study describe broad categories (e.g. 6 work histories types, 4 occupational earnings bands, etc.) which are designed to serve as basic *classificatory* devices to indicate the general associations which exist between the variables. This apparent simplicity masks one of the major difficulties associated with the research. The National Child Development Study must now rank as the world's leading birth cohort study, in terms of the size of the sample, the subject matter covered and the methods of investigation used. As such, many of the conceptual variables required for analysis can be operationalised in a variety of different ways. Quite often, common sense is the only guide concerning the manner of such operationalisation. Sometimes it is

possible to draw upon earlier work relating to one or more of the 4 'sweeps' of the cohort. However, for two of the key variables required in this analysis, the classification of work histories and a typology of local labour markets, the summary variables were created in ways which are unique to this project. For some variables it was necessary to combine data on the same topic from two or more sweeps to prevent a progressive reduction in the size of the sample associated with missing information in a particular sweep. Whenever such a combination of information has been undertaken, an accompanying check on the statistical validity of this approach was made. It is for these reasons that this research may appear over-detailed in places, but such detail is warranted, given the nature of this study and its relevance to the debates about educational standards, the spatial distribution of employment opportunities and the extent of State intervention in the youth labour market.

1.6 Plan of the Research Report

The plan of this research report is as follows. The next four chapters discuss in some detail the measurement of concepts such as occupational earnings, parental social background, educational ability, work histories and local employment opportunities. Each of these concepts is discussed briefly in terms of the theoretical construct that is

employed and the 'operational' version derived from the NCDS birth cohort data or other sources. Some simple crosstabulations show the interrelationships between these variables. Chapter two describes the measure of occupational earnings established to quantify the occupational distribution of the National Child Development Study birth cohort at the age of 23 years. Chapter three describes the development of individual indicators of parental social class, father's education, family structure, ethnicity, educational attainment and health and shows the apparent links between these indicators and subsequent occupational earnings. Chapter four describes the derivation of a typology of the work histories of NCDS respondents at the age of 23 years. Chapter five details the statistical linkages made between the residential locations of NCDS respondents in 1974 and 1981 and the classification of these 'travel-to-work' areas in terms of the evolution of employment and unemployment in the local economies between 1974 and 1981. Chapter six brings together all of the material presented in the previous four chapters in a detailed multivariate analysis of the impact of these influences on occupational earnings. The final chapter reviews prior assumptions made about the nature of these associations in the form of the 'model' of occupational earnings presented as Figure 1.1, revising the 'model' in the light of the associations revealed in this study.

Chapter 2

A measure of occupational earnings

This chapter describes the development of a measure of occupational earnings derived principally from the detailed occupational information that was reported by respondents to the fourth sweep of the study (NCDS4). The purpose in developing this measure is to provide an indicator of the relative economic wellbeing of each member of the birth cohort study at the age of 23, their age at the time of the last survey of study members.

2.1 Actual earnings versus occupational earnings

It may, at first sight, appear more obvious to use information on the *actual* earnings of each respondent as reported at the time of the fourth sweep. The problems with such an approach are twofold. First, earnings information is not available for people who were not working at the time of the fourth sweep. Some may have been bringing up young children, others may have been unemployed. These groups cannot simply be excluded from this investigation because, by the very nature of their non-participation in paid work, they represent a select group of individuals whose social background, education and work histories will be different from those who reported earnings from employment. Second, some of those respondents who reported their earnings may have been undergoing a period of training (e.g. solicitors), as a result of which their current earnings would be relatively low compared with their potential earnings. In such circumstances current earnings would be unlikely to serve as a guide to future earnings. This is illustrated in Figure 2.1, which compares the distribution of gross hourly earnings of NCDS4 respondents who reported their current earnings with similarly grouped gross hourly earnings data from the 1981 New Earnings Survey. It is clear that the lower age of the NCDS4 cohort imparts a significant downward bias to their earnings. A better indicator of an individual's position in the distribution of earnings, is the median earnings associated with the occupational category in which they were employed or had most recently been employed.

2.2 Constructing a measure of occupational earnings

Having decided to derive a measure of relative labour market position from 'recent' occupational

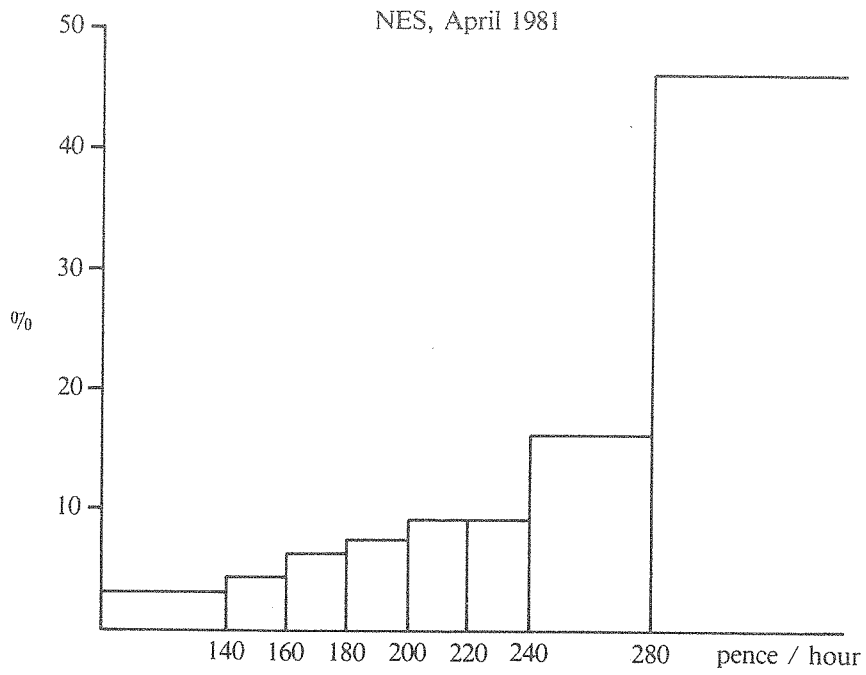
information, the problem remained of how best to 'translate' this occupational information into a measure of earnings. The definition of occupations in NCDS4 is based upon the Classification of Occupations (OPCS, 1980), which, in turn, is derived from the Classification of Occupations and Directory of Occupational Titles (CODOT) (Department of Employment, 1972). We decided to adopt an approach similar to that used by Nickell (1982) in his study of male occupational attainment. Many of the 550 occupational categories identified in the fourth sweep of the survey could be matched to a corresponding occupational category in the 1981 New Earnings Survey (NES). Approximately 4 out of 5 of the NCDS4 respondents who reported a current or recent occupation could be linked to a corresponding occupational category in the NES. In the remaining cases, particularly for females, earnings data had to be mapped in at a slightly higher level of aggregation than the CODOT occupation.

The only practical alternative to this method would have been a status ranking such as that defined by Goldthorpe and Hope (1974) which is based on respondents' ranking of occupations according to general standing or prestige. As Phelps-Brown (1977) has shown, however, this measure is highly correlated with occupational earnings. More recently, Nickell (1982) found a correlation of .85 between the two measures in his study of male occupational attainment.

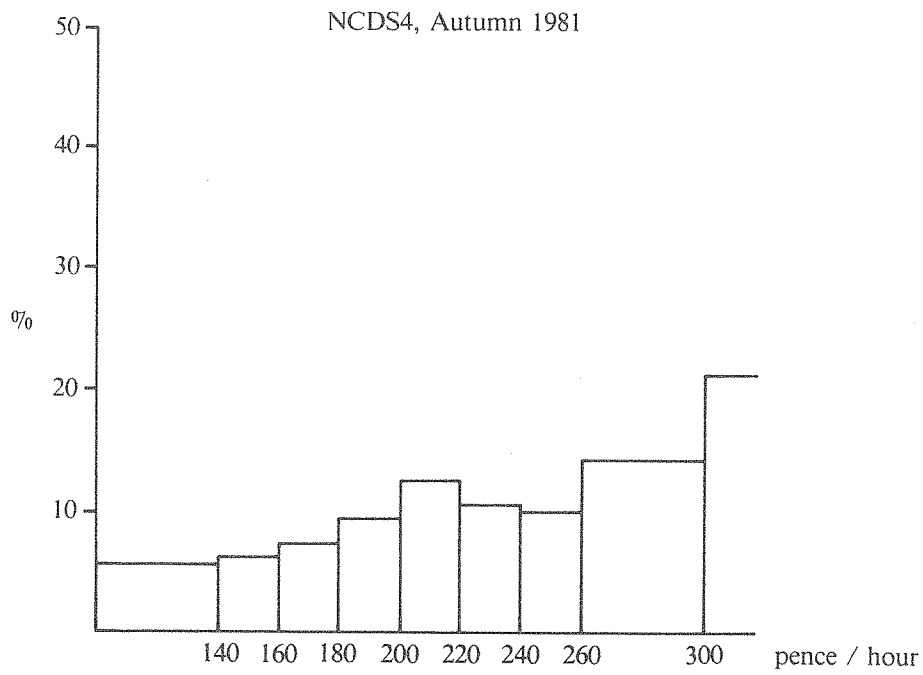
From the matching between the NCDS4 occupational category and the associated median level of earnings for adult employees as recorded in the New Earnings Survey, it was possible to assign each of the matched respondents to a position in the national distribution of earnings. The scale adopted for this purpose was broad, indicating the earnings quartile to which a respondent was allocated on the basis of their occupation at the time of the survey. Thus, if a person reported that he or she was employed as a teacher, the median earnings of all teachers recorded in the 1981 NES was compared with the national distribution of earnings. In this instance, the median earnings of all teachers falls into the upper quartile of the national distribution of earnings, resulting in that person being assigned a value of '1' on the four points of the derived occupational earnings scale. If the occupational distributions of earnings remained

Figure 2.1

A Comparison of the Distributions of Hourly Earnings, New Earnings Survey (NES) and National Child Development Survey (NCDS4)



Gross hourly earnings, males over 21 and females over 18, full-time employees only.



Gross hourly earnings, males and females aged 23 years who reported earnings.

constant through time, and if individuals in NCDS4 who reported their occupations were to remain in that occupational category for the rest of their working lives, this procedure ranks individuals in terms of their lifetime expected earnings. Clearly, neither of these conditions hold true. Nevertheless, the assumption is maintained that the *occupation* in which a person is observed at age 23 is a good guide to their potential lifetime earnings.

It should be noted that this occupational ranking procedure was performed separately for males and females. That is, female respondents were ranked in terms of the position of the median earnings of women in a particular occupational category relative to the national distribution of women's earnings. Likewise, male respondents were ranked with respect to the earnings of men. This procedure led to the development of two completely separate but analogous scales. This was done to facilitate separate examination of the factors which influence the occupational earnings of women from those which affect the occupational earnings of men. This is a most important point, given the significant differences between the national distributions of male and female earnings. Figure 2.2 shows the extent of these differences by plotting these earnings distributions on the same horizontal axis. For each distribution the points marked as q_1 , q_2 and q_3 mark the lower quartile, the median and the upper quartile points. In each case the upper open-ended category has not been included on the histograms. The distribution of the hourly earnings of female full-time employees is a much 'squatter' distribution than that for males. In other words, women tend to have employee earnings which are less dispersed than those for men. Furthermore, the male distribution of hourly earnings is displaced a considerable distance to the right compared with the female distribution. It is worth noting that the national proportion of women with full-time employee earnings in the upper quartile of the female distribution includes some women with hourly earnings which are *below* the median earnings of male full-time employees.

In the following chapters these major differences must always be considered. The occupational earnings score derived for female NCDS4 respondents measures their economic status relative to earnings of all full-time employed women. Similarly, the occupational earnings score for male respondents ranks them in terms of the male employee earnings. Thus, if it is shown that the same factors operate in a similar way to alter the probability that a male or a female respondent earns more or less than average for all male or female employees, this does not imply that there is an equal treatment of men versus women in the labour market. This issue will be examined in more detail in Chapter six, which investigates further the difference

is male and female occupational earnings at the age of 23 years.

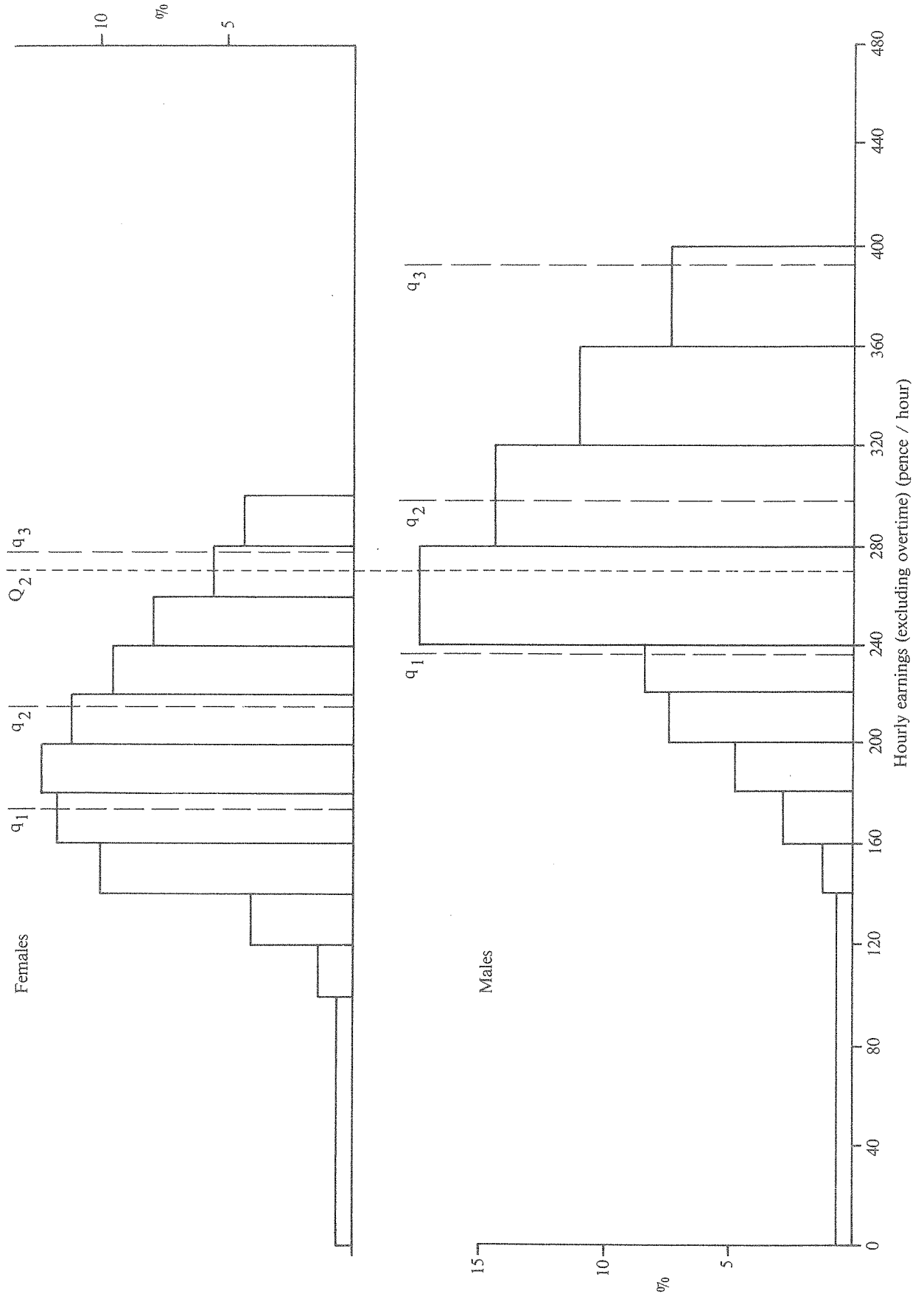
The large majority of individuals who were unemployed (U) or out of the labour force (OLF) at the time of the survey had held at least one job since leaving school and provided details of their last occupation. It was decided, therefore, to categorise these individuals in the same way as those who were employed, but in this case according to their previous, rather than their current, occupation. This raises the issue of whether or not it is reasonable to use information which relates to an earlier time period for these respondents. To investigate this problem, the work history data described in Chapter four was used to find the date upon which the last period of paid employment (the 'job' for which the survey data recorded a 'last' occupational code) ended for the two main categories involved. Assuming all interviews were held at the end of December 1981, the number of months which had elapsed since the respondent's last job ended was computed. For the 946 individuals coded as 'currently unemployed and seeking work' (8 per cent of the sample) who gave details of their latest occupation, the median number of months which had elapsed since that job was 11 months for males, 12 months for females. More than four out of five unemployed respondents who reported a last job had held that job less than two years before the end of 1981. For the 1199 individuals coded as 'out of the labour force – housework' (10 per cent of the sample) who gave details of their last occupation, the median number of months which had elapsed between the date of the end of their last job and the end of 1981 was 28 months. From this information, it was concluded that the occupational information describing the respondent's last job gave a reasonably up-to-date picture for the purpose of deriving their position on the occupational earnings scale.

Finally, individuals in full-time education were categorised on the basis of the qualification for which they were studying, as this is likely to be a good indicator of their subsequent earnings.

A total of 818 individuals could not be classified on the occupational earnings scale (316 males and 502 females, or 6.5 per cent of the total sample) using the above methods, consequently these constitute a fifth residual category.

Tables 2.1 and 2.2 show, for males and females separately, the cross tabulation of current economic activity with the allocated occupational earnings score. The following sub-sections describe in more detail the allocation of an occupational score to the four main groups defined in terms of their labour market status at the time of interview.

Figure 2.2 Distribution of hourly earnings of male and female full-time employees, New Earnings Survey April 1981



Tabel 2.1 Occupational earnings quartiles for males (%)

Labour market status	Occupational earnings quartile				Residual	Total
	1	2	3	4		
Employment	9	30	33	9	2	83
Unemployment	*	2	5	2	2	12
Education	3	*	—	—	—	3
Out of the labour force	—	*	*	*	*	*
Other categories	*	*	1	*	1	3
Total	12	32	39	12	5	100
No. of observations	751	2015	2443	742	316	6267

Base: All males in the sample.

Note: * Indicates less than 0.5 per cent.

2.2.1 In employment at time of interview

Out of 9,213 individuals (or 73.5 per cent of the total number of respondents to the fourth sweep of the survey) who were in employment at the time of the survey, 7,072 out of the 8,692 individuals who were employees and 477 of the 521 individuals who were self-employed, reported a current occupation. Each of these individuals was allocated the median gross average hourly earnings from the 1981 NES for that occupational category, separately for males and females. If this figure was in the highest quartile of earnings for that sex in the 1981 NES, the occupational earnings variable was allocated a value of one. If the figure fell in the second quartile, a value of two was allocated and so on down to four for the lowest quartile.

Of the 1,620 individuals who were in employment at the survey but who did not report any occupational details, 1,491 provided information on their hourly earnings. This information was used to generate an occupational earnings quartile score in the following manner. These individuals' gross hourly earnings was contrasted with the overall distributions of hourly earnings for each sex as reported in the NES. As has

already been stated, if this earnings information was used directly, then more of the respondents would be placed into a lower quartile than a comparable procedure based upon the median earnings within a NES occupational category, simply because NCDS4 respondents are, on average, 13 years younger than NES respondents. As was shown in Figure 2.1, the earnings information in NCDS4 is biased downwards compared with the national distribution of earnings. However, for females there was no significant difference between median hourly earnings in the 1981 NES or in NCDS4. For males, it was appropriate to multiply each individual's hourly earnings by an adjustment factor of 1.1568 (i.e. median hourly earnings in NES of £2.980 divided by median hourly earnings in NCDS4 of £2.576) to adjust for this difference. If the adjusted value of their earnings as recorded in NCDS4 fell in the highest quartile of earnings in the NES, the individual was allocated a value of one, and so on down to four.

Table 2.2 Occupational earnings quartiles for females (%)

Labour market status	Occupational earnings quartile				Residual	Total
	1	2	3	4		
Employment	14	17	24	9	1	64
Unemployment	*	1	3	2	1	7
Education	1	*	—	—	*	2
Out of the labour force	1	2	10	4	5	24
Other categories	*	*	1	1	1	3
Total	18	21	38	16	8	100
No. of observations	1109	1293	2355	1011	502	6270

Base: All females in the sample.

