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OCCUPATIONAL EXPECTATIONS AND OUTCOMES:

Some Implications for Vocational Guidance & Manpower Planning

by

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Synopsis

This working paper is a slightly modified version of my dissertation written in 1987 for the MSc in Social Research in the Sociology Department of the University of Surrey.

The aim of the analysis is the testing of models of occupational choice, one based on developmental theory, emphasising individual choice, an opposed one based on the 'opportunity structure' approach, stressing social and structural constraints on occupational selection, and a third which seeks to incorporate elements of both the developmental and the 'opportunity structures' approaches.

Using data from two sweeps of the National Child Development Study, the research investigates the relationship between 16 year-old pupils' expectations of their future occupations and the actual occupations achieved by these same subjects interviewed seven years later, at age 23. Cross-sectional analyses are carried out of the occupational expectations of the 16 year-old cohort and the occupational outcomes of the 23 year-old cohort by sex and by class of origin. Longitudinal analysis is then used to compare expectations with outcomes, with particular reference to science, engineering and technology.

The analyses show that the strength of relationship between occupational expectations and outcomes is generally weak, lending some support to the 'opportunity structures' theory; however it varies by occupational group and the relationship is strongest in those groups

where availability of jobs is high. Implications of the findings for theories of occupational choice are discussed. The generally weak importance of occupational choice is discussed in terms of its implications for the principles which inform vocational guidance. Policy implications for manpower planning are discussed in relation to science, engineering and technology occupations.

Acknowledgements

I would like to thank Ken Fogelman and Peter Shepherd of the NCDS Support Unit for their help with the data, as well as the ESRC Data Archive who supplied the data tapes. Gill Jones of Thomas Coram Research Unit helped with the data, gave me permission to use variables which she had herself derived for the purposes of her own work, and commented in detail on the final draft. Eric Roughley of the Archive also gave a great deal of assistance. Valerie Harmer of University of Surrey Computing Unit and Jane Fielding of the Department of Sociology gave valued help with computing. Especial thanks go to my supervisor, Nigel Gilbert, for his extensive guidance and encouragement.

Judith Glover,

Surrey, February 1988

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TABLES AND FIGURES

Section 1: Introduction

The relationship between occupational expectations and outcomes is the central concern of this paper. Commonsense tells us that occupational expectations are important; it tends to be widely assumed that a decision about a future job is a necessary part of the process of acquiring that job. Such assumptions are deep-rooted; children are asked from an early age what job they want to have when adult, and there is evidence that children as young as four years old have clear notions of their expected adult occupations (Hartley, 1960; cited in Weitzman and others, 1976). Careers advice is a service provided in all schools and colleges. In a variety of contexts, then, importance is attached to occupational expectations.

This paper seeks to clarify these assumptions by examining the relationship between the occupational expectations of 16-year olds and the occupational outcomes of those same subjects at age 23, and by analysing this relationship in different occupational groups and as it affects different groups of young people. The implications of the findings for careers education and for manpower planning, with particular reference to science, engineering and technology, are discussed.

1.1. Youth labour markets:

Since the 1960s and early 1970s when young people were in demand by employers, structural changes in the economy coupled with the rise in general unemployment levels have led to major changes in youth labour markets. The following section will examine briefly the characteristics of current youth labour markets.

Youth labour markets differ from general labour markets in various ways. Firstly, structural changes in the economy towards an increasing emphasis on a service economy have meant a shift away from the employment of young people, expecially those with few or no qualifications, towards other groups of workers, particularly older part-time working women (Casson, 1979). Overall, these structural changes have implied a narrowing of opportunities for young people (Ashton and others, 1982), with resulting high levels of youth unemployment. In January 1982, registered unemployment amongst young people aged 16-24 accounted for 39% of the total registered unemployed (Employment Gazette, March 1982), whilst this age group represented only 22% of the population of working age (OPCS, 1980). More recent figures show little change; in January 1986, registered unemployed aged 16-24 represented 37% of the total of registered unemployed (Employment Gazette; December, 1986) whilst this group represented only 23% of the population of working age. However, these figures may well be depressed because 'special measures' such as the Youth Training Scheme and the more recent Job Training Scheme have had the effect of lowering unemployment figures (Unemployment Unit; February, 1987). Any discussion of youth and employment needs to take into account the levels of unemployment which particularly affect this age group.