Note: *Indicates less than 0.5 per cent.

2.2.2 Unemployed at time of interview

A total of 1,146 individuals (9.1 per cent of the sample) were unemployed and seeking work at the time of the survey, of whom 946 had held at least one job since leaving school and reported the occupation they held in their previous job. Values from one to four were allocated to such individuals on the same basis as was performed for respondents who were in employment at the survey and who reported an occupation. As might be expected the majority of the unemployed are classified into the lowest two quartiles (82.9 per cent of males and 67.3 per cent females). However, significant numbers are to be found in the highest two categories (122 males and 62 females).

2.2.3 Out of the labour force at time of interview

A total of 1,514 women and 4 men (12.1 per cent of the sample) reported that they were out of the labour force (OLF) doing housework at the time of the survey. Of these, 1,199 had held at least one job since leaving school and also provided details of their last occupation. As in the previous case these respondents were allocated values on the basis of the average hourly earnings for the occupation from the 1981 NES in comparison with the overall distribution. As was reported above for the unemployed, the majority of individuals in this category have occupational earnings scores in the lowest two categories. Once again, however, significant numbers have a score of one (82 females) or two (153 females and 1 male).

2.2.4 Full-time education at time of interview

A total of 303 individuals (2.4 per cent of the sample) were in some form of full-time education at the time of the survey. It was decided that it was most appropriate to allocate earnings scores on the basis of the qualification for which they were studying. Previous occupations or earnings for these individuals are unlikely to be very good indicators of their subsequent labour market performance. Individuals were allocated the highest value of one if the qualification they were studying for was post A-level or equivalent otherwise individuals were allocated a value of two. This procedure resulted in 184 males and 85 females being allocated a value of one and 15 males and 17 females a value of two.

2.3 Summary

This chapter describes the method by which the members of a major birth cohort study were allotted to a position in the occupational distribution of earnings according to their occupational status at or around the age of 23 years. This process was carried out for as many study members as possible and was performed separately for males and females.

Using related information from the 1981 New Earnings Survey, it proved possible to allocate 95 per cent of the men and 92 per cent of the women in this study to a quartile of the occupational distribution of earnings. These groups form the basis of the research reported in this paper.

Chapter 3

Personal characteristics, educational attainment, parental socio-economic background and occupational earnings

This chapter relates the occupational earnings of NCDS4 respondents to a series of personal characteristics (ethnicity, birth order and health), their educational attainment, and to some indicators of their parent's socio-economic background (father's social class and the age at which their father left school).

3.1 Ethnicity

Unfortunately, NCDS4 did not collect any information on a respondent's ethnic origins. Moreover, unlike the earlier sweeps of the survey, the sample was not augmented by including those new immigrants born in the relevant week (the week in March 1958 in which all cohort members were born). Due to differential rates of migration, this has led to a slight under-representation of persons of Indian and Pakistani origin. For persons of Afro-Caribbean origin, the NCDS4 sample suffers from a significant degree of under-representativeness associated with a low response/trace-back rate. For further details of the under-representation of ethnic minorities see Iyer (1984), Essen and Ghodsian (1979) and Ghodsian and Essen (1980).

The ethnic group of the respondents was assessed by eye on the basis of the child's skin colour and features, by doctors who conducted medical examinations of respondents for NCDS2 as well as for NCDS3. The classification categories in the two surveys were the same except that in NCDS3 a new 'mixed race' category was included. As can be seen from Table 3.1 there were relatively few

contradictions between the two sets of classifications. In 1,085 cases (8.7 per cent) there were no responses available in either NCDS2 or NCDS3. In 3,781 cases a response from only one of the sweeps of the survey is available. It is obviously sensible in such circumstances to allocate the respondent to that racial group. In 1,479 cases an ethnic group was reported in NCDS3 but not in NCDS2 whilst in 2,302 cases ethnicity was reported in NCDS2 but not in NCDS3.

These categorisations left 77 cases where respondents were classified into different ethnic groups in NCDS2 and NCDS3. This includes the 32 individuals who were reported as being of 'mixed race'. The most sensible course of action for all of those individuals where there is some disagreement over their ethnicity is to place them in the 'other' category.

Table 3.2 reports the distribution of the occupational earnings scale by ethnic groups. Because of the small numbers of observations involved, the 'Other Asian' category was combined with the Indian/Pakistani category to form a new 'Asian' category. For the same reason, the distributions for males and females are combined within the same table. It is noticeable that almost a quarter of Asians were found in the highest quartile of the derived occupational earnings scale, compared with 15 per cent of the birth cohort overall. It should be noted, however, that there is no significant difference between any of the racial groups in the proportion of individuals who are in

Table 3.1 Ethnic origin from NCDS2 and NCDS3 (No.)

Ethnic category in NCDS3	Ethnic category in NCDS2					Missing	Total
	European/Caucasian	African/Negroid	Indian/Pakistani	Other Asian	Other/Unsure		
European/Caucasian	7506	2	4	2	3	1368	8885
African/Negroid	—	40	—	—	1	46	87
Indian/Pakistani	—	1	29	1	—	60	91
Other Asian	1	1	2	2	1	5	12
Other	23	3	—	—	2	12	40
Mixed race	4	4	7	3	7	7	32
Missing	2271	17	12	2	3	1085	3390
Total	9805	68	54	10	17	2583	12537

Table 3.2 Occupational earnings and ethnic origin (%)

Ethnic origin	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
White	15	27	38	14	6	11145
Afro/Caribbean	12	33	41	11	3	103
Asian	24	18	33	13	12	110
Other	11	30	39	13	7	94
Missing	15	22	40	14	8	1085
Total	15	26	38	14	7	12537

occupations in the upper half of the occupational distribution of earnings.

3.2 Marital status and children

As can be seen from Table 3.3, out of the 12,537 individuals in the sample, 3,173 (25 per cent) reported that they had had at least one living child by 1981. One third of females and 18 per cent of

males were in this category. For both males and females, on average, individuals without children were more likely to be classified on the upper half of the scale than was the case for those who had children. This was especially apparent for females. Only 17 per cent of women who had children achieved an occupational earnings scores of one or two compared with 49 per cent for those without children.

Table 3.3 Occupational earnings, marital status and the presence of children (%)

Sex, marital status and presence of children	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Males*</i>						
a) All males	12	32	39	12	5	6263
With children	5	30	48	14	3	1106
Without children	14	33	37	11	5	5157
b) Married	8	36	43	11	3	2179
With children	5	31	48	13	3	929
Without children	10	39	39	9	3	1250
c) Single	14	30	36	12	6	3936
With children	3	28	46	20	3	100
Without children	15	30	36	12	7	3836
d) Other	4	28	48	18	2	146
With children	3	23	52	21	1	77
Without children	6	33	43	14	4	69
<i>Females</i>						
a) All	18	21	38	16	8	6270
With children	6	11	42	26	16	2067
Without children	24	25	36	11	4	4203
b) Married	14	18	41	18	10	3409
With children	5	11	43	25	16	1664
Without children	22	25	39	11	3	1745
c) Single	24	25	33	13	5	2546
With children	7	13	39	30	11	223
Without children	26	26	32	11	5	2323
d) Other	9	16	40	22	13	315
With children	6	9	37	29	19	180
Without children	13	27	44	12	4	135

Note: *Excludes 4 cases where marital status was not reported.

3.3 Family structure

The interaction between family structure and occupational earnings is far from clear. It has long been recognised that families living in or near the margins of poverty tend to consist disproportionately of large families (e.g. Ministry of Social Security, 1967; Townsend, 1979) and that the occupations of adults in such families are in the lower social groupings. An economic interpretation of the possible interaction would relate to the smaller share of the family's financial resources available for each child's upbringing in a larger family. On this basis, it could be argued that a family size variable will give a better representation of the individuals' 'life chances' than, say, a social class variable. Clearly then, both *parental social class* and *family size* during upbringing should be included in an analysis of occupational earnings. But there is also much evidence to suggest that the analysis should also investigate for *birth order* effects on occupational earnings. Behrman and Taubman (1986) find a relationship between birth order, number of years of schooling and earnings, with higher birth orders being correlated with less schooling and lower earnings. In a cross-national study, Zajonc (1976) shows that birth order (and birth spacing) effects are significantly related to temporal trends in 'intelligence' test results, findings which were confirmed in a small-scale psychosocial study (Pfouts, 1980). A variety of hypotheses have been advanced to explain this phenomenon, including the argument that children born higher in the birth-order tend, on average, to have older mothers and that the age of the mother is correlated with the 'intelligence' of the child.

A 'birth order' variable was constructed using information from NCDS3, NCDS1 and the Perinatal Mortality Study (PMS), the original study of the birth of the cohort. In NCDS3, the 1973/74 enquiry, the respondent's parents were questioned as to how many older brothers and older sisters the respondent had. These two variables were summed and increased by one to obtain the birth order. There were 3,282 cases with missing information for at least one of these questions. Information from NCDS1 and the PMS was used to fill in as many of these gaps as possible, leaving 574 persons, or 4.6 per cent of the sample, for whom their birth order could not be computed.

Table 3.4 presents details of the distribution on the occupational earnings score according to the individual's birth order. There appears to be some evidence that respondents who were first or second born had, on average, a higher occupational attainment level than those who were born third or above. For example, 45 per cent of individuals who were first born had the highest occupational earnings

score compared with 23 per cent of individuals who were sixth born or higher. There is no significant difference in the occupational attainment of the first or second born. The main differences were found among individuals who were born third or higher in the family. This group tended to have lower earnings scores than those born first or second. The greatest difference was observed among individuals born sixth or higher. Overall, 47 per cent of individuals who were first or second born were in the highest occupational category compared with 37 per cent for those born third or higher.

Data are available in various sweeps of the National Child Development Survey on the composition of the family in which the study member grew up. However, there is an operational problem in knowing which variable to use to indicate family structure. Family size is a variable which changes through time as births, deaths and other events such as parental divorce take place. It is possible to select a particular date and compare family sizes, but there is little theory to guide the selection of an appropriate date. It should be noted, however, that the evidence obtained from each of the family size variables that are available does seem to support the proposition that family size is correlated with occupational earnings. Using information provided by parents in NCDS3 (1974) it was found that 46 per cent of respondents from households containing three children or less had occupational scores in the highest two categories, compared with 34 per cent of respondents from families with four or more children.

3.4 Parental social class

This section attempts to identify the social class of the respondents' *parents* in order to determine the extent to which it was correlated with the occupational earnings of the respondent at age 23.

Parental social class is likely to alter through time. For the purpose of this study the particular interest is in the social class of the family in the respondent's early formative years. It was decided, therefore, to use the relevant information collected at the time of birth of the study members, Perinatal Mortality Study (PMS) and, where there was missing information, to fill them in using responses from subsequent sweeps of the survey.

Thus, the variable termed 'social class of father' was primarily constructed from information on father's occupation at the time of birth of the respondent (GRO 1951 Classification of Occupations) in the PMS. For respondents in single parent families, the occupational information derived from the mother's occupation prior to the birth of the respondent. This

Table 3.4 Occupational earnings and birth order (%)

Sex and birth order	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Males</i>						
First	14	34	36	10	5	2316
Second	13	32	39	11	5	1914
Third	11	31	42	11	5	869
Fourth	7	31	44	12	5	431
Fifth	4	28	41	23	4	213
Sixth or above	5	21	48	22	4	233
Missing	8	29	37	15	10	291
All males	12	32	39	12	5	6267
<i>Females</i>						
First	20	22	36	15	7	2326
Second	19	22	36	15	8	1847
Third	16	20	39	16	8	927
Fourth	11	19	41	20	9	446
Fifth	10	17	45	16	12	208
Sixth or above	9	10	43	24	14	233
Missing	18	16	40	16	10	283
All females	18	21	38	16	8	6270

information was available for 9,832 respondents. For 2,705 individuals for whom this information was not available a value was mapped in from NCDS2 (from the GRO 1966 Classification of Occupations). This enabled a parental social class allocation to be made to a further 2,071 individuals. Finally, for the remaining individuals whose parents had still not been allocated a social class, comparable data were obtained from NCDS3, leaving only 302 individuals for whom insufficient data was available to identify their father's social class.

As can be seen from Table 3.5, the higher the social class of the father, the more likely it was that the individual had an occupational earnings score of 1 or 2. In the case of males, 54 per cent of respondents from Social Class I were in these categories compared with 38 per cent from Social Class V, whilst for females the differences between the classes were even more pronounced at 63 per cent and 27 per cent respectively.

3.5 Age father left school

As an additional indicator of parental social class to that described above, which was based primarily upon the occupation of the father, it was possible to identify the age the respondent's father completed his schooling.

In NCDS1, the respondents' parents were asked to report whether the father of the respondent had

stayed on at school beyond the minimum school leaving age. If they responded positively they were then asked to report at what age full-time education was completed. These two pieces of information yielded details of the age their father had left school for 10,561 respondents. There were, therefore, 1,976 missing values. Fortunately, an identical question to that used in NCDS2 was asked in NCDS3. This enabled values to be allocated for a further 1,198 cases, leaving 778 cases where there was insufficient information to determine the age at which the respondents' father had left school.

Table 3.6 reports the age at which the respondent's father had left school tabulated against the occupational earnings scale. For simplicity the former variable has been divided into two categories—individuals whose father left school before the age of sixteen and those who left at aged sixteen or older. A very strong relationship appears between these two categories. For males, if the father stayed on at school the minimum school leaving age, 57 per cent will be in the upper half of the distribution of occupations by earnings, compared with 41 per cent for respondents whose father left school at age 15 years or younger. For females, the difference in occupational attainment between these two groups is even more marked.

3.6 Educational attainment

Table 3.7 reports the distribution over the

Table 3.5 Occupational earnings and father's social class (%)

Father's social class by sex	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Males</i>						
Father's social class:						
I	28	26	28	10	8	215
II	20	31	31	10	8	1004
III Non-manual	13	39	36	9	4	338
III Manual	11	33	40	12	4	2749
IV	7	31	43	14	5	991
V	7	31	46	12	4	754
Missing	10	31	43	11	5	166
All males	12	32	39	12	5	6267
<i>Females</i>						
Father's social class:						
I	34	29	20	9	8	192
II	24	25	30	13	7	940
III Non-manual	24	23	35	11	7	471
III Manual	17	21	39	16	7	2777
IV	12	17	43	19	9	980
V	11	16	41	21	11	774
Missing	17	21	40	15	7	136
All females	18	21	38	16	8	6270

Table 3.6 Occupational earnings and age father left school (%)

Age father left school by sex	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Males</i>						
Under sixteen	9	32	42	13	4	4637
Sixteen or older	23	34	27	8	7	1239
Missing	9	27	40	15	9	391
Total males	12	32	39	12	5	6267
<i>Females</i>						
Under sixteen	14	19	40	18	9	4637
Sixteen or older	29	28	29	9	6	1246
Missing	19	15	41	18	8	387
Total females	18	21	38	16	8	6270

occupational earnings scale according to the results of an English test the respondents took when they were 16 years of age (taken from NCDS3). The scores are marked out of a total of forty and have been banded in groups. The maximum score was 35. As might be expected, there is a marked tendency for individuals with a high English test score to have an occupational earnings score in the top two quartiles. A similar distribution is evident in Table 3.8 where maths test score has been cross tabulated against occupational earnings quartiles. Once again the banded results have been tabulated in groups; in this case the maximum score was 31.

An obvious cause for concern here is the very large number of non-responses to both the reading and maths comprehension tests. It was decided, therefore, to search for another comparable variable or groups of variables in the survey with fewer non-responses. In NCDS2, respondents also took tests of literacy and numeracy. The test scores for reading and maths from NCDS2 (age 11) were tabulated against the reading and maths test scores for NCDS3 (age 16). These separate test scores are quite highly correlated – the product moment correlation coefficient between the reading comprehension scores in NCDS3 and NCDS2 is .786 compared with .762 in the case of the two maths scores.

Table 3.7 Occupational earnings and English test score (age 16) (%)

English test score (NCDS3)	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
0-5	2	9	44	27	18	89
6-10	1	13	45	27	14	246
11-15	2	15	46	28	8	576
16-20	4	18	49	22	6	1064
21-25	8	27	44	16	5	1966
26-30	16	32	38	11	4	2724
31-35	29	31	27	7	6	2846
Missing	13	23	40	15	9	3026
Total	15	26	38	14	7	12537

Table 3.8 Occupational earnings and maths test score (age 16) (%)

Maths test score (NCDS3)	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
0-5	3	17	49	23	7	1163
6-10	7	22	46	19	6	2952
11-15	13	33	39	11	5	2122
16-20	22	35	30	7	5	1502
21-25	32	31	23	6	7	1194
26-31	42	25	18	7	7	537
Missing	13	23	40	15	9	3067
Total	15	26	38	14	7	12537

It was decided that the maths and English test scores from NCDS2 (age 11) would be used as the basic indicators of educational abilities. This test was taken by the birth cohort when they were aged 11 years, about the same time that many were taking their '11+' examinations determining the nature of their secondary education. Where there were missing values in NCDS2, a 'converted' score from NCDS3 was produced. Conversion of NCDS3 maths and English test scores was performed by regressing NCDS3 scores on NCDS2 scores, for respondents who took both sets of tests. The resulting parameter estimates yielded an equivalent mean score from the NCDS3 test results, against which the respondent was compared to create a simple categorical variable for each test. Respondents were classified as either 'above average' or 'below average' on these tests.

Table 3.9 shows the relationship between the resulting mathematics and reading test scores and occupational earnings. For reading scores, those respondents with a score of 15 or less from the NCDS2 test are scored as 'below average'. In those cases where there was no NCDS2 reading score, the 'below average' score on NCDS3 is 25 or less. For mathematics, the 'below average' score on both NCDS2 and NCDS3 is a score of 16 or less. For males, it should be noted that, for the group scoring

below average scores in maths or reading, only one third have above average occupational earnings, compared with 57 per cent for those scoring above average on the tests. A similar picture exists for females.

3.7 Health

All four sweeps of the National Child Development Study contain large amounts of detail on various aspects of respondent's health. As this particular investigation is not primarily concerned with health only a small number of indicators of health status were derived to describe the status of the individual prior to entry to the labour market. These indicators are as follows:

3.7.1 Physical disability

In NCDS4, respondents reported on whether or not they had any longstanding illness, disability or infirmity which limited their activities in any way compared with people of their own age. Affirmative responses were reported for 342 individuals; a further 122 individuals said they were registered as disabled. There were only 5 missing values to these two questions.

Table 3.9 Occupational earnings and Maths/Reading Test Results (%)

Maths/reading score by sex	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Males</i>						
Below av. maths score	4	29	47	16	4	3,118
Above av. maths score	20	37	30	7	6	2,850
Maths score not known	10	25	39	12	13	299
Below av. reading score	4	28	48	16	4	2,762
Above av. reading score	19	37	31	8	5	3,208
Reading score not known	10	25	40	12	13	297
<i>Females</i>						
Below av. maths score	9	17	43	22	9	3,193
Above av. maths score	28	25	31	9	6	2,780
Maths score not known	18	16	32	18	16	297
Below av. reading score	8	15	44	24	10	2,702
Above av. reading score	26	26	33	10	6	3,276
Reading score not known	18	17	32	17	16	292

Table 3.10 Occupational earnings, physical disability and behavioural problems (%)

Physical disability and behavioural problems	Occupational earnings quartile				Residual	Base (=100%)
	1	2	3	4		
<i>Physical disability</i>						
Registered disabled	—	6	39	21	34	122
Longstanding illness	10	22	41	15	12	342
<i>Behavioural problems</i>						
Males	5	27	44	17	7	342
Females	10	16	46	19	9	213

As can be seen from the top part of table 3.10, an occupational earnings score was not allocated to approximately one third of all individuals who reported that they were registered as disabled. Of the remaining 81 individuals, only seven were in the upper half of the distribution of occupational earnings. Of the additional 342 individuals with a longstanding illness or disability 32 per cent had an above average occupational earnings score compared with 41 per cent overall.

3.7.2 Behavioural problems

The construction of a variable to indicate behavioural problems was rather more complex than that for physical disability. The derived variable was based on the reports of parents in NCDS3 on whether or not the study child had ever seen a specialist for emotional or behavioural problems. Of these replying, 190 parents reported that their child, at some time, had attended a Child Guidance Clinic and 168 reported that they had been seen elsewhere for help with emotional or behavioural problems, e.g. at a hospital. Once again, however, there is the

difficulty that there are a large number of missing values (3,297) to this question. As for a number of other variables described earlier, responses from other sweeps of the survey were utilised to fill in as many of these values as possible. These variables have the disadvantage that they cover a shorter time-period than those from NCDS4, but, this procedure is preferable to the alternative of omitting the case. Initially, parental responses to a comparable question in NCDS2 were used. For those cases where there were still missing values, a further question in NCDS1 enquiries of parents whether or not the child has attended a Child Guidance clinic. Using the responses from NCDS2 found that a further 152 individuals had been seen by a specialist for emotional difficulties before they were eleven years old. The NCDS1 responses identified a further 45 children who had been seen by Child Guidance by the time they were seven. This yielded a total of 555 individuals, or 4.4 per cent of the sample, who had reported emotional problems before the age of sixteen. At the end of this procedure only 286 cases remained where there were missing values to all three questions examined.

The lower part of Table 3.10 reports the occupational earnings scores for individuals identified as having experienced emotional problems. For both males and females, the proportion who are classified to the 'above average earnings' NES occupations (32 and 26 per cent respectively) is significantly lower than the average for all respondents (44 and 39 per cent).

3.8 Summary

This chapter illustrates something of the complexity of the relationships which have contributed to the relative position of each study member in the

distribution of earnings by occupation. Clear correlations exist between a respondent's marital status, whether or not they have had children by the age of 23 years, the respondent's birth order, father's social class, father's school leaving age, the respondent's educational attainment, physical disability, childhood behavioural problems and occupational earnings at the age of 23 years. Many of these correlations derive from a complex set of interrelationships which influence the transition from full-time education to work. Chapter six of this report describes how the *separate* effects of each of the influences on occupational earnings can be identified.

Chapter 4

Work Histories and Occupational Earnings

This chapter describes the research undertaken to analyse and categorise the work histories of respondents within the National Child Development Study from the retrospective work history information collected at the time of the fourth sweep.

It may seem somewhat unusual, given the longitudinal nature of the study, to refer to the work history information as 'retrospective' data. Unlike some of the North American longitudinal studies, a 7 year period elapsed between the third and fourth sweeps of the NCDS. One of the innovative features of the fourth sweep was the 'diary', a month-by-month calendar for each of these seven years, which enabled the interviewee and the interviewer to reconstruct the main economic states (e.g. full-time jobs, part-time jobs, unemployment, full-time education) in which the respondent spent each month from their sixteenth birthday until the end of 1981. A copy of this 'diary' is included in appendix one.

Work history information from medium and large scale social surveys has only been available in the United Kingdom since the technique was pioneered in the 1975/6 National Training Survey. Subsequent analysis of work history data from this source (Elias and Main, 1982) has indicated that the measurement error associated with the recall of historical work events showed no systematic bias and that a substantially 'complete' account of a working life (i.e. a continuous record of events and dates) could be recalled by more than 90 per cent of respondents. While other survey researchers have been critical of the extent to which memory recall is highly selective (e.g. Marsh *et al.*, 1981) it remains the case that the work history technique applied to social survey research is a valuable tool for the collection of detailed information describing the evolution and interdependence of economic events through time.

4.1 Work Histories in NCDS4

Before commencing the structured interview, an interviewer completed the 'diary' for each respondent, marking every month from the date the respondent first left school or full-time education with an alphabetical code for a full-time job, a part-time job, sheltered employment, a government sponsored training scheme, unemployment, a 'fill-in'

job or a period of full-time education. The interviewer instructions for completing the diary state that:

A *JOB* is a period of time with the same employer or a period self-employed. Interviewers were instructed not to include:

- holiday jobs, while at school or in full-time education
- jobs which did not last for at least one month
- part-time jobs done at the same time as full-time jobs
- part-time jobs done at the same time as full-time education.

Specific instructions were included for 'temps' (agency workers), where the interviewer was instructed to define the 'job' as the period spent working as a temp for one or more agencies, not for each employer worked for on a temporary basis.

The diary served as an *aide-memoire* for interviewers and respondents as the main questionnaire was completed. The main questionnaire recorded start dates for the first three full-time or part-time jobs recorded on the diary and the fourth or latest job, the start dates of up to three full-time education courses taken since leaving school and the start date of the current period of full-time education (if relevant), the start dates of the first three and the latest period of unemployment and the start dates of the first three and the latest period spent out of the labour force.

These data, together with additional information about the total number of jobs, periods of unemployment, etc. provides a month-by-month record of the respondent's work history, from the time he or she first completed full-time education, for 84 per cent of all respondents. For the remaining 16 per cent, the information recorded in the main questionnaire does not provide a full picture of their work histories since leaving school. Attempts have been made to piece together the available information from within the coded survey data to reconstruct the sequence of work history events for the 16 per cent of respondents with incomplete work histories (Payne, 1984). However, these 'censored' or incomplete work histories relate to two particular

groups of young persons; those who have had many jobs, or those who have had many jobs interspersed with spells of unemployment. There exists the possibility that any error in the reconstruction of these work histories may be confounded with particular characteristics of these two groups.

For 1,994 individuals whose work histories had been subject to censoring at the interview, a machine-readable coded work history was prepared from the original diary. This exercise was completed in mid 1986, following rigorous checking of machine readable data against the original diaries and the coded survey data. The Training Commission (formerly the Manpower Services Commission) provide financial assistance for this task.

4.2 Criteria for the Classification of Work Histories

Despite the effort which has been put into the creation of detailed month-by-month work histories for members of the birth cohort, it remains the case that the work history information provides only an outline of their labour market experiences. For example, no information is available on the variety of different occupations they held in this period. Bearing this in mind, it was only possible to develop a typology of work histories with respect to the *number of different employers* that study members experienced (a period of time with one employer is referred to as a 'job' in the study, regardless of the different job titles/job tasks which may have been undertaken for one employer) and the *continuity* of their experience of paid employment.

These criteria have proven to be of direct relevance to the study of youth labour markets. A substantial body of research on the operation of youth labour markets (see Appendix two) has highlighted the extent to which there is a small but significant group of young persons who exhibit high turnover in the labour market. While this might be viewed as part of the process of 'settling-down' into a particular type of work, the evidence from studies conducted over the last twenty years indicates that 5 to 10 per cent of young school leavers will display a very high level of turnover in the labour market in the first few years after leaving school.

4.3 A Classification of NCDS4 Work Histories

The work histories of NCDS4 respondents were classified according to the criteria of *job turnover* and the *continuity* of employment experience. *Job turnover* could signal the operation of an efficient labour market, with individuals searching for and obtaining jobs which provide a better match between aspirations and experience. Alternatively, as previous research has suggested, high turnover might be

associated with a lack of knowledge about job opportunities, leading to a non-productive 'sampling' of different jobs. High turnover interspersed with periods of unemployment could signal deteriorating job prospects and a process of 'bumping-down' the occupational hierarchy. The *continuity* of employment experience (even with different employers) may be viewed by potential employers in a radically different fashion from a discontinuous work history, with the latter successively reducing the chances of re-employment considerably. Thus, measures of work history experience are required which capture information on job turnover and employment continuity.

In constructing such measures, consideration was given to the date upon which the respondent first completed her or his full-time education. Given that the sample has a common age, the *potential* work history will vary with the date upon which full-time education was first completed. Furthermore, this date is, in itself, an important work history variable, indicating a 'watershed' in the transition from full-time education to work. For this reason, it is argued that the measures of work history experience should, in the first instance, be related to the different ages at which respondents first completed full-time education.

4.4 Defining the Date of First Completion of Full-time Education

There is no single piece of information in the main questionnaire which defined the date upon which a respondent first completed his or her full-time education. The diary recorded the date upon which the respondent completed his or her secondary education. Some respondents who moved on into tertiary education may have done so after an intervening period of paid employment. Some such periods may have been of a fairly lengthy duration, in which case it would be more appropriate to classify such an individual as an 'educational returner'. For other respondents, a short 'fill-in' job may have been recorded between the secondary and tertiary stages of education.

An operational definition of a date of *first completion of full-time education* was developed as follows:

- (i) All work history events were categorised as either full-time education or non full-time education.
- (ii) All time-contiguous full-time educational events were concatenated, as were all time-contiguous non full-time educational events.
- (iii) The date upon which the respondent first completed full-time education was computed as the date which marked the boundary between a period of full-time education and the *first* period

of non full-time education with a duration of six months or longer.

- (iv) Work history experience *subsequent* to that date was measured in terms of a count of events by type and by the cumulative duration of events by type (in months).

Table 4.1 Age at which first completed full-time education by gender (%)

Age at first completion of full-time education	Males	Females
15	0.4	0.5
16	64.5	57.5
17	9.3	12.8
18	10.3	13.5
19	3.6	3.1
20	1.3	1.5
21	4.5	4.9
22	3.0	3.8
23	0.7	0.7
not complete	1.6	0.9
not known	0.9	0.7
BASE (= 100%)	6,267	6,270

Table 4.1 shows the distribution of NCDS4 respondents by the age at which they first completed their full-time education. Approximately two thirds of males and a slightly lower proportion of females first completed their full-time education before their seventeenth birthday.

4.5 Continuous versus Non-continuous work histories

Table 4.2 classifies the work histories of respondents, following the date of first completion of full-time education, into two types, those with continuous

employment experience and those who have not been continuously employed. Approximately 36 per cent of males (2,236) and 25 per cent of females (1,596) have been continuously employed since completing their full-time education. As with table 4.1, the female respondents, both the continuously employed and those who have not been continuously employed, have a higher average age upon first completion of full-time education than the males.

Table 4.3 shows, for the continuously employed group, some details of the number of jobs held since completion of full time education, by age at first completion of full-time education and by sex. Interestingly, for 16 to 20 year olds, there appears to be little difference in the distribution of the number of jobs held since completion of full-time education for the different ages at which full-time education was completed.

Tables 4.4 and 4.5 give information on respondents classified as *not continuously employed* since first completing full-time education. Table 4.4 shows the distribution of the number of unemployed periods in the work history by age of first completing full-time education and by sex. This table exhibits the decrease in the proportion of each 'completion' group who had at least 2 unemployed periods in their work history, except for persons who first completed their full-time education in 1979 or 1980, a finding which probably relates to the deterioration in employment prospects with the onset of the recession. The distribution of the number of spells of unemployment between male and female respondents appears similar.

Table 4.5 shows the distribution of the number of periods of full-time education among respondents who have not been continuously employed since first completing their full-time education. It should be noted that, for respondents who first completed their

Table 4.2 Continuity of employment since age at first-completion of full-time education by age at first-completion of full-time education and by gender (%)

Age at first completion of full-time education	Continuously employed		Not continuously employed		Not applicable/ not known	
	M	F	M	F	M	F
16 and under	70	53	64	61	—	—
17	10	15	9	12	—	—
18	9	15	12	13	—	—
19	3	4	4	3	—	1
20	1	2	1	2	—	1
21	4	6	5	5	—	—
22	3	5	4	4	—	—
23	—	—	1	1	1	2
not known	—	—	—	—	34	36
still incomplete	—	—	—	—	65	60
BASE (= 100%)	2236	1596	3881	4577	150	97

Table 4.3 Continuously employed persons by age at completion of full-time education by number of jobs (%)

Age at first completion of full-time education	% with stated number of jobs (FT or PT or 'sheltered' employment)				BASE (= 100%)
	1	2	3	4+	
16 and under	39	28	33	7	2416
17	36	33	31	6	459
18	39	32	29	5	433
19	39	29	32	2	129
20	39	44	17	—	57
21	62	28	10	1	173
22 and over	72	26	2	1	137

Table 4.4 Non-continuously employed persons by age at first completion of full-time education by number of unemployed periods and by gender (%)

Age at first completion of full-time education	% with stated number of unemployed periods				BASE (= 100%)
	0	1	2	3+	
<i>Males</i>					
16 and under	21	39	19	21	2474
17	29	44	16	11	364
18	33	40	15	12	451
19	27	48	14	11	115
20	25	61	8	6	49
21	41	41	13	5	194
22 and over	46	41	10	3	135
<i>Females</i>					
16 and under	44	34	14	8	2757
17	41	39	13	7	559
18	41	42	12	5	609
19	34	43	16	7	139
20	46	33	18	3	67
21	48	34	13	5	219
22 and over	42	45	11	4	158

full-time education at 16 years of age or younger, a return to full-time education is a rare event.

4.6 Work History Patterns

Before moving on to discuss the categorisation of work histories for the analysis of local labour market employment opportunities and occupational earnings, it is worth exploring the data in a less structured fashion, looking for 'typical' work history patterns. This has been done using the graphical techniques first demonstrated in Elias and Main (1982) for the representation of women's work histories and of more immediate relevance, for the analysis of the work histories of participants in the Youth Opportunities Programme (Blanchflower and Elias, 1987).

This technique categorises work histories in terms of

the order in which different events occur, grouping together work histories which are similar in terms of the total number of events and their ordering. The grouped events are then illustrated in graphical form as a segmented bar chart, in which the width of the bar is proportional to the relative frequency of a particular 'pattern' (a similar order of events and the height of each segment of the bar is the average duration of the particular event in the pattern).

Figure 4.1 illustrates the technique. In deriving this bar chart, work history events were first classified as continuous spells of employment (possibly involving more than one job), spells of unemployment, spells out of the labour force and spells in further full-time education. Each respondent's work history yielded a particular pattern of such events, defined in terms of their order and frequency. The most frequently occurring pattern is shown as the left-most bar of the

Table 4.5 Non-continuously employed persons by age at first-completion of full-time education by number of educational periods after first-completion of full-time education and by gender (%)

Age at first completion of full-time education	% with stated number of full-time educational periods			BASE (= 100%)
	0	1	2+	
<i>Males</i>				
16 and under	94	6	—	2474
17	82	15	3	364
18	63	27	—	451
19	70	23	7	155
20	82	16	2	49
21	86	13	1	194
22 and over	94	6	—	135
<i>Females</i>				
16 and under	96	4	—	2757
17	87	10	3	559
18	79	17	4	609
19	76	22	2	139
20	91	8	1	67
21	90	10	—	219
22 and over	96	4	—	158

chart. This consists of a single continuous spell of employment for approximately half of the males in the birth cohort. The average duration of this spell of employment is slightly over seven years, indicating that most of the males who have experienced such a pattern were minimum age school leavers. The next most frequent pattern, shown as the bar to the immediate right, is a single spell of unemployment 'sandwiched' between two spells of employment, where the spell of unemployment is, on average, of six month's duration. Further patterns are identified to the right, but these become increasingly more complex. No patterns which account for less than two per cent of all patterns have been shown. They are too varied and infrequent to be portrayed by this graphical technique.

The situation for females is made more complex by the relative frequency of a spell spent out of the labour force. Unlike males, a substantial proportion of females in the birth cohort have experienced one spell of employment, on average of four years' duration, followed by a spell out of the labour force which was continuing at the time of the survey. Again, virtually all such women are minimum age school leavers, stopping paid work at age 19 or 20 years for a period of family formation.

These bar charts indicate the dominance of one particular pattern for both males and females, a single continuous spell of employment on completion of full-time education. Next most frequent is a single spell of unemployment for males, a single spell out of the labour force for females. The remainder of the

work history patterns are a complex mixture of spells of employment and unemployment for males, or employment, unemployment and periods out of the labour force for females.

Figure 4.2 repeats the analysis shown in Figure 4.1, but this time each separate 'job' (a period of time spent with one employer) is characterised as a separate event. Obviously, this procedure introduces more complexity into the analysis, because of large number of spells of continuous employment which are subdivided into separate jobs. Hence, fewer of the work history patterns can be described as typical. In the case of males, only half of all possible patterns can be deemed 'frequently occurring' in that each accounts for more than 2 per cent of all patterns. This contrasts markedly with the patterns shown in Figure 4.1 which account for seven out of ten of all male work history patterns. For females the situation is similar, although a lower proportion of all patterns are deemed 'typical'. The main finding exhibited in Figure 4.2 is the extent to which two or more jobs is the norm among the continuously employed. Only about one in five of all NCDS4 respondents, female or male, has had a continuous spell of employment with one employer.

4.7 A Typology of Work Histories

The above analyses indicate some fairly simple typologies which could be explored in further detail. First, it seems appropriate to distinguish between persons who have been continuously employed since completion of their full-time education and those

Figure 4.1 Common work history pattern for males and females by frequency of events and average durations.
 (Successive jobs counted as a single spell of employment)

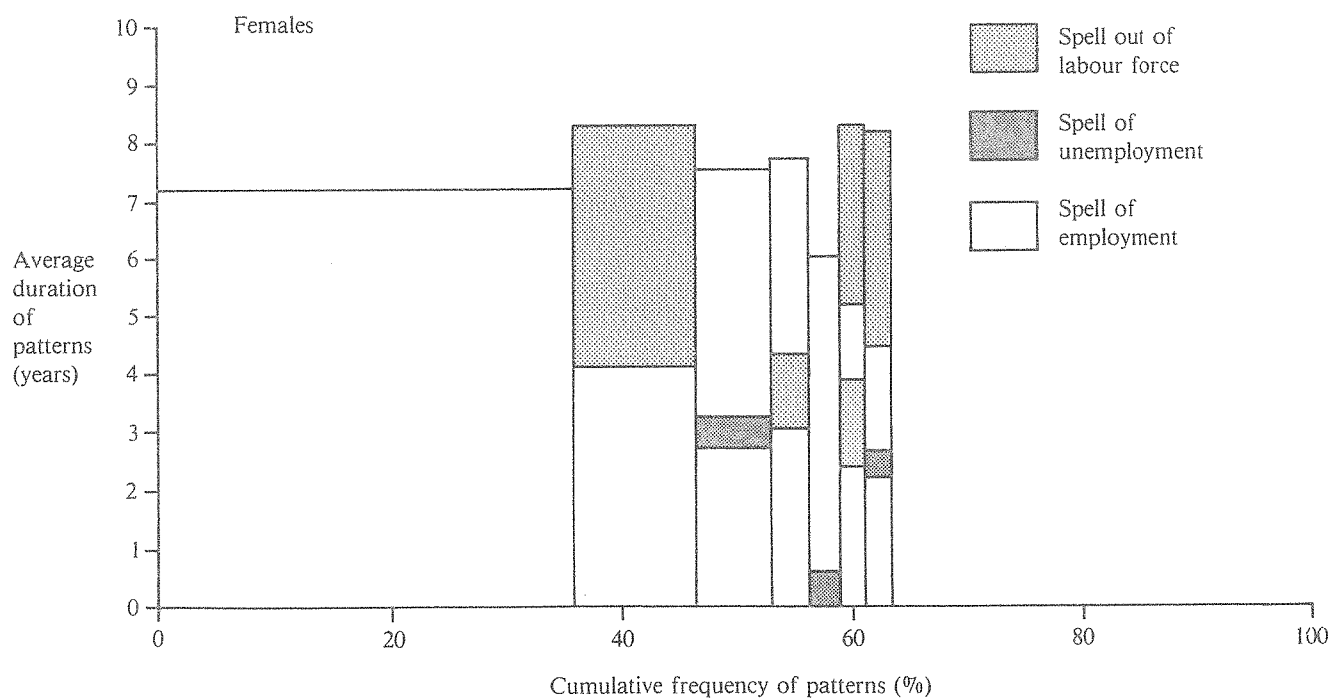
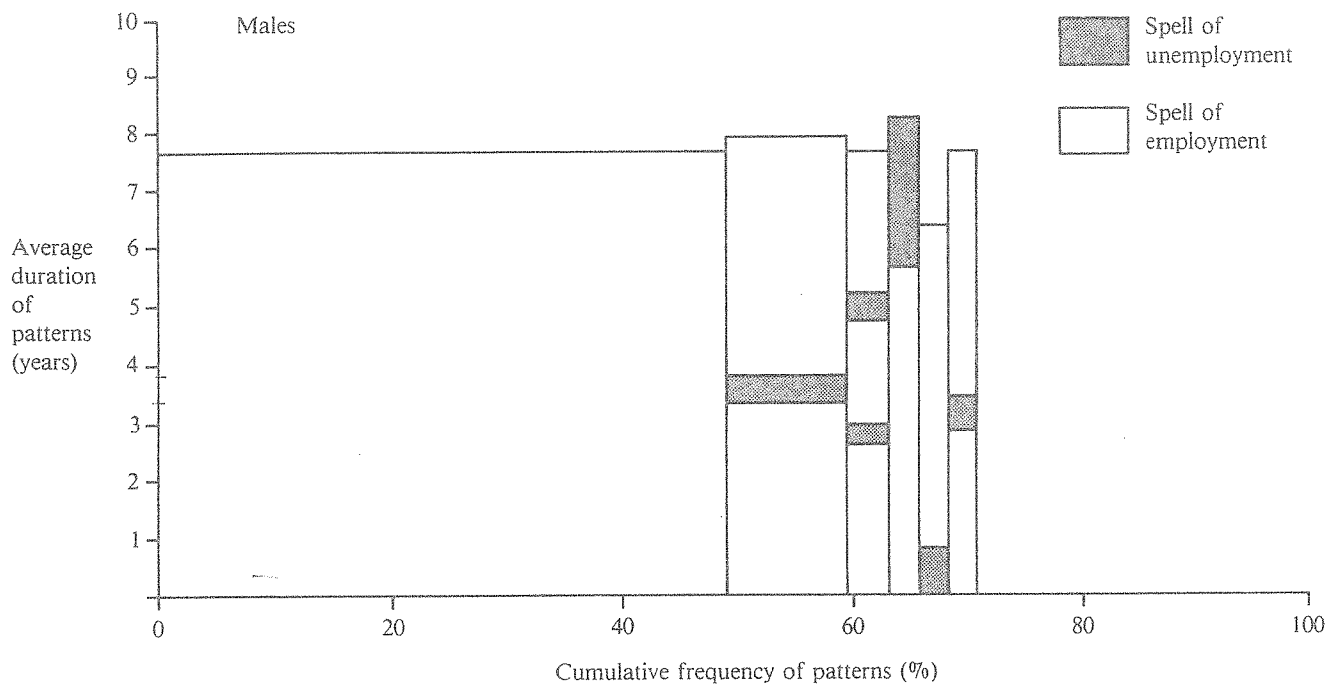
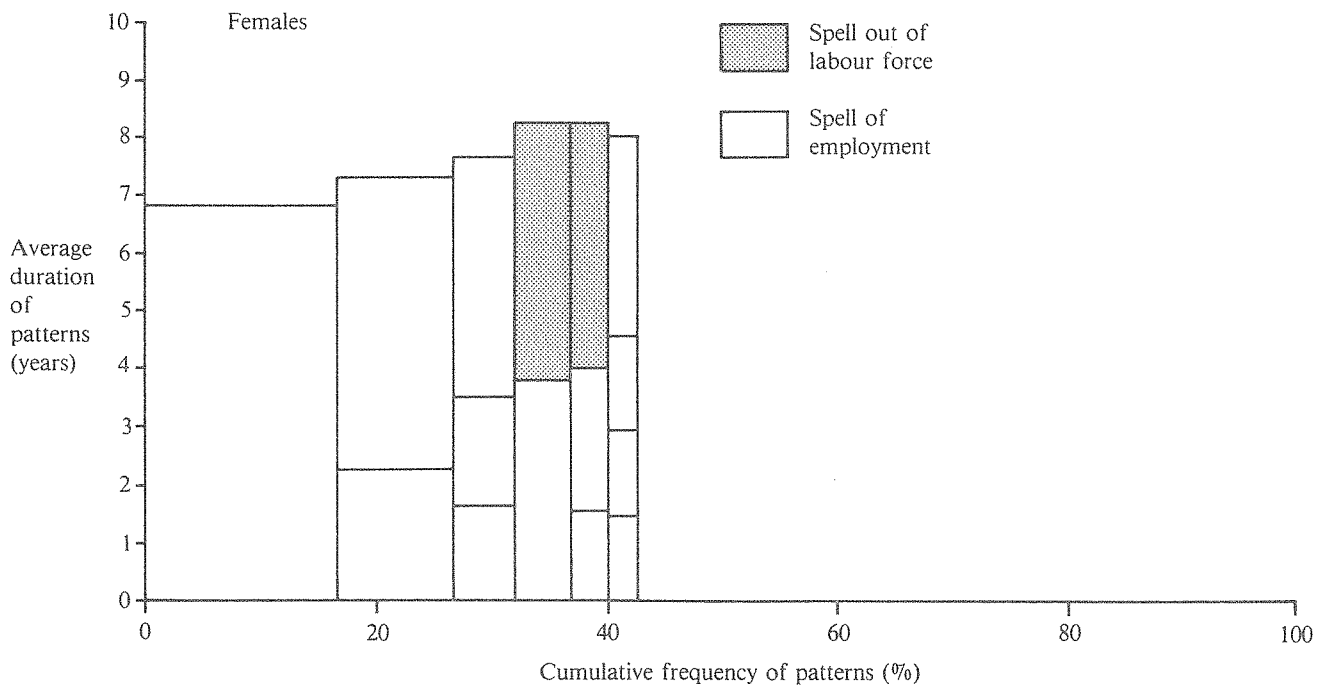
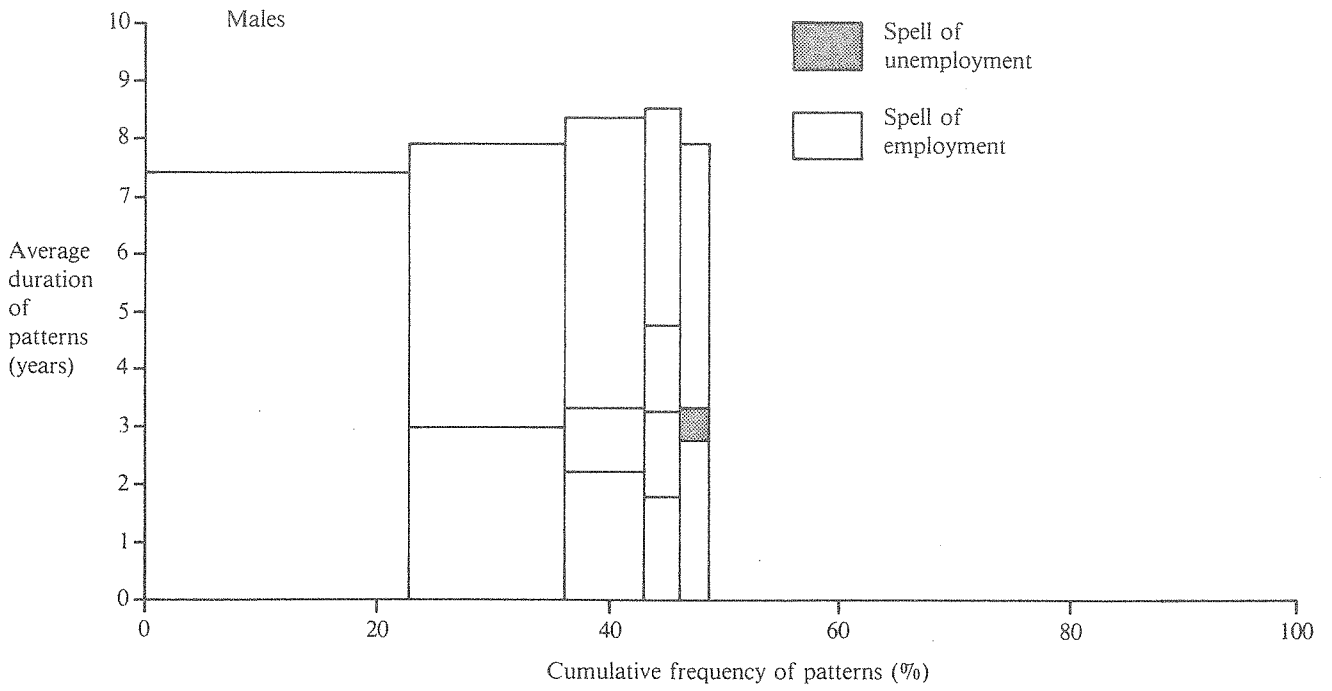


Figure 4.2 Common work patterns for males and females by frequency of events and average durations.
 (Each job counted as one event)



who have not. For the continuously employed, a meaningful distinction can be made between those who have only ever had one job and those who have had more than one job. Second, those persons who return to a period of full-time education are a unique group in that such full-time education could provide technical, vocational or professional qualifications. Third, persons who have not been continuously employed can be split into those who have experienced only one spell out of the labour force or unemployed and those who have experienced multiple spells.

Consideration must be given to those persons who may have experienced one spell of unemployment, or a period they classified as 'out of the labour force', of relatively short duration immediately upon completion of their full-time education. For such individuals it is probably more relevant to classify them as 'continuously employed', on the assumption that a short spell without a job immediately upon first completion of full time education is a relatively 'normal' state of affairs and should not be viewed as a significant event in the work history. Some indication that this is indeed the case can be gained from Table 4.6, which shows the frequency and distribution of the duration of periods unemployed or 'out of the labour force' immediately upon first completion of full time education. From this table it can be seen that spells of unemployment or 'out of the labour force' are fairly frequent immediately upon first completion of full time education, up to a period of 3 months' duration. One in six (16.6 per cent) of all NCDS4 respondents had experienced just one spell of unemployed or 'out of the labour force' of 3 months duration or less immediately after first completing their full time education. For this group, their work histories were reclassified to the continuous employment, or educational returner, categories as appropriate.

Having reclassified respondents with these single short duration spells of unemployment or 'out of the labour force' immediately after leaving school the resulting classification of work histories is shown in Table 4.7 for males and females separately and by whether or not the respondent was a minimum age school leaver. In terms of the size distribution of these categories, it is clear that each category (work history by age at first completion of full-time education by sex) constitutes a significantly large group, with the possible exception of 'educational returners' among 16 year old school leavers and the 'single spell out of the labour force' category for males.

Table 4.8 shows the relationship between each of the work history groups (by age of first completion of full-time education and by gender) and the occupational attainment scores detailed in Chapter

Table 4.6 Persons with only one spell of unemployment, or only one spell 'out of the labour force', immediately after first completion of full-time education, by duration of that spell

(No.)

Duration of spell (months)	Type of spell	
	Unemployment	Out of labour force
1	176	411
2	291	707
3	177	302
4	115	63
5	45	35
6	68	23
7	28	7
8	26	8
9	18	6
10	17	6
11	11	6
12+	74	162

two. In this table, for each of the school leaving age/gender/work history type categories, the number of respondents who were allocated a score of 1 or 2 on the occupational earnings scale is expressed as a percentage of all persons classified to that category. For example, in the first row and first column, it can be seen that 58.3 per cent of male respondents, who were continuously employed in one job since leaving school at age 16 or less, had an occupational earnings score in the upper half of the national distribution of earnings.

Table 4.8 shows the relationship between each of the work history groups (by age of first completion of full-time education and by gender) and the occupational attainment scores detailed in Chapter two. In this table, for each of the school leaving age/gender/work history type categories, the number of respondents who were allocated a score of 1 or 2 on the occupational earnings scale is expressed as a percentage of all persons classified to that category. For example, in the first row and first column, it can be seen that 58.3 per cent of male respondents, who were continuously employed in one job since leaving school at age 16 or less, had an occupational earnings score in the upper half of the national distribution of earnings.

The differences in occupational earnings which appear in this table are worthy of comment. First, the age at which the respondent first completed full-time education is obviously a major factor in determining subsequent occupational status. This finding is unremarkable, until one observes the 'hierarchy' of occupational status and work history

Table 4.7 A classification of the work histories of NCDS4 respondents by age at first completion of full-time education (FTE), for males and females (%)

Work History Type	First completed FTE at age 16 or below		First completed FTE at age 17 or above	
	M	F	M	F
Continuously employed, one job only	21.0	13.6	26.9	21.7
Continuously employed, more than one job	29.9	17.1	22.5	23.8
Educational returner	3.8	3.3	15.9	10.8
Single spell of unemployment	15.3	7.9	12.3	10.2
Single spell 'out of the labour force'	2.8	18.3	4.1	10.5
Multiple spells of unemployment or 'out of the labour force'	27.2	39.9	18.2	22.9
BASE (= 100%)	4,067	3,642	2,047	2,529

Note: For 58 females and 98 males, full-time education is not complete at the time of the survey. For 41 females and 55 males the work history information contained coding errors and could not be classified into the above categories.

Table 4.8 Percentage of each work history type in upper half of occupational earnings scale, by gender and age at first completion of full-time education (FTE) (%)

Work History Type	Percent Above Median on Occupational Earnings Scale			
	First completed FTE at age 16 or below		First completed FTE at age 17 or above	
	M	F	M	F
Continuously employed, one job only	58.3	41.1	67.3	69.2
Continuously employed, more than one job	40.1	42.1	64.1	69.4
Educational returner	43.1	45.7	74.9	63.2
Single spell of unemployment	29.3	23.5	51.8	59.8
Single spell 'out of the labour force'	44.8	22.1	66.7	59.1
Multiple spells of unemployment or 'out of the labour force'	22.6	15.2	51.5	46.9
All work history types	37.6	26.7	63.0	61.8

types within each of the columns of Table 4.8. For example, for males leaving school at 16 years who have been continuously employed in one job since that date, 58 per cent have an above average occupational earnings score versus only 23 per cent for those 16 year old male school leavers experiencing multiple spells of unemployment or 'out of the labour force'. The situation is even more pronounced for female respondents who left school at 16 particularly bearing in mind that the female occupational attainment scores relate to the distribution of the earnings of women in various occupational categories, a distribution which is substantially compressed and skewed leftward compared with that for men.

4.8 Summary

Work history information is notoriously difficult to classify. Nevertheless, it has been shown in this chapter that some interesting distinctions arise if one classifies work history data in terms of employment *continuity* and *turnover*. These features of a person's employment history, combined with knowledge of their experience of unemployment and the age at which they completed full-time education, correlate highly with their position in the occupational distribution of earnings at the age of 23 years. Clearly, an individual's employment and unemployment history is a major feature of the labour market processes which took them into a particular occupation. The following chapter explores the *external* labour market influences on the nature of this process.

Chapter 5

Local Labour Markets and Occupational Earnings

It is not unreasonable to postulate that the state of the local labour market may have some bearing upon work histories and occupational earnings. Further, local job opportunities may have some moderating influence upon the well established phenomena of inter-generational mobility (e.g. Glass, 1954; Goldthorpe and Llewellyn, 1977) and educational 'streaming' (e.g. Ashton, 1973). While these ideas have intuitive appeal, they pose a variety of definitional and operational problems. What is a 'labour market'? What is meant by the 'state' of such a market? This chapter discusses a particular approach adopted for the analysis of local labour market influences on occupational earnings, work histories and the school leaving decisions of NCDS4 respondents.

From an individual perspective, a 'labour market' represents a variety of parameters which define a searchable set of job opportunities. These parameters may relate to geographical locations, job categories, earnings, working hours and various non-pecuniary attributes of different forms of paid work. The parameters will, in turn, probably be correlated with factors such as socio-economic background and education. For example, it is likely that the definition of a labour market which will be of interest to a qualified civil engineer will be much wider in spatial terms than that for a building labourer. Whilst recognising this problem, the issue must be sidestepped, for it poses insurmountable operational difficulties. If the measure of occupational earnings and a spatial measure of job opportunities both derive from the survey respondent's current or last occupation, the correlation between these two variables will be definitional to some extent and will mask the processes of interest.

The approach that has been adopted represents a compromise imposed by the limitations of the data which are available. Labour markets are defined in the spatial dimension as travel-to-work areas, geographical areas which derive from *de facto* commuting patterns observed in the 1971 Census of Population. For further details of the definition of travel-to-work areas see CURDS (1983). Labour market descriptors are unemployment rates and rate of employment change in these travel-to-work areas, by sex, for the period 1974-81. Travel-to-work areas are defined as 1978 TTWAs.

5.1 Methodology

The data available from all sweeps of the National Child Development Survey do not record a geographical locational history for respondents commensurable with the detailed work history information. The only geographical information which could be used was the residential location of each respondent in 1974 (at the time of the third sweep) and 1981 (the fourth sweep). These have been stored in machine-readable format as postcodes.

Through a cooperative arrangement between staff at the National Children's Bureau and at the National On-line Manpower Information Service (NOMIS), University of Durham, postcode information was translated into 1978 TTWA codes. Further data was prepared by NOMIS staff describing trends in employment and unemployment in the TTWAs.

5.2 A Classification of Travel-to-Work Areas

For the present purpose, a broad classification of travel-to-work areas is required which can be used to describe the evolution of these local labour markets in fairly general terms. For instance, there is a need to distinguish 'high growth' areas from 'low growth' areas and high unemployment localities from those with relatively low unemployment rates. This section describes the derivation of a fairly simple classification of the 380 travel-to-work areas (TTWAs) in Great Britain in which NCDS4 respondents lived in 1974 or 1981. The classification is based upon the prevailing rates of unemployment in these areas in 1974 or 1981, the rate of employment change from 1974 to 1981 and the rate of change of unemployment. The unemployment rate in a TTWA is defined as the number of males (or females) registered as unemployed for benefit purposes, as a proportion of the registered unemployed plus employees in employment. For males, this measure is probably a reasonable indicator of the proportion of the workforce without work and seeking work. For females, the relationship between the unemployment rate and 'joblessness' is masked by the much lower propensity of women to register as unemployed.

In June 1974, the national male unemployment rate stood at 3.2 per cent. By June 1981 this rate had

Table 5.1 Travel-to-work areas by unemployment rate groups, 1974 and 1981, June each year (%)

Unemployment Rate Group	June 1974	June 1981
<5%	91.0	2.1
≥5% but <10%	7.9	37.6
≥10% but <15%	0.3	42.9
≥15% but <20%	—	16.1
≥20%	—	1.3
BASE (= 100%)	380	380

risen to 13.3 per cent. For females, the corresponding rise was from 0.8 per cent to 7.6 per cent. Table 5.1 indicates how this rise in unemployment manifested itself over the 380 travel-to-work areas. It should be noted that, in 1974, nearly all TTWAs had an unemployment rate of less than 10 per cent. By 1981, one in six of the TTWAs had a rate lying in the range 15 to 20 per cent.

Table 5.2 shows the distribution of changes in employment across the TTWAs, from 1974 to 1981. In this table we note the remarkable contrast between the changes in employment for men and women. In over 10 per cent of TTWAs male employment declined by more than 20 per cent.

Table 5.2 Travel-to-work areas by employment change, 1974-81 (%)

Employment Change, 1974-81	Male	Female	Total
<-5%	50.8	21.6	37.1
≥-5% but <5%	30.8	30.5	36.6
≥5%	18.4	47.9	26.3
BASE (= 100%)	380	380	380

On its own, the information presented in Tables 5.1 and 5.2 give little indication of the changing labour markets facing members of the birth cohort study. However, they do indicate the significant temporal and spatial variations in employment conditions which existed in Great Britain in the period in which study members made the transition from school to work. Of more interest though is the actual change in labour market conditions experienced by the study members. Table 5.3 classifies NCDS4 respondents in terms of employment change from 1974 to 1981 for the TTWA in which they lived in 1974 and the TTWA in which they lived in 1981. Two points are evident from a comparison of this table with Table 5.2. First, the distribution of respondents by TTWAs is such that the proportion of respondents who experienced a significant reduction in the level of

employment in their local TTWA is higher than the proportion of TTWAs showing a significant decline in employment. This arises because of the residential concentration of respondents in urban areas and the subsequently greater 'weighting' attached to the more rapid decline in employment in such areas. Second, we note the major difference in employment change by gender. Almost one in three female respondents lived in travel-to-work areas in which female employment had grown by more than 5 per cent, whereas fewer than one in twelve of male respondents lived in travel-to-work areas in which male employment had grown by 5 per cent.

5.3 Geographical Mobility and Employment Decline

A complicating feature of Table 5.3 is the need to identify both the 1974 and the 1981 travel-to-work areas. Obviously, some respondents will have moved between travel-to-work areas in this period. Not all such moves can be identified simply because some respondents may have moved back to their 1974 travel-to-work area by 1981. Nor can multiple moves between travel-to-work areas be identified. A distinction can be made between respondents who lived in a different TTWA in 1981 from that in which they were recorded in 1974. This group are referred to as 'movers' as opposed to 'stayers', but the correct interpretation of this variable must be borne in mind.

Table 5.4 decomposes the information presented in Table 5.3 into the two categories, 'movers' and 'stayers'. This table indicates that a significant number of male and female respondents were recorded in different travel-to-work areas in 1981 from that in which they were located in 1974. For males, 1,268 (21 per cent) were in a different TTWA in 1981 from that in which they were recorded in 1974. The corresponding figure for females is 27 per cent. For both males and females, fewer of the 'movers' are located in TTWAs in 1981 which recorded a five per cent fall in employment from 1974 to 1981 than is the case for 'stayers'. In other words, 'movers' have, on balance, moved away from areas of extreme employment decline to areas with more favourable rates of employment change in the period 1974 to 1981.

5.4 Local Labour Markets, Work Histories and Occupational Earnings

Tables 5.5 and 5.6 focus upon those respondents within NCDS4 for whom an occupational earnings score in the range 1-4 was derived (see Chapter 2) and for whom a postcode sector/TTWA code match was obtained in the linking of NCDS4 records to NOMIS data. In the derivation of the occupational earnings scale it was not possible to classify 316 and 502 females. In the postcode sector/TTWA linking,

Table 5.3 NCDS4 respondents classified by employment change, 1974–81, by 1974 and 1981 travel-to-work areas, by sex (%)

Employment Change by sex	Males		Females	
	1974 TTWA	1981 TTWA	1974 TTWA	1981 TTWA
< -5%	67.4	67.2	25.7	24.2
≥ -5% but < 5%	24.0	24.4	44.4	46.1
≥ 5%	8.6	8.4	29.9	29.7
BASE (= 100%)	6,153	6,153	6,164	6,164

Table 5.4 NCDS4 respondents by employment change (1974–81) in 1981 travel-to-work area by whether or not 1974 TTWA is same as 1981 TTWA and by sex (%)

Employment Change 1974–81 in 1981 TTWA by sex	Comparison of 1974 and 1981 TTWA of Respondent	
	'Mover'	'Stayer'
<i>Males</i>		
< -5%	61.0	68.8
≥ -5% but < 5%	28.2	23.5
≥ 5%	10.9	7.8
BASE (= 100%)	1,268	4,885
<i>Females</i>		
< -5%	18.6	26.2
≥ -5% but < 5%	46.5	46.0
≥ 5%	34.9	27.8
BASE (= 100%)	1,672	4,492

107 males and 97 females could not be allocated to a travel-to-work area. This represents an overall loss of 8 per cent of the available sample.

For males, the fourth row of Table 5.5 shows that the distribution of work histories of this group is similar to that shown in section 4. Interestingly, the first, second and third rows of this table show that the high rates of employment decline over the period 1974–81 are associated with a higher proportion of work history patterns which contain multiple spells of unemployment or periods 'out of the labour force'. Conversely, the proportion of male respondents who were continuously employed, but had held more than one job since leaving school is lower in the areas experiencing high rates of employment decline. For all other work history patterns, the proportion of respondents who display such a pattern is not related to the state of the local labour market. For females, the relationship between employment change and work history patterns is not so clear. However, table 5.6 repeats these distributions, but using the 1981 TTWA unemployment rate as an indicator of the state of the local labour market. For both males and females, the contrast between just these two patterns

is much in evidence. This suggests that those persons who change jobs put themselves 'at risk' of becoming unemployed in those labour markets which have relatively poor employment prospects.

There is a clear correlation between two of the six work history patterns and local labour market unemployment rates. The relationship between work history patterns and local unemployment rates is illustrated in Figures 5.1 and 5.2. In each of the bar charts, the NCDS4 respondents have been allocated to travel to work areas with below-average unemployment rates or above-average unemployment rates. The classification of respondents has been done separately for males and females. In the case of males, a male unemployment rate is a travel-to-work area of more than 12.8 per cent is deemed 'above average'. For females, the distinction is made at a female unemployment rate of 7.3 per cent. These bar charts show all successive jobs in each individual's work history as a continuous spell of employment. They should, therefore, be compared with Figure 4.1.

It can be seen that, for respondents living in high unemployment areas, a larger number of the complex work history patterns which involve spells of unemployment, become 'typical' in the sense that each accounts for 2 per cent or more of all patterns. For female respondents, these also involve more spells spent out of the labour force. Correspondingly, a smaller proportion of NCDS4 respondents in the high unemployment travel-to-work areas have a work history which exhibits continuous employment.

This chapter concludes by investigating the possibility of link between local labour markets and occupational earnings. Table 5.7 shows these distributions for 1981 travel-to-work areas grouped in terms of the rate of employment change in their 1981 TTWA. Table 5.8 shows the corresponding information for travel-to-work areas classified in terms of their 1981 unemployment rate. The rate of change of employment (1974–81) in the 1981 travel-to-work area does not appear to correlate with the occupational earnings of NCDS4 respondents. However, there is a very clear association between the rate of unemployment in the travel-to-work area

Figure 5.1 Common work history patterns for males in travel-to-work areas (TTWAs) with high and low unemployment rates
 (Successive jobs counted as a single spell of employment)

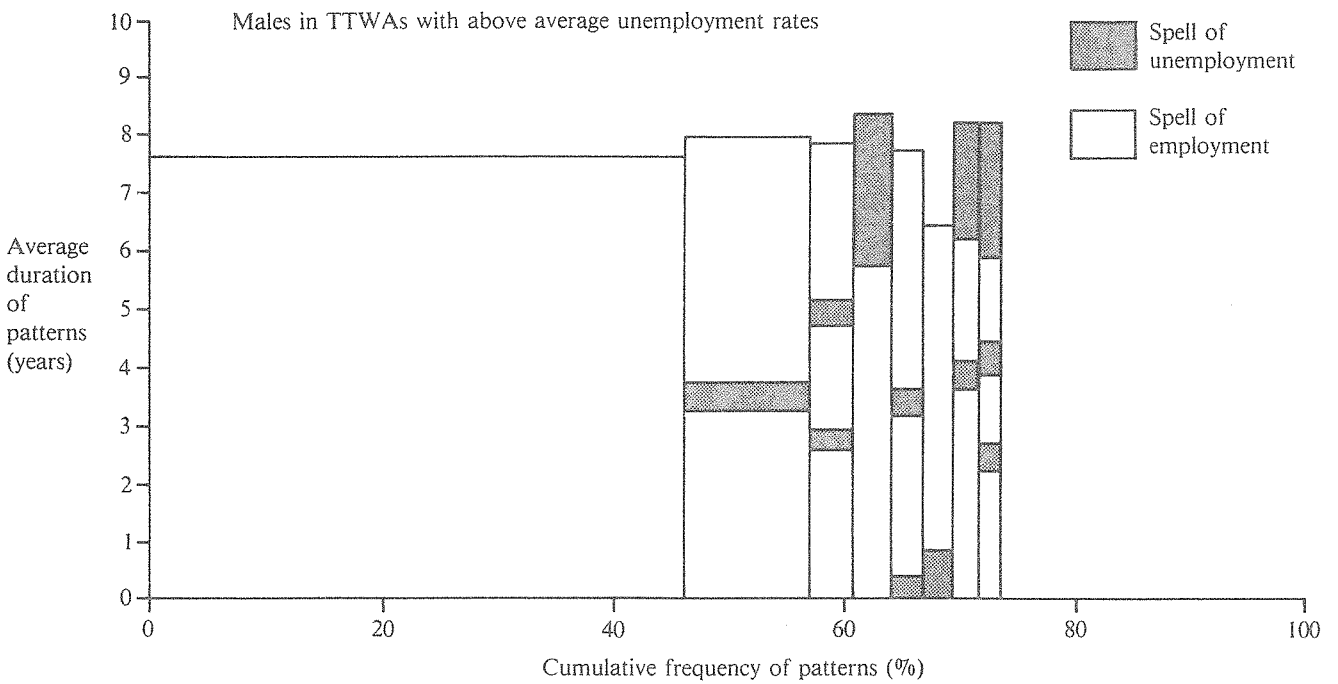
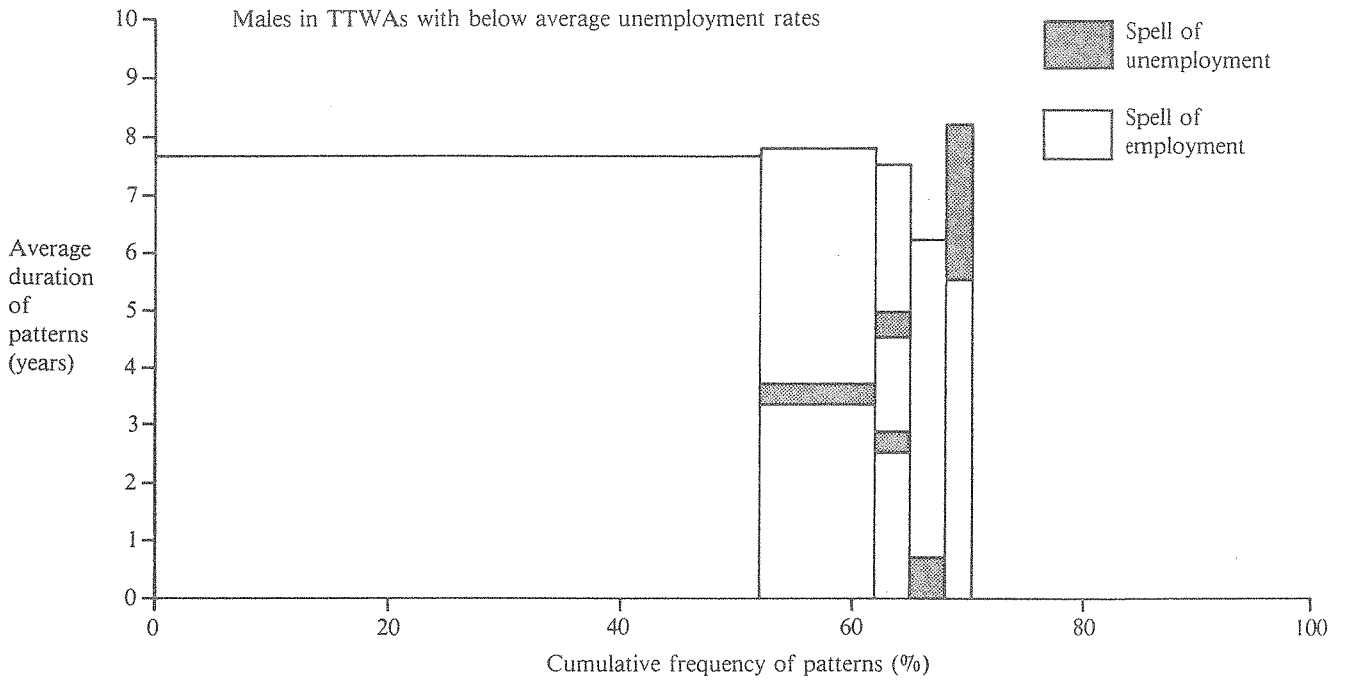


Figure 5.2 Common work history patterns for females in travel-to-work areas (TTWAs) with high and low unemployment rates
 (Successive jobs counted as a single spell of employment)

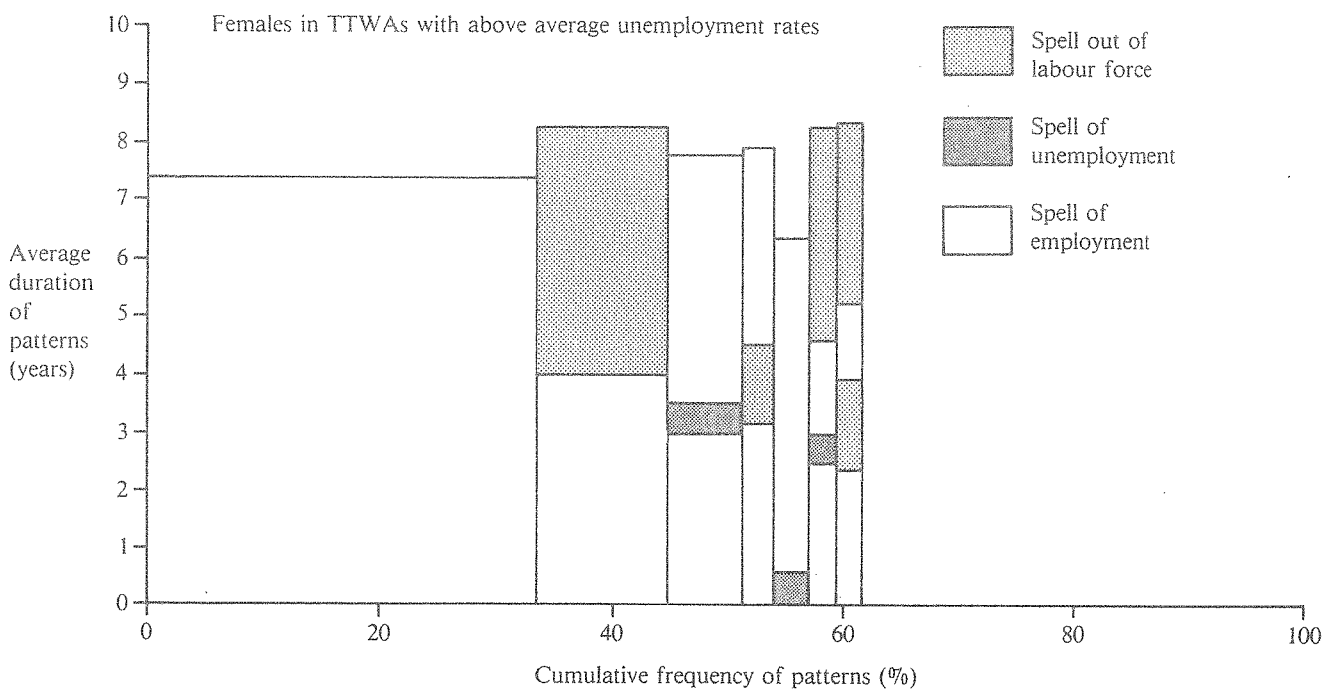
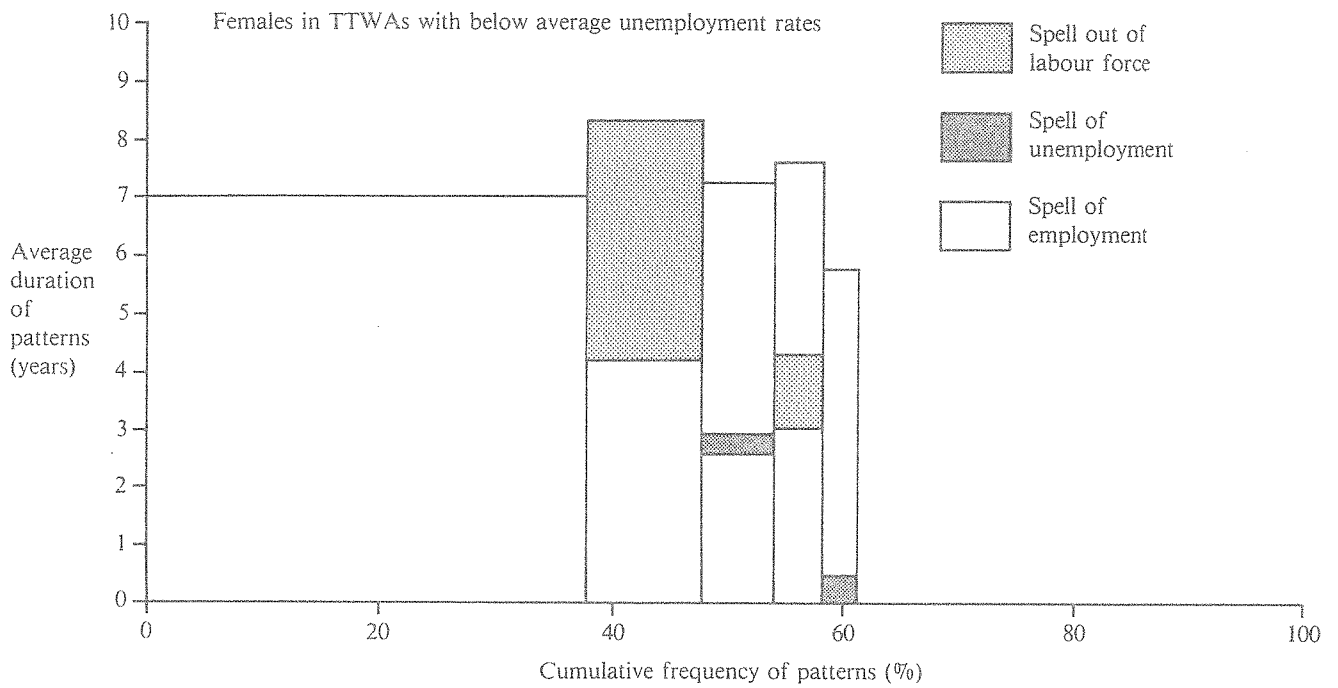


Table 5.5 Sex-specific employment change (1974–81) in respondent's 1981 TTWA by work history type and by sex %

Employment change 1974–81 in 1981 TTWA by sex	Work History Type						
	Continuously employed			One spell of:		Multiple spells U/OLF	BASE (= 100%)
	One job	More than one job	Educational returner	U	OLF		
<i>Males</i>							
<–5%	22.4	25.8	7.3	14.2	2.8	25.4	3,927
≥–5% but <5%	20.9	32.0	8.0	13.0	3.5	20.7	1,423
≥5%	22.9	34.6	7.3	13.4	1.2	18.0	494
Total	22.1	28.0	7.5	13.9	2.8	23.7	5,844
<i>Females</i>							
<–5%	18.6	17.7	5.5	10.9	12.0	34.3	1,355
≥–5% but <5%	17.5	23.1	6.4	8.6	12.3	30.4	2,639
≥5%	16.6	21.2	7.1	8.3	12.2	33.3	1,677
Total	17.5	21.2	6.4	9.1	12.2	32.2	5,671

Note: U = Unemployment OLF = Out of labour force

Percentages do not sum to 100 across the rows because of 118 males and 80 females for whom no work history pattern could be derived (principally continuity students).

The base for this table consists of persons for whom a postcode sector/TTWA match could be derived and for whom an occupational earnings scale score was developed.

Table 5.6 Sex-specific unemployment rate category in respondent's 1981 TTWA by work history type and by sex %

Unemployment rate in June 1981 in 1981 TTWA by sex	Work History Type						
	Continuously employed			One spell of:		Multiple spells U/OLF	BASE (= 100%)
	One job	More than one job	Educational returner	U	OLF		
<i>Males</i>							
<10%	21.6	31.7	8.7	12.2	3.5	19.7	1,780
≥10% but <16%	22.4	29.0	7.1	14.8	2.5	22.5	2,576
≥16%	22.2	22.0	6.7	14.3	2.6	30.6	1,488
Total	22.1	28.0	7.5	13.9	2.8	23.7	5,844
<i>Females</i>							
<6%	16.3	24.7	8.7	7.9	12.3	27.9	1,917
≥6% but <11%	17.9	21.1	5.6	9.8	13.2	31.4	2,633
≥11%	18.6	15.7	4.4	9.3	9.5	41.4	1,121
Total	17.5	21.2	6.4	9.1	12.2	32.2	5,671

Note: See table 5.5.

and the occupational earnings scale, for both males and females.

or not a respondent was located in a different local labour market in 1981 from that in which he/she lived in 1974.

5.5 Summary

This chapter describes the method by which information on the 1974 and 1981 residential locations of NCDS respondents was linked to descriptors of the local labour markets in which they lived. This process also generates details of whether

Respondents were divided into those who lived in localities with above average and below average unemployment rates. In areas of high unemployment it was shown that a lower proportion of the 23 year olds had gained access to occupations with above average earnings. Also, a personal experience of

Table 5.7 Occupational earnings by 1974-81 change in employment in 1981 travel-to-work area by sex

Change in employment 1974-81 for 1981 TTWA by sex	Occupational Earnings Quartile				BASE (= 100%)
	1	2	3	4	
<i>Males</i>					
< -5%	13	34	41	13	3,927
≥ -5% and < 5%	13	34	41	12	1,423
≥ 5%	11	35	41	14	494
<i>Females</i>					
< -5%	17	20	44	19	1,355
≥ -5% and < 5%	22	24	39	16	2,634
≥ 5%	17	22	42	19	1,677

unemployment was more likely in high unemployment areas. It appears to be the case that those young people who had moved between jobs in high unemployment areas were more likely to have

experienced spells of unemployment between their job changes.

Table 5.8 Occupational earnings by 1981 unemployment rate group in 1981 travel-to-work area by sex

1981 unemployment rate group in 1981 TTWA by sex	Occupational Earnings Quartile				BASE (= 100%)
	1	2	3	4	
<i>Males</i>					
< 10%	16	35	39	10	1,780
≥ 10% and < 16%	11	35	41	13	2,576
≥ 16%	10	31	44	14	1,488
<i>Females</i>					
< 6%	26	25	27	12	1,917
≥ 6% and < 11%	17	23	42	19	2,633
≥ 11%	13	18	45	24	1,121

Chapter 6

Local labour market influences on the school leaving decision, work history, and occupational earnings

This chapter investigates in more detail the links between and the various influences upon the occupational earnings of young persons. In so doing, occupational earnings are collapsed to give a simple distinction between 'above average' and 'below average' occupational earnings.

The analysis is built up in stages which reflect the time-ordering of events faced by cohort members. After reviewing the material presented in the previous chapters, the second section investigates the relationship between the results of tests of the numeracy and literacy of cohort members conducted at the age of 11 years and indicators of their social background and family environment. The third section investigates the correlation between social background, educational attainment test scores and the decision to stay on or leave school at the minimum school-leaving age. The impact of local labour market influences on this relationship is also studied. The fourth section investigates the link between two of the key work history categories which have been identified in Chapter 4 (continuous employment in more than one job and discontinuous employment with multiple spells out of work), local labour market conditions, social background and educational attainment. Finally, the fifth section brings all of these influences together to investigate the relative strengths of the relationships postulated in Figure 1.1.

6.1 A review of the influences on occupational earnings

Before moving on to study these links in more detail, it is worth reassessing the findings from the previous four chapters. In doing so, it is important to review the definition of *occupational earnings*, the yardstick used to distinguish those study members who had moved into the better paid jobs by the age of 23 years from those who had not. In Chapter 2 it was shown that forty-four per cent of male members of the study and thirty-nine per cent of the female members were in (or had recently been in) occupations at the age of 23 years which were graded as 'above average' in terms of the national distribution of earnings for men or women. This may appear a little puzzling, because from the definition

of an average (median) one would expect half of the study members to be above the average and half to be below. There are two reasons why this is not the case. First, a substantial group of study members could not be allocated a position on the derived occupational earnings scale. Five per cent of males and eight per cent of females were in this 'residual' category. For both groups, this situation arose primarily because they had never worked and were not in full-time higher education. For males, the main reason for this was some long-term and serious disability or handicap. Additionally, for females there exists a small group who have never held a paid job because of early childbearing. These groups are, by definition, excluded from the analyses presented in this chapter. Second, the main reason why the proportions of male and female respondents in 'above average earnings' occupations are below fifty per cent is a reflection of the youthful age of the cohort. At the age of 23 years the distributions of *occupations* in the birth cohort does not yet reflect the national average. For instance, many study members will progress into managerial occupations at a later stage in their lives. Such occupations are, therefore, under represented in the birth cohort. Nevertheless, it is fairly clear from the information presented in Chapter 2 that the choice of *occupation at age 23 years* is a better measure of their relative economic well being than their *earnings at age 23 years*.

In Chapter 3 it was shown that there are some important relationships between occupational earnings and indicators of the social background and educational progress of the birth cohort. On the question of ethnicity and occupational earnings, the study is particularly weak, primarily because of the high rate of attrition in the study for persons of Afro-Caribbean ethnic origin. With this caveat in mind, it is still noteworthy that the Afro-Caribbean ethnic group are under represented in the more highly paid occupations at the age of 23 years relative to all other ethnic groups in the study.

Those study members, male and female who had had children by the age of 23 years were much more likely to be in the less well-paid occupations. For male study members who had had children, only thirty-five per cent were in the upper half of the

distribution of occupations, for females at the situation was much worse, with only seventeen per cent in the upper half of the earnings distribution of women's occupations.

Birth order is strongly associated with occupational earnings. There is a gradual decline in the position of the study member in the distribution of occupations the higher is his or her birth order. This effect must be considered within a multivariate framework because of the possibility that the birth order, family size and occupational earnings of the study member all relate closely to the social and economic resources of the household in which the study member grew up.

Strong evidence was presented of a link between the social class of the father of the study member and the occupational earnings of the study member, together with a link between the age at which the father left school and occupational earnings. Clearly though, the age at which the study member's father left school and the father's social class could be closely correlated.

Educational attainment is measured by means of short tests of mathematical reasoning and English comprehension administered to study members at the age of 11 years. As would be expected, the scores on these tests correlate highly with the position of the NCDS4 respondent in the distribution of occupations in early adulthood. The distributions of the results of these tests are similar for males and females. In other words, there are no major differences between the sexes in terms of whether one group or the other scored high or low on the maths and reading tests. However, fifty-seven per cent of boys who scored above average on the maths tests had moved into above-average paying occupations at 23 years, compared with only forty-three per cent of the girls who scored above-average on the maths test. In terms of reading abilities, fifty-six per cent of the boys with above-average reading comprehension scores were in the better paid jobs compared with fifty-two per cent for the girls.

The analysis of the work histories of the NCDS4 respondents shown in Chapter 4 revealed some interesting associations. It was noted that the majority of respondents left school at the earliest opportunity (sixty-five per cent of males and fifty-eight per cent of females). Almost half of the male respondents and over one third of the female respondents had experienced continuous employment upon leaving school or completing their full-time education. A significant proportion of the sample had experienced two or more spells of unemployment since completing their full-time education, irrespective of whether they were minimum age school leavers or had stayed on in full-time education

for a further one, two or three years. This is quite a surprising finding, given that the massive rise in unemployment in Great Britain did not commence until the birth cohort was aged 21 years.

A typology of work histories was developed which distinguishes between those who had experienced continuous employment following completion of their full-time education and those who had not. The former category was further divided into those who had had only one employer (one 'job') and those who had more than one. Discontinuous work histories were divided into educational returners, persons who had experienced a single spell of unemployment, a single spell out of the labour force and those who had experienced multiple spells of unemployment or periods out of the labour force. Investigation of the distribution of occupational earnings by the type of work history experienced by the study member showed some quite remarkable variations. Focussing first on the minimum age school leavers, *any* form of discontinuity in the work history had a severely depressing influence on occupational earnings. For male minimum age school leavers, fifty-eight per cent were in above average jobs if they had remained continuously employed with one employer, versus only twenty-three per cent if they had experienced multiple spells of unemployment or spells out of the labour force. The same was true of female minimum age school leavers. For males and females who stayed on in full-time education beyond the minimum school leaving age, the same pattern holds but reveals less variation by work history type. For both males and females, those who had been continuously employed by one employer since completing their full-time education were unaffected by local unemployment. In other words, the same proportion of men or women had held one job continuously in the areas of high unemployment as in areas of low unemployment. Surprisingly, it was the job changers who were most severely affected by high local unemployment rates. If local unemployment was high, job changers were more likely to experience multiple spells of unemployment or periods out of the labour force. In other words, job changers placed themselves *at risk* of becoming unemployed. This risk translated into an interrupted work history if unemployment was locally high. It was, therefore, not surprising to note that fewer respondents were in above average earnings occupations in the high unemployment areas. For males, if local unemployment rates were below ten per cent, fifty-one per cent were in the upper half of the distribution of occupations versus forty-one per cent if local unemployment rates were at or above sixteen per cent. For females, fifty-one per cent were in above average paying jobs (for women) if local unemployment rates were below six per cent, versus thirty-one per cent if local unemployment stood at

eleven per cent or above. Interestingly, local labour markets exerted their influence via unemployment, not via employment growth.

In order to unravel the complexity of the interrelationships between these factors and their separate effects on occupational earnings, it is necessary to adopt a *multivariate* approach. In essence, this controls for the effect of one or more variables whilst examining the separate influence of others. For example, social background is clearly correlated with occupational earnings, as are the respondent's educational test scores. But which is the more important influence? Is it the case that the influence of social background is 'swamped' by the influence of educational attainment or does each effect contribute separately to an understanding of the variation in occupational earnings? These are issues which can only be pursued in a multivariate framework.

For each of the multivariate models presented in the following sections, the variable to be investigated (the 'dependent' or 'left-hand side' variable) is defined as a dichotomous variable with the value of zero or one. For example, if the investigation is concerned with the multivariate analysis of the minimum age school-leaving decision, a dependent variable is defined with a value of one for each minimum age school leaver and zero for respondents who stayed on in full-time education beyond the minimum school leaving age.

Estimation proceeded in the following manner. Initially, an extensive, detailed model was specified for each of the major processes investigated in the project (educational attainment, school leaving, geographical mobility, work history and occupational earnings). Each model was refined to a simpler specification using the method of ordinary least squares. The final version of each model was then re-estimated in a logit specification by maximum likelihood techniques. Finally, the parameters from the logit model were reconverted into 'OLS equivalent' form to facilitate their interpretation. The mean values of all the variables presented in this chapter are given in Appendix 3. For details of these procedures the interested reader is referred to Madala (1985) or Amemiya (1981).

6.2 Social background, mathematical and reading abilities

Table 6.1 presents the results of a multivariate analysis, in which the test score from the test of mathematical reasoning at age 11 years for study members who did not take the test (or an equivalent score from the maths test at age 16 years) is treated as a binary dependent variable, and father's school

Table 6.1 The relationship between social background and mathematical ability at age 11 years (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent scored below average in maths tests (‘OLS equivalent’ parameter estimates)	
	Males	Females
Constant	-.262(-15.5)	-.264(-15.6)
Father left school <16 yrs	.176 (10.6)	.191 (11.5)
Father's social class:		
I	—	—
II	..	..
III non-manual	..	..
III manual	.114 (6.7)	.111 (6.5)
IV	.174 (8.0)	.193 (8.6)
V	.193 (8.0)	.232 (9.4)
Ethnicity		
White	—	—
Asian	..	.203 (9.4)
Afro-Caribbean	.501 (4.8)	.470 (2.5)
Other	.348 (2.9)	.282 (5.0)
No information	..	..
Birth order:		
5th or greater	.224 (7.9)	.143 (5.0)
Emotional/behavioural problems before 1974	.192 (6.0)	.133 (3.3)
Registered disabled in 1981	.283 (3.3)	..
Proportion correct predictions	.61	.61
Log likelihood ratio	460.7	437.1
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. 'OLS equivalent' parameter estimates have been computed at the mean of the dependent variable.

leaving age and occupational class, the respondent's ethnic origin and birth order are treated as 'independent' or 'right hand side' variables. Separate results are shown for males and females. The maths test score is recoded with a value of one if the study member scored below the combined average for males and females, zero if the score was above average.

The interpretation of the parameter estimates shown in this (and subsequent) tables is relatively straightforward. The right-hand side variables can be viewed as a set of factors which affect the probability that a study member will have scored below average in the maths test. Thus, for males, it can be seen that there is an eighteen per cent increase in the probability of a respondent scoring below average if he had a father who left school at the age of 15

years. Similarly, if the father's occupational class was in one of the manual categories, this also increases the probability that the study member will score below average on the maths test. Respondents of Afro-Caribbean ethnic origin and/or high birth order are also likely to have scored well below the average.

The results of multivariate analysis of the reading test results are presented in an analogous fashion in

Table 6.2 The relationship between social background and reading ability at age 11 years (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent scored below average in reading test (‘OLS equivalent’ parameter estimates)	
	Males	Females
Constant	-.316(-18.1)	-.381(-20.8)
Father left school <16 yrs	.181 (10.7)	.205 (11.8)
Father's social class:		
I	—	—
II	..	..
III non-manual	..	..
III manual	.101 (5.9)	.131 (7.4)
IV	.165 (7.6)	.207 (9.3)
V	.175 (7.4)	.260 (10.7)
Ethnicity		
White	—	—
Asian	.237 (3.4)	.298 (3.7)
Afro-Caribbean	.419 (4.8)	.499 (5.8)
Other	.210 (2.0)	.371 (2.8)
No information	..	..
Birth order:		
5th or greater	.194 (7.3)	.160 (5.9)
Emotional/behavioural problems before 1974	.125 (4.2)	.084 (2.2)
Registered disabled in 1981	.224 (3.0)	.218 (2.1)
Proportion correct predictions	.60	.63
Log likelihood ratio	402.3	513.2
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. ‘OLS equivalent’ parameter estimates have been computed at the mean of the dependent variable.

Table 6.2. It is most interesting to note that virtually the same factors affect both the reading comprehension and test of mathematical reasoning in a similar fashion for males and females. In other words, study members who come from families in which the father was in a manual occupation and was a minimum age school leaver are much more likely to score below average in *both* the reading and the

maths tests. Furthermore, there is no clear evidence of any systematic difference between males and females in this respect.

6.3 Social background, educational ability and school leaving age

Table 6.3 shows the influences of social background and educational attainment on the decision to leave school at the minimum school leaving age. In this analysis, the dependent variable is the age at which the respondent first completed his or her full-time education, recoded with the value of unity if the respondent was a minimum age school leaver, zero otherwise.

Once again, a similar pattern of results for men and women emerges. If the occupational category of the respondent's father was manual or if the respondent's father left school at age 15 years, then there is a very significant increase in the probability that the respondent is a minimum age school leaver. It should be noted also that scores on the maths and reading test which are below average contribute separately to the school leaving decision. As was shown in Tables 6.1 and 6.2, having a father with a non-manual occupation depresses the maths and reading test results. Table 6.3 shows that there is a continuing influence of father's occupation on the respondent's school leaving decision, over and above that which is transmitted through a low test score result.

These results are consistent with the findings of Micklewright (1987), in his investigations of a subsample of NCDS4 respondents, which revealed that a significant influence of family background on school leaving age remained after controlling for the effect of educational ability.

Local unemployment has a small impact upon the school leaving decision, but only for males. The coefficient in Table 6.3 for this variable can be interpreted as indicating that, if a male respondent lived in a travel-to-work area in 1974 which was ten percentage points higher than the average, there would be an associated six per cent increase in probability that he would stay on at school beyond the minimum school leaving age.

6.4 Geographical mobility

Table 6.4 indicates the relationship between social background, educational attainment, local area unemployment and the crude measure of geographical mobility. In terms of the social background variables, the respondent's father's school leaving age is most significant. Male or female respondents whose father left school at the minimum school leaving age are about eight per cent *less* likely

Table 6.3 The relationship between social background, mathematical and reading ability at age 11 years, local area unemployment and school leaving age (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent left school at 16 years	
	Males	Females
Constant	-.419(-14.9)	-.365(-15.2)
Father left school <16 yrs	.224 (13.4)	.198 (11.3)
Father's social class:		
I	—	—
II	..	-.064 (-2.3)
III non-manual	.068 (2.2)	..
III manual	.156 (8.2)	.067 (2.8)
IV	.206 (8.2)	.135 (4.6)
V	.223 (7.9)	.208 (6.5)
Ethnicity		
White	—	—
Asian	-.284 (-3.9)	-.493 (-5.3)
Afro-Caribbean	-.259 (-3.5)	-.359 (-4.9)
Other	..	..
No information	..	..
Birth order:		
5th or greater	.160 (4.4)	.192 (5.4)
Emotional/behavioural problems before 1974	..	..
Reading comprehension below average	.261 (14.0)	.252 (14.0)
Maths comprehension below average	.289 (16.3)	.259 (15.0)
Reading score not known	.327 (9.4)	.270 (7.6)
Travel-to-work area unemployment rate, June 1974	.006(1.9)	..
Proportion correct predictions	.76	.73
Log likelihood ratio	1827.1	1517.4
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. 'OLS equivalent' parameter estimates have been computed at the mean of the dependent variable.

to be in a different TTWA in 1981 from that in which they resided in 1974.

Below average reading or maths scores at age 11 are also correlated with a lower likelihood of having moved to a different travel-to-work area between 1974 and 1981. Equally, being a minimum age school leaver has a depressing effect upon subsequent labour mobility.

Table 6.4 The relationship between social background, mathematical and reading ability at age 11 years, school leaving age, local area unemployment and geographical mobility (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent in different TTWA in 1981 from 1974	
	Males	Females
Constant	.041 (2.1)	.046 (2.4)
Father left school <16 yrs	-.075 (-6.1)	-.083 (-5.9)
Father's social class:		
I	—	—
II	..	.066 (4.0)
III non-manual	.041 (2.0)	..
III manual	..	..
IV	..	..
V	..	..
Ethnicity		
White	—	—
Asian	..	..
Afro-Caribbean	-.149 (-1.9)	-.243 (-2.7)
Other	..	..
No information	..	-.066 (-2.8)
Birth order:		
5th or greater	..	..
Reading comprehension below average	-.058 (-3.9)	-.038 (-2.4)
Maths comprehension below average	-.044 (-3.0)	-.075 (-4.9)
Reading score not known	-.096 (-3.2)	..
Left school ≤16 yrs	-.138 (-10.7)	-.120 (-8.7)
Travel-to-work area unemployment rate, June 1981	-.006 (-4.6)	-.009 (-4.7)
Proportion correct predictions	.79	.73
Log likelihood ratio	501.7	438.2
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. 'OLS equivalent' parameter estimates are computed at the mean of the dependent variable.

In terms of a local labour market influence, the direction of the influence accords with prior expectations. The higher the rate of unemployment in the respondent's 1974 TTWA in 1974, the greater is the likelihood that the respondent is classified as a 'mover'. Table 6.4 shows the influence of the 1981 unemployment rates in 'destination' TTWAs (the local labour markets in which they lived in 1981) and found that, for both males and females, there was a strong and significant negative relationship. These findings confirm the 'push-pull' influence of local

labour markets, indicating that the 'pull' effect of job opportunities elsewhere is more marked than the 'push' effect of reduced job opportunities in the respondent's local labour market in 1974.

6.5 Work Histories and Local Labour Market Influences

Tables 6.5 and 6.6 examine the factors which are correlated with the two work history patterns which,

as shown in Chapter 5, appear to be significantly influenced by local unemployment rates. Table 6.5 defines a dependent variable which takes the value of unity if a respondent has a work history which consists of continuous employment in more than one job, zero otherwise. This analysis shows the strong, negative relationship between local area unemployment and the experience of continuous employment in more than one job. For both males and females living in travel-to-work areas in which

Table 6.5 The relationship between social background, mathematical and reading ability at age 11 years, school leaving age, geographical mobility, local area unemployment and continuous employment (more than one job) (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent was continuously employed (more than one job) upon completion of full-time education (‘OLS equivalent’ parameter estimates)	
	Males	Females
Constant	-.122 (-5.7)	-.137 (-6.4)
Father left school <16 yrs	..	.046 (2.9)
Father's social class:		
I	—	—
II	..	..
III non-manual	..	..
III manual	..	..
IV	..	..
V	-.044 (-2.3)	..
Ethnicity		
White	—	—
Asian	..	..
Afro-Caribbean	..	..
Other	..	..
No information	..	..
Birth order:		
5th or greater	-.065 (-2.7)	-.093 (-2.8)
Emotional/behavioural problems before 1974	-.091 (-3.1)	-.122 (-2.5)
Reading comprehension below average	..	..
Maths comprehension below average	..	..
Reading score not known	-.064 (-2.1)	..
Left school ≤16 yrs	.098 (7.2)	..
Mover between '74 and '81	..	-.051 (-3.2)
Has had children by 1981	-.049 (-2.8)	-.668 (-17.2)
Travel-to-work area unemployment rate, June 1981	-.011 (-7.5)	-.010 (-4.5)
Marital status in 1981:		
Single	—	—
Married	.108 (7.8)	.061 (4.3)
Separated	..	..
Divorced	..	..
Widowed	..	..
Registered disabled in 1981	-.456 (-3.1)	..
Proportion correct predictions	.72	.79
Log likelihood ratio	218.1	823.4
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. ‘OLS equivalent’ parameter estimates have been computed at the mean of the dependent variable.

Table 6.6 The relationship between social background, mathematical and reading ability at age 11 years, school leaving age, geographical mobility, local area unemployment and discontinuous employment (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Respondent had discontinuous work history upon completion of full-time education (‘OLS equivalent’ parameter estimates)	
	Males	Females
Constant	-.421 (-19.1)	-.360 (-9.1)
Father left school <16 yrs	..	..
Father’s social class:		
I	—	—
II	-.060 (-3.3)	..
III non-manual	..	..
III manual	..	-.023 (-1.9)
IV	..	..
V	.041 (2.5)	..
Ethnicity		
White	—	—
Asian	..	..
Afro-Caribbean	..	..
Other	..	..
No information	..	..
Birth order:		
5th or greater	.085 (4.3)	..
Emotional/behavioural problems before 1974	.105 (4.6)	..
Reading comprehension below average	.047 (3.2)	.037 (2.7)
Maths comprehension below average	.052 (3.4)	.033 (2.3)
Reading score not known	.070 (2.3)	..
Left school ≤16 yrs	.038 (2.5)	.059 (4.3)
Mover between ‘74 and ‘81	..	.053 (3.9)
Has had children by 1981	.112 (6.7)	.354 (26.3)
Travel-to-work area unemployment rate, June 1981	.010 (6.9)	.007 (4.0)
Marital status in 1981:		
Single	—	—
Married	-.116 (-8.0)	-.060 (-4.7)
Separated	..	..
Divorced	..	..
Widowed	..	..
Registered disabled in 1981	.154 (3.0)	..
Proportion correct predictions	.77	.76
Log likelihood ratio	356.5	1147.7
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. ‘OLS equivalent’ parameter estimates have been computed at the mean of the dependent variable.

unemployment is a ten percentage points above the average, there is an associated decrease in the probability of them experiencing this type of work history pattern by approximately ten per cent.

Table 6.6 shows the corresponding positive relationship between an increase in local area unemployment and an increase in the probability that a study member experienced a discontinuous work

history containing multiple spells of unemployment or periods out of the labour force.

By controlling for many other factors which could affect the type of work history a person follows, the information presented in Tables 6.5 and 6.6 indicates that the relationship shown in Chapter 5 (Table 5.6) is a true local labour market influence and does not represent the effect of geographical variations in the occupational structure of the labour force. That is to

say, high local unemployment rates increase the probability that a young job changer will experience an intervening spell of unemployment after controlling for the effect of social background. This is an important control, for it could be argued that the labour markets characterised as high unemployment areas are those parts of the country where there is a tradition of low-paid manual work and that it is the social background of young persons in such areas which conditions them to accept spells of unemployment in their work histories as the norm. This is clearly not the case. Social background effects on these work history types operate through the educational attainment of the study member and are not particularly strong.

6.6 Occupational earnings, work histories, education and social background

The separate influences of social background, ethnic origin, birth order, educational attainment scores, geographical mobility and local labour markets on occupational earnings are shown in Table 6.7.

The most striking feature of this table is the number of statistically insignificant factors associated with occupational earnings. For instance, the age at which the respondent's father left school, and father's social class, both of which have been shown to be related to occupational earnings, add nothing to the reduction in the variance of the occupational earnings scale for both male and female respondents when included in a multivariate framework along with work history information and educational attainment scores. In other words, whatever effect parental background has on the occupational earnings of the study member, it works through these other factors and makes no separate contribution.

For males, it is most surprising to note that the local labour market indicator which was selected as being most highly correlated with occupational attainment, the 1981 travel-to-work area unemployment rate, is not significantly correlated with occupational attainment when included with work history information. In other words local 'joblessness' influences the personal work histories of NCDS4 respondents, which in turn affects their position in the distribution of occupations.

Birth order effects manifest themselves, but only for male respondents who are fifth born or higher birth order. Marital status and fertility have no effect on male occupational status, but being registered disabled has the expected strong downward influence on occupational status in addition to any indirect effects it may have on educational attainment and work histories.

In essence, male occupational attainment is

dominated by three influences, the work history pattern from the age at which the respondent first completed his full-time education, the decision to leave school at 16 and both mathematics and reading abilities. In terms of work histories, *any* turnover adversely affects occupational status, particularly that which is interspersed with a spell or spells of unemployment. Leaving school at 16 years has the expected negative effect on occupational attainment, as do below average reading and maths test scores at the age of 11 years. These effects are substantial, given that variables representing a below average reading score, a below average maths score and being a minimum age school-leaver are probably all positively correlated.

It is of interest to note the significant effect on occupational earnings associated with the respondent being a 'mover' (that is, recorded as living in a different travel-to-work area in 1981 from that lived in in 1974).

The situation for females is essentially the same as that for males, in that parental background does not have a direct influence on occupational earnings, and leaving school at 16 years has a strong negative impact on female occupational earnings. For women though, spells 'out of labour force' have a negative impact upon their position in the earnings distribution of occupations, as does being married and having had children by the age of 23 years. Further, it is noted that the local area rate of female unemployment is negatively related to female occupational earnings.

6.7 Exploring the statistical relationships

Each of the tables presented in this chapter reveals the outcome of a more detailed investigation of the inter-relationship between social background, educational attainment, the school leaving decision, local labour market influences and occupational earnings. This section gives a brief account of some of these more detailed investigations, particularly where they yield further insight into the nature of the processes at work.

The variable representing the school leaving decision included in Tables 6.4, 6.5, 6.6 and 6.7 is a simple dichotomous variable taking a value of one if the respondent first completed his or her full-time education at the age of 16 years, zero otherwise. This variable was redefined to give a set of dichotomous variables, for completion of full-time education at each year of age from 17 to 23 years. This redefinition was performed to see if there was any distinction between those who completed their full-time education at ages 21 or 22 years (typically university or college graduates) and those who were not minimum age school leavers but who stayed on

Table 6.7 The relationship between social background, mathematical and reading ability at age 11 years, school leaving age, geographical mobility, work history, local area unemployment and occupational earnings (maximum likelihood estimates of logit model)

Right-hand side variables	Dependent variable is: Occupational Earnings (1 if occupation in upper half of NES earnings, 0 otherwise) (‘OLS equivalent’ parameter estimates)	
	Males	Females
Constant	.249 (15.2)	.340 (14.0)
Father left school <16 yrs	..	..
Father's social class:		
I	—	—
II	..	..
III non-manual	..	..
III manual	..	..
IV	..	..
V	..	..
Ethnicity		
White	—	—
Asian	..	..
Afro-Caribbean	..	.179 (2.4)
Other	.202 (1.9)	..
No information	..	..
Birth order:		
1st	—	—
2nd	..	..
3rd	..	..
4th	..	..
5th or greater	-.089 (-3.1)	..
Emotional/behavioural problems before 1974	..	..
Reading comprehension below average	-.098 (-5.5)	-.142 (-7.7)
Maths comprehension below average	-.107 (-6.0)	-.092 (-5.1)
Reading score not known	-.143 (-4.1)	-.094 (-2.5)
Left school ≤16 yrs	-.119 (-7.1)	-.206 (-12.7)
Mover between '74 and '81	.134 (7.4)	.122 (7.2)
Work history (from leaving school to 1981):		
Continuously employed, 1 job	—	—
Continuously employed, >1 job	-.112 (-6.3)	..
Educational returner	..	-.076 (-2.5)
One spell unemployment (U)	-.222 (-9.8)	-.146 (-5.5)
One spell out of labour force (OLF)	..	-.061 (-2.1)
Multiple spells (U/OLF)	-.268 (-13.7)	-.205 (-9.7)
Has had children by 1981	..	-.148 (-6.3)
Travel-to-work area unemployment rate, June 1981	..	-.012 (-5.2)
Marital status in 1981:		
Single	—	—
Married	..	-.041 (-2.6)
Separated	..	..
Divorced	..	..
Widowed	..	..
Registered disabled in 1981	-.462 (-3.8)	-.511 (-2.7)
Proportion correct predictions	.67	.72
Log likelihood ratio	903.5	1390.9
n	5,844	5,671

Notes: A dash (—) indicates that the variable was the excluded category. Two dots (..) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. Asymptotic t statistic is shown in parentheses. ‘OLS equivalent’ parameter estimates have been computed at the mean of the dependent variable.

in non-compulsory full-time education for a further year or more. The results from this analysis showed that there was a significantly higher probability of having above average occupational earnings at the age of 23 years for respondents who completed their full-time education at the age of 21 years, particularly for females. However, the redefinition of the 'school leaving age' variable did not alter the size or statistical significance of the other variables reported in Tables 6.4, 6.5, 6.6 and 6.7.

Additional local labour market influences were tested in two ways. First, as well as including local area unemployment rates, the *rate of employment change* in a locality (defined as the change in male or female employees in employment which took place over the seven year period 1974-81) was also included as a measure of labour market opportunities for young entrants. Travel-to-work areas with high unemployment rates may also be areas of significant employment growth. Growing industries may provide employment opportunities for young people even though unemployment is above average. Interestingly, no significant statistical relationships between any of the dependent variables shown in Tables 6.4 to 6.7 and the rate of employment change could be detected.

A second approach to the analysis of local labour market effects involved the characterisation of local labour markets in terms of the nature of their industrial structure. This is an important consideration, because of the apparent link between the occupational category (social class) of the respondent's father, the occupational structure of the local area in which the respondent lives and the employment opportunities for labour market entrants in that same local area. The possibility of this link was pursued by including the *proportion of employment in manufacturing industries* in each travel-to-work area as a proxy for occupational structure. This variable was not significant.

Other influences which have been tested include:

- (i) The number of separate jobs each respondent held between 1974 and 1981.
- (ii) An *index of turnover*, defined as the number of months spent in the labour market (employed or unemployed) since completion of full-time education divided by the number of different jobs plus periods of unemployment that the respondent held in that period. Without any 'work history typology' variables, this index of turnover was associated with occupational earnings in the expected manner (the shorter the average duration of each event in the work history, the lower is the probability that the respondent had above average earnings). However, the relationship was not as well

defined as that shown in Table 6.7. When both the index of turnover and the work history typology variables were included, the index of turnover was not significantly related to occupational earnings.

- (iii) Family size.
- (iv) Parent's attitudes towards the respondent staying on at school after the minimum school leaving age (asked at age 7 and at age 11).
- (v) Mother's age at birth of respondent.
- (vi) Respondent's birth weight.
- (vii) Laterality (left or right dominance of cerebral hemisphere)
- (viii) Respondent's self-assessment of literacy and numeracy at age 23 years.

None of these variables was able to contribute significantly to the variance in the dependent variables. The insignificance of the variable representing family size highlights the separate effects of birth order on mathematical and reading abilities, the decision to leave school at age 16 years, work history type and occupational earnings. In all of these relationships, high birth order has a downward influence on the economic well-being of the respondent.

There is no clear association between laterality and occupational earnings. However, it was interesting to note the high concentration of left-handed male respondents in technician occupations.

Finally, the test scores for reading and mathematical ability were used in these equations as continuous variables. Such a specification did not yield any significant improvement over the simple 'above/below average' formulation of test score results.

6.8 Occupational earnings and gender

Throughout this report, a clear distinction has been maintained between the factors which influence male occupational earnings and those which influence female occupational earnings. This was necessary, because of the differences in the distributions of occupations by earnings between males and females. This section redefines occupational earnings to enable the concept to be applied to both men and women.

Turning back to Figure 2.2, it can be seen that the median earnings of both men and women in 1981 (represented by the line Q₂ on the bar chart) lies marginally below the upper quartile of women's earnings and is below the median of men's earnings. A new occupational earnings variable was defined which includes those women whose NCDS occupational earnings score took them into the upper quartile of earnings and those men whose earnings

Table 6.8 Occupational earnings, social background, educational attainment, work history and location. The combined male/female analysis

Right-hand side variables	Dependent variable is occupational attainment (1 if occupation in upper half of NES earnings, 0 otherwise)		
	Males	Females	Total
Constant	.676 (23.2)	.584 (22.4)	.355 (20.4)
Male respondent	—	—	.293 (29.5)
Father left school <16 yrs	-.029 (-1.9)	..	-.021 (-2.2)
Father's social class:			
I	—	—	—
II	..	..	..
III non-manual	..	..	..
III manual	..	..	..
IV	..	..	..
V	..	..	..
Ethnicity			
White	—	—	—
Asian	..	..	..
Afro-Caribbean	..	.139 (2.3)	..
Other	.175 (1.9)	..	.126 (2.0)
No information	..	..	..
Birth order:			
1st	—	—	—
2nd	..	..	..
3rd	..	..	..
4th	..	..	..
5th or greater	-.067 (-2.9)	..	-.042 (-2.8)
Emotional/behavioural problems before 1974	..	..	..
Reading comprehension below average	-.088 (-5.6)	-.106 (-7.2)	-.071 (-7.1)
Maths comprehension below average	-.098 (-6.1)	-.071 (-4.9)	-.081 (-8.1)
Reading score not known	-.136 (-4.4)	-.082 (-2.8)	-.090 (-4.5)
Left school ≤16 yrs	—	—	—
17 yrs	.083 (3.8)	.135 (7.4)	.048 (3.7)
18 yrs	.140 (6.2)	.192 (10.2)	.094 (7.0)
19 yrs	.090 (2.6)	.201 (10.2)	.091 (4.0)
20 yrs	..	.147 (3.0)	.085 (2.5)
21 yrs	.171 (5.3)	.341 (11.6)	.314 (15.5)
22 yrs	..	.270 (8.0)	.196 (8.5)
23 yrs	-.277 (6.2)	..	..
Mover between '74 and '81	.113 (7.1)	.085 (6.2)	.069 (7.2)
Work history (from leaving school to 1981):			
Continuously employed, 1 job	—	—	—
Continuously employed, >1 job	-.130 (-7.5)	..	-.097 (-8.2)
Educational returner	-.075 (-2.8)	..	..
One spell unemployment (U)	-.222 (-10.6)	-.121 (-5.1)	-.180 (-12.5)
One spell out of labour force (OLF)	-.082 (-2.2)	-.064 (-2.6)	-.115 (-6.5)
Multiple spells (U/OLF)	-.260 (-14.3)	-.162 (-8.3)	-.192 (-15.9)
Has had children by 1981	-.035 (-1.9)	-.093 (-5.2)	-.022 (-2.0)
Travel-to-work area unemployment rate, June 1981	..	-.008 (-4.7)	-.003 (-3.0)
Marital status in 1981:			
Single	—	—	—
Married	..	-.034 (-2.7)	..
Separated	..	..	..
Divorced	..	..	..
Widowed	..	..	..
Registered disabled in 1981	-.251 (-4.0)	-.284 (-3.3)	-.226 (-4.8)
\bar{R}^2	.149	.229	.221
F	41.9	68.2	126.5
n	5,844	5,671	11,515

Note: A dash (—) indicates that the variable was the excluded category. Two dots (.) indicate that the variable was originally included, but was not statistically significant at the 95% level (2-tailed test) and has been excluded. T statistic is shown in parentheses.

score was in the first two quartiles. The resulting occupational earnings variable could then be applied to men and women, and represents those occupations which fall into the upper half of the national distribution of all occupations by earnings.

Table 6.8 shows the result of combining male and female respondents in the analysis of occupational earnings. For simplicity, this table shows ordinary least squares estimates of the parameters shown in Table 6.7. Comparison of the first two columns of Table 6.8 gives some indication of the differences arising from the linear as opposed to the non-linear estimation techniques.

Some interesting facts emerge from this analysis. First, a variable representing the sex of the respondent contributes significantly to the gender differences in occupational earnings. Test scores of reading comprehension and mathematical reasoning perform similarly in both the male and female

equations and do not, therefore, constitute a major source of gender differences in earnings. Family formation clearly affects the position of women in the earnings distribution, but the effect is not a major factor in determining the difference between the position of men and women in the earnings distribution.

It is clear from the results shown in Table 6.8 that *similar processes* are at work in determining where men and women will be placed within the earnings distributions of occupations in early adulthood, but these processes operate upon *fundamentally different distributions of earnings*. To gain an understanding of the earnings differences between men and women, attention must be focussed upon the operation of the different occupational labour markets men and women enter. These differences cannot be interpreted in terms of differences in their educational abilities or work histories.

Chapter 7

Conclusion

7.1 The Main Findings

The main findings from this research project can be re-examined in the following manner. Suppose one was given the following information about a young adult: their father's occupation, their birth order, localities in which they have lived, a broad outline of economic activity since leaving school, age upon completion of full-time education and the results of a short test of English and mathematics when they were aged 11 years. Which of these items would be the best guide as to whether or not, by early adulthood, they would have entered an occupation with a prospect of better than average earnings?

The clear answer from this study is the English and maths test scores. The next best item of information which would add to this would be knowledge of whether or not the young persons moved between labour markets in their late teens or early twenties. Next in importance is their school leaving age and information on whether or not they had had a discontinuous record of employment since leaving school. Surprisingly, their father's occupation and employment status during their formative years (social class) would be an inferior predictor in this respect. Without the English and maths test score results it would, of course, be a useful proxy piece of information, but social class effects are subsumed by the educational test results. Correspondingly, a knowledge of whether or not a person lived in an area of high unemployment would not in itself be as useful a piece of information as knowledge of the young adult's work history. Without the work history information one would find a correlation between living in a high unemployment area and having entered an occupation with lower than average earnings, simply because more young people are likely to have experienced multiple spells of unemployment in such areas.

Study of the link between work histories, local labour market conditions and occupational earnings did provide an interesting insight into the operation of the labour market. Prior to this study, it could have been argued that mobility *between* employers, with no intervening spells of unemployment, was characteristic of the efficient outcome of a job search process; young people who had experienced two or more different employers, since leaving school were

those who had continued to search for, and find, better jobs. Controlling for all other influences on occupational earnings, one would expect, therefore, to find that those young people who had a continuous employment record but had held more than one job since leaving school would have higher occupational earnings than those who had only had one employer. This is not the case. A work history pattern which shows a continuous record of employment with *one* employer correlates more highly with above average occupational earnings. Given the extent to which this relationship controlled for other possible explanations of this effect (particularly school leaving age, social background and educational attainment) it is feasible to deduce that this relationship reflects a degree of mismatching between the job aspirations of young people and their early experience of employment. In other words, job turnover arises not as the result of an efficient job search but as a response to an inefficient search. Support for this view arises from the analysis of the effect of variations in local labour market conditions on young people's work histories. The proportion of young people with a single, continuous spell of employment with one employer is not reduced by locally high joblessness. There is no evidence that the proportion of young people who make a successful transition to employment upon leaving school and do not subsequently change employers is any lower in a high unemployment area than is a low unemployment area. There is no evidence to suggest that this group experiences any greater difficulty of gaining such jobs, or of retaining them, where local labour demand is low. On the other hand, those young people who change jobs place themselves at a considerably greater risk of experiencing multiple spells of unemployment in high unemployment areas. In line with previous research, it appears that such turnover is primarily voluntary, possibly reflecting dissatisfaction with the nature of the job.

This issue of voluntary turnover poses the question of whether or not there is, within this category of young persons who changed employers, an identifiable group of young persons who display what has been termed 'unstable' careers. A review of the literature on this subject indicates that there has always been a small proportion of young people who display very high levels of job turnover in the labour market.

Investigation of this phenomenon in the present study, by including the number of jobs a person has held as an additional work history measure, and by examining for the factor correlated with the work history typologies defined as 'continuous employment—more than one job' and 'multiple spells of unemployment or periods out of the labour force', gave no indication of a particular group of individuals who displayed 'unstable' work history patterns and who could be identified in terms of their educational attainment, social background or other personal characteristics. Clearly, there exists in this study a number of young people who have demonstrated exceptionally high levels of turnover in the labour market, but it would appear that they are no more disadvantaged than those who changed employers just once. The only way in which they further reduce their chances of moving on to better-than-average paying jobs is that, in high unemployment areas, each job change exposes them to a higher risk of experiencing a spell of unemployment. A personal history of unemployment significantly reduces one's prospects of moving on to a better paid job.

The amount of geographical mobility displayed by the birth cohort is quite significant. Separate analysis of movement between travel-to-work areas showed a clear relationship between mobility and local area unemployment. As expected, 'movers' are more likely to have shown higher educational test scores at age 11 years, and are more likely to have stayed on at school beyond the minimum school leaving age and to have had a father who stayed on at school beyond the minimum school-leaving age. Additionally, local labour market conditions exert a strong influence on mobility. High local unemployment tended to increase outward movement somewhat. More importantly, it reduces the inward flow of young migrants compared with the flow one would expect into a low unemployment area. In summary, there is ample evidence in this study to show that young people respond to spatial variations in labour demand by moving. Moreover, there is a significant relationship between labour mobility and occupational earnings. Although 'movers' tend, on average, to have a better educational and social background, there is still a major gain to be made by moving to a different travel-to-work area in terms of a person's position in the occupational distribution of earnings.

Investigation of the differences in the occupational earnings of men and women at the age of 23 years showed that it was possible to quantify only a small part of the difference between them in their occupational earnings in terms of differences in their work histories. A substantial proportion of the birth cohort had had children by the age of 23 years, but this factor could not account for the gap in

occupational earnings, which reflects the concentration of women's jobs in a narrower range of occupations than men's, with much lower average earnings over all age groups for those in full-time employment.

These influences are summarised in Figure 7.1, which revises the 'theoretical' model presented in Chapter one (Figure 1.1.) in the light of this investigation.

The diagram reflects the manner in which social background effects operate through the level of attainment each person has reached at an early age in their education. Local labour market influences do not appear to have much direct impact upon occupational earnings. In other words, it does not appear to be the case that it is any more difficult to gain access to a good job simply because one lives in a particular part of the country. Local labour market influences have to translate into a personal experience of unemployment in an individual's work history before the depressing effect upon occupational earnings manifests itself.

The effect of geographical mobility on occupational earnings has also been added to the revised model shown in Figure 7.1. Local labour market conditions and educational ability combine their influences to cause some individuals to move between labour markets in their late teens and early twenties. All other factors considered, those persons who undertook such movement, at a time when labour markets were generally depressed, fared better than those who did not.

It must be stressed that the methods used in study lead to a stylised view of the educational process and economic socialisation of young people. One can always find exceptions to the general associations presented in this report; the child from a large, low-income family who, 'against the odds', does well at school and goes on to university, or the youth from a privileged background who finds difficulty in holding down a steady job despite the attention paid to their education. The purpose of this study is to draw out some *typical* relationships or common associations, such that one is able to *generalise* about the nature of the links between local labour market conditions, work histories and occupational earnings. In so doing, the research findings provide a framework for the evaluation of social, economic or educational measures which impinge upon the transition to adulthood.

7.2 Policy implications

There are a number of policy related issues which can be addressed using these research findings. Most important among these is the current debate about

educational testing at ages 7, 11 and 14. This study has shown the strength of the correlation between national testing at age 11 years and occupational earnings at the age of 23 years. In terms of all of the influences on occupational earnings which have been pursued in this project, the most important pieces of information which predict later economic well-being are the results of a common national test of mathematical reasoning and English comprehension. In other words, this study provides empirical support for those who argue in favour of national testing at an early age as a means of *identifying* persons who will fall below the national average level of earnings later in their lives. What it does not reveal is whether or not subsequent intervention to improve the educational and vocational provision for such a group will affect their later economic well-being.

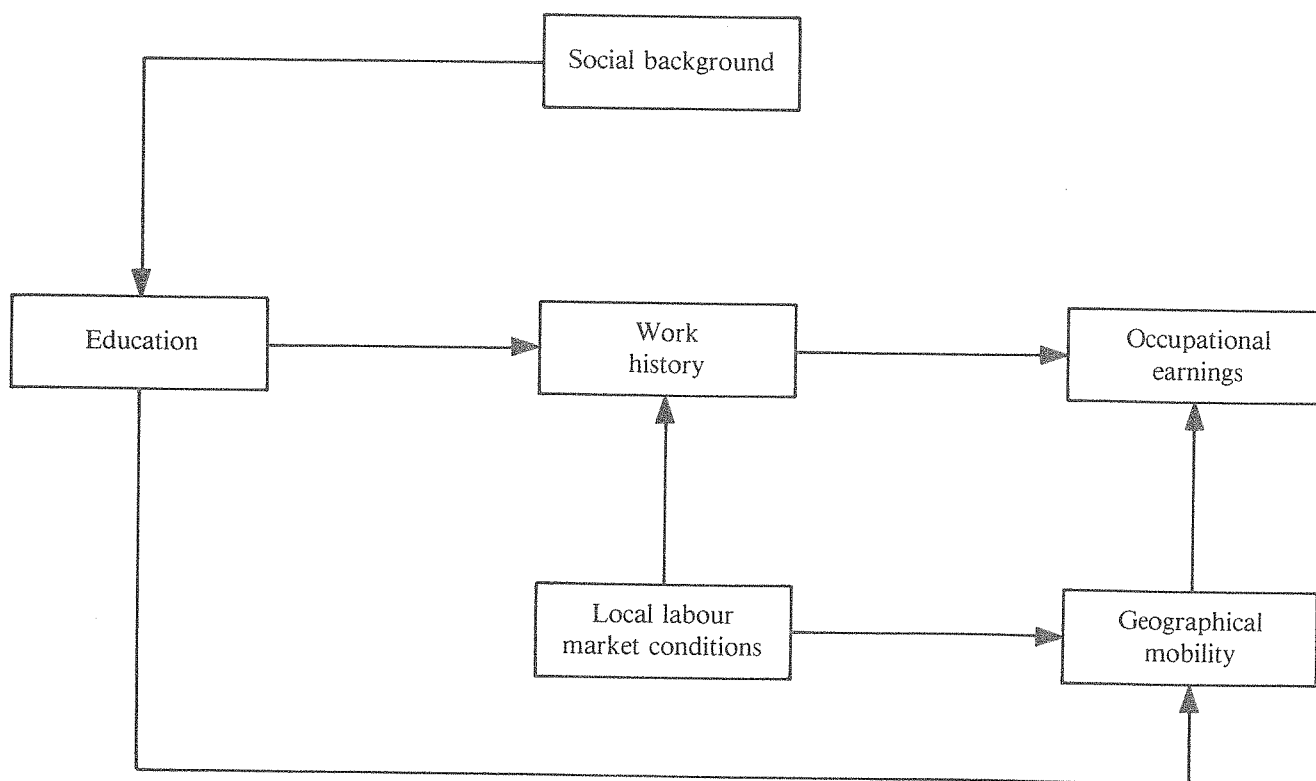
7.3 Directions for further research

The principal issue raised in this research project concerns the effect of changing jobs on a young person's long-term employment opportunities. Contrary to expectations, it appears that any job-changing is detrimental to a young person's later occupational prospects, particularly so if it takes

place in areas of high unemployment and they incur a spell or spells of unemployment between jobs. Further research needs to be undertaken on this issue. Is it the case that those who change jobs are 'pushed out' of their first job by an employer who 'creams off' the 'productive' employee into company training programmes, effectively blocking the career progress of those who appear less 'productive'? If so, what factors do employees use to identify such individuals? Or is it the case that certain young people are less well-informed about employment opportunities and reveal this lack of information by moving out of an unsatisfactory job. If so, why do they fail to catch up with young people who do not change employers?

Against these questions can be set the more fundamental objection to this study, that the age of 23 years is really too young an age to prognosticate on the longer term economic advantage or disadvantage to be experienced by young adults. In answer to such criticism, the reader is advised that plans for the fifth sweep of the survey are already well advanced. This will provide the opportunity to reassess these findings in more detail and with a longer time perspective.

Figure 7.1 Revised Model of the Links between Social Background, Education, Work History, Local Labour Market Conditions and Occupational Earnings.



Appendix 1: The NCDS 4 DIARY

Reproduced below is a copy of the diary used as an aide-memoire in the collection of work history information, together with instructions to the interviewer on the procedures and conventions to be adopted in completing the diary.

N. C. D. S. IV

STICK
SERIAL No.
LABEL
HERE

DIARY 1974 ~ 81

I would now like to go through the things you have been doing from the time you left school until today.

For each month from leaving school till today establish what the respondent was doing. Each month should be covered by one activity only: Job, Education, Unemployment, Out of Labour Force or Fill-in Time. ASK:

"What did you do after you left school?"

"When did that go on till?"

"What did you do next?" etc.

Mark start and end month of each activity with a cross, join with a line, and write activity code (see over) above it.

X ——— J1 ——— X ——— U1 ——— X ——— J2 ——— X

Unless the respondent has ceased an activity just before the interview, there must be a current activity. This cannot have an end date, and you should mark this by putting an arrow in the month of interview.

————— J4 —————>

Key Dates

- Q.1 When did you first leave secondary school (or sixth form college)?
- Q.2 Have you ever been married?
- Q.3 Have you been married once or more than once?
- Q.4 Have you ever had any children of your own, including stillborn children, and those that have since died?

Enter date with an 'x' in key dates row and in main activity row.

Yes 1 Ask Q3
No 2 Go to Q4

Once 1 Code month of each marriage
More 2 with an 'M' in key dates row

Yes 1 Code month of each child birth with a 'C' in key date row.
— if child born before March '74 enter 'C' in 'Pre MAR '74' box.
— if twins enter 'C/2', triplets 'C/3'

No 2

Add any further key dates as necessary to assist recall.

Main Activity — codes and definitions

Jobs Activity Code: J1, J2, etc.

Include any employment which lasted over a month

Except — fill-in work between school and further education ie. where the respondent entered further education in same year as leaving school. Mark this time 'F1', 'F2', etc
— fill-in work of students waiting to take up a job already offered. Mark this time 'F1', 'F2', etc
— vacation, work experience or sandwich jobs of students. Include these in education
— part-time jobs while the respondent's main activity was full-time employment, full-time education or unemployed.
— casual jobs while on holiday

Include as a job — part-time jobs, ie. jobs for 29 hours or less, when these are respondent's main activity. Mark these as 'P/J1' etc
— work in sheltered workshops. Mark these with a 'S/J1', etc
— Government special schemes

Include in jobs — time on training courses
— periods of maternity leave, sick and education leave where the respondent returned to the same employer or intends to do so

Notes — a change of job occurs only when there is a change of employer
— working as a temp. in a succession of jobs with one or more agencies counts as one job
— if the respondent has left any job to have a baby, ask 'Can I just check, did you take maternity leave — leave your job temporarily, intending to return — or did you give up your job?'

Full-time Education Activity Code: E1, E2, etc.

Include — all full-time courses for qualification followed for more than 1 month even if uncompleted
— TOPS courses, mark as 'TOPS'
— time spent on sandwich/work experience jobs and vacations

Notes — a course can be for more than one qualification where these are taken together (eg. 'O' levels and 'A' levels taken at the same time)
— a series of qualifications (eg. 'O' levels then 'A' levels) should be treated as separate courses
— if any one qualification is obtained through a series of sub-courses or modules undertaken consecutively, this should be treated as a single course.

Unemployment Activity Code: U1, U2, etc.

Include — all periods when respondent was not in employment or full-time education and was wanting work, even if a period lasted less than a month. Mark with a 'U'.

Note — respondent need not be registered as unemployed.

Out of labour force Activity Code: OLF1, OLF2, etc.

Include — periods of at least one month when the respondent was not doing any of the above e.g. doing housework, extended holiday, long-term sick, in prison etc.

Fill-in Time Activity Code: F1, F2, etc.

Include — periods of at least one month in a series of short-term jobs or in fill-in work as student.

PreMAR'74			MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates	1974	18th birthday									
	main activity											

1975		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			17th birthday									
	main activity												

1976		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			16th birthday									
	main activity												

1977		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			19th birthday									
	main activity												

1978		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			20th birthday									
	main activity												

1979		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			21st birthday									
	main activity												

1980		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			22nd birthday									
	main activity												

1981		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	Key dates			23rd birthday									
	main activity												

Appendix 2

Work Histories, Job Changing and Unemployment

Work history information has been collected from young people in both of the major national birth cohort studies which have been in existence long enough to record early labour market experiences. The National Survey of Health and Development details the occupations and earnings of a group of persons born in March 1946. Douglas (1971) reported that, by 1964, half of the cohort were still in their first job at age 18, whereas ten per cent of those who left school at age 15 years and had been employed for at least 30 months between ages 15 and 18 had held four or more jobs in the *three years* which had elapsed since leaving school (Cherry, 1976). The National Child Development Survey charts the labour market experiences of 18 thousand individuals born 12 years later. Using information on two thirds of this group contacted in 1981, it was shown in Chapter 4 that 61 per cent of the cohort could be classified as minimum age school leavers. Two years after leaving school 37 per cent of the minimum age school leavers were still with their first employer and had been continuously employed since leaving school. This compares with 4.8 per cent who had held four or more jobs in the two years since they left school. Virtually all minimum age school leavers in NCDS had held at least one job since leaving school.

In contrast to these national birth cohort studies, other research has usually focussed upon information derived exclusively from young persons who have made the transition from school to work in a particular local labour market.

Among the earlier studies, Carter (1962) followed the progress of 200 fifteen year old school leavers who left from five Sheffield schools between 1959 and 1960. Although this study only recorded their progress through their first year of work, it is of interest to note that one third had left their first job within one year of leaving school.

In a similar, but more detailed enquiry, Maizels (1970) reports findings from a survey of 330 fifteen and sixteen year old school leavers, all of whom were in employment in a London suburb and aged between 16 and 17 years in the spring of 1965, the time of enquiry. Six per cent of the sample had recorded 4 or more jobs since leaving school. The same author draws upon information from an earlier

study (Maizels, 1967) to argue that the amount of job changing shown by early school leavers varied not only with the type of school attended and the level of educational performance, but also with the age of leaving school and social class.

In national study of minimum age school leavers, Thomas and Wetherell (1974) report their findings from a follow-up survey of 1,733 male school leavers who left school at the age 15 years in 1968–69. Thirteen per cent had had three or more jobs within a period ranging from 18–20 months after leaving school, and 30 per cent changed jobs in their first six months.

A level of mobility of this order of magnitude was determined a decade later by Sawdon, Pelican and Tucker (1981), reporting their findings from a longitudinal study of 250 sixteen year olds from three labour markets all of whom left school in 1977. Over the two year period of this study they maintained contact with almost 90 per cent of their original sample. Of this group, 6 per cent had experienced 4 or more jobs just over two years later.

More recently, Ashton and Maguire (1986), surveyed the employment histories of more than 900 18–24 year olds in four local labour markets (Sunderland, Leicester, Stafford and St. Albans) between 1982 and 1983. They found that only one per cent of the 18 year olds had held four or more jobs. In terms of the duration of their first employment, 24 per cent of their sample spent six months or less in their first job. Thus, although the number of young people leaving their first job in a relatively short space of time changes little over the fifteen years from 1968 to 1983, the proportion who experienced work with a significant number of different employers in the first two years of their working life appears to have declined dramatically, a finding which Ashton and Maguire attribute to the decline in employment opportunities for young people. It is interesting to note the contrast with a later study by Roberts *et al.* (1986). In the course of their research, they conducted interviews with over eight hundred 17 and 18 year olds from three labour markets; Liverpool, Walsall and Chelmsford. They record that 7 per cent of their sample had experienced three or more jobs since leaving school, even though this sample contained a small proportion of 17 year old school

leavers. Again, the reported level of mobility, three or more jobs, is less than that reported by Ashton and Maguire, but this must be offset to some extent by the inclusion of about ten per cent of 17 year old leavers in their sample and the fact that, even for the 18 year olds, less than two years had elapsed before they were interviewed. On balance then, it appears that the reported level of turnover from the study by Roberts *et al.* is commensurate with an estimate of approximately five to ten per cent of minimum age school leavers having experienced four or more jobs in the two years following the date upon which they leave school. With the exception of the low level of job changing noted by Ashton and Maguire, the constant nature of this proportion is all the more remarkable given the dramatic decline in employment opportunities for young people which has occurred over the period covered by these studies.

The high rate of turnover in the youth labour market recorded by certain young people should manifest itself equally in the records of separations from employment kept by employing organisations. Such a view of the dynamics of the labour market would be interesting if one could distinguish between the rate of separation of younger versus older workers. The major difficulty with such an analysis, from a British perspective, is the lack of information on the rate of separation of persons from employment, disaggregated by age. Such information would enable one to distinguish between voluntary and involuntary separation and examine for age related differences in such rates of separation. This is an important point, for it could well be the case that the higher rates of job turnover displayed by young people result not from the preferences of the young person themselves, to experience more variety in work or to remedy 'mismatches' between expectations, and experience, but from the operation of 'last in—first out' redundancy policies. Young workers, will on

average, have less accumulated work experience of a particular working environment than their older colleagues. For this reason it is often argued that, in a recession, young workers are the first to be laid off. Information on the *number of jobs* held by young persons will not be indicative of the operation of such policies, simply because those who are laid off may experience great difficulty regaining employment during a recession. Without information from employing establishments on the relative rates of turnover among young and older workers, it is difficult to judge whether or not the high rate of job turnover evidenced in many studies of young workers in the sixties and seventies has been replaced by a higher rate of redundancy for young workers in the recessions of 1974/75 and 1980/81.

Recent evidence from national employment registration statistics for Denmark (Vejrup Hansen, 1987) indicates that there is a 15 percentage point differential in the separation rate of young workers (under 25 years) and older workers in that country. Separation rates were identified for young and older workers in establishments which displayed (i) an unchanged or increasing employment level in the one year period 1980–81 and (ii) a diminishing level of employment in the same period. Not surprisingly, this Danish research shows that there is a higher separation rate in the latter category of establishments, but the differential of 15 percentage points between the younger and older workers remains constant between these categories. In other words, Danish employers do not operate redundancy policies which discriminate between younger and older workers. The relatively high level of unemployment among Danish youth results either from their inability to gain *any* employment and/or the greater risk of experiencing unemployment due to their higher level of *voluntary* turnover in the labour market.

Appendix 3

Mean Values of Variables used in Chapter Six

	Males	Females
Occupational earnings above average	0.463	0.417
Father left school <16 years	0.749	0.738
Father's social class:		
I	—	—
II	0.155	0.150
III non-manual	0.063	0.077
III manual	0.443	0.446
IV	0.159	0.155
V	0.122	0.121
Ethnicity:		
White	0.893	0.896
Asian	0.010	0.008
Afro-Caribbean	0.008	0.009
Other	0.004	0.003
No information	0.085	0.083
Birth order:		
1st	0.382	0.390
2nd	0.318	0.308
3rd	0.145	0.152
4th	0.072	0.073
5th or greater	0.075	0.069
Emotional/behavioural problems before 1974	0.054	0.033
Reading comprehension below average	0.446	0.423
Maths comprehension below average	0.506	0.506
Reading score not known	0.043	0.042
Left school ≤16 years	0.661	0.578
Mover between '74 and '81	0.208	0.278
Work history (from leaving school to 1981):		
Continuously employed, 1 job	0.221	0.175
Continuously employed, 1 job	0.280	0.212
Educational returner	0.075	0.064
One spell unemployment (U)	0.134	0.091
One spell out of labour force (OLF)	0.028	0.122
Multiple spells (U/OLF)	0.237	0.322
Has had children by 1981	0.181	0.302
Travel-to-work area unemployment rate, June 1981	13.2%	7.9%
Marital status in 1981:		
Married	0.357	0.536
Separated	0.016	0.027
Divorced	0.088	0.019
Widowed	0.000	0.002
Registered disabled in 1981	0.009	0.004

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