Secondly, many occupation and industry groups offer restricted access to young people (Manpower Services Commission, 1977). For example, there is a low representation of young people in professional and managerial occupations; preliminary findings from the 1986 phase of the Youth Cohort Study show that whilst 25% of all jobs are in

professional and managerial occupations, only 5% of young people's jobs are in this group (Manpower Services Commission, February 1987). Moreover, in a study of three contrasting local labour markets, it has been estimated that 50% of manufacturing jobs are closed to young people, and that a similar situation is to be found in semi-skilled and unskilled jobs (Ashton and others, 1982).

Table 1 gives details of proportions in KOS Major Order groups for (a) younger workers, aged 16-29, and (b) older workers, aged 30-49.

Table 1: Younger and older workers by KOS occupational groups

		age 16-29 %	age 30-49 %
1	Professional & related in management/admin	3	5
2	Profess. & rel in educ, welfare & health	6	10
3	Literary, artistic, sports	1	1
4	Professional & related in SET *	4	4
5	Managerial	5	11
6	Clerical & related	22	14
7	Selling	8	6
8	Security & protective service	2	2
9	Catering, cleaning & other personal service	7	11
10	Farming, fishing & related	2	1
11	Processing etc (excl metal & electrical)	9	7
12	Processing etc (metal & electrical)	14	11
13	Painting, assembling, packing & related	4	4
14	Construction, mining & related	4	3
15	Transport, moving and storing & related	5	7
16	Miscellaneous	2	1
17	Inadequately described	2	1
	all (000's)	100% (7056)	100% (10201)

Source: drawn from Labour Force Survey, 1981, p. 27, Table A5

* SET (Science, Engineering & Technology)

The younger age group is defined broadly in Table 1 in order to include those who have completed possibly lengthy training courses;

had the younger age group been defined more narrowly, the differences between the proportions of younger and older workers in the occupational groups would have been greater. As it is, there are still clear differences between the two groups. Older workers are more likely to be in KOS 2 (professional and related in education, welfare & health), in KOS 5 (managerial) and in KOS 9 (catering, cleaning and other personal services). By contrast, as the Youth Cohort Study also notes, younger workers are more likely than older workers to be in KOS 6 (clerical & related); this may be because older workers, particularly women, have difficulty in re-entering this occupational group after a break for child-bearing and rearing which has left them with out-dated skills (see Dale & Glover, 1987). Moreover, the 1986 Youth Cohort Study, using young people's first occupations, found that almost half of young women's jobs were in the clerical sector, whilst less than one-third of all women are employed in this occupational group (Manpower Services Commission, February 1987).

Employment levels vary regionally, partly because of the decline in some areas from the 1960s onwards of major male-employing sectors (Massey, 1984). Youth labour markets also show regional differences which are linked to the economic situation and to the occupational distribution in those areas. For example, Ashton and others (1982) found that, in a labour market in an area of expansion in the South-East of England, 22% of employers recruited young people for work leading to a professional qualification, whilst only 7% did so in a labour market in the economically depressed North-East. Thus young people's chances of entering certain types of employment may vary considerably in different parts of the UK.

Within youth labour markets, there appears to be a demand for particular sorts of young people - those who are well qualified (Roberts and others, 1986) and older school leavers and college leavers (Ashton and others, 1982). Evidence from the Youth Labour Markets Research Project suggests that well qualified girls are especially in demand (Roberts and others, 1986), although this is not borne out by Ashton's study which demonstrated that the sole area of growth for young people is in male, white-collar, primary sectors. Neither of these studies is based on a national sample, however, and it may be that local factors are affecting the conclusions.

To summarise, a number of features, including higher levels of unemployment and differential access to some occupations and industries, differentiate youth labour markets from general labour markets; these characteristics need to be borne in mind when considering young people's occupational expectations and outcomes.

1.2. Factors structuring young people's experience in the labour market

This paper assumes the importance of educational achievement in the process of occupational success and of a number of key factors which in turn influence young people's educational and occupational achievement. It is now widely accepted that young people's experiences in education (and therefore in the labour market) are affected by their sex, their racial origin and their class of origin.

Research into the effect of parental social class on educational and occupational achievement has a long history in sociology. For

example, Robbins (1962), Douglas and others (1968), Davie and others (1972) and Halsey (1980) provide evidence that children from working-class homes perform educationally less well on average than their middle-class counterparts. This situation is carried over into occupational achievement such that there is a tendency for children of working-class origin to enter manual occupations and for children of middle-class origin to enter non-manual occupations (Speakman, 1980). Further evidence for this occupational differentiation by class of origin will be shown by the analyses in Section 3.

The effect of racial origin and gender on educational and occupational achievement has been more recently investigated and consequently there is less evidence of their effect. Nevertheless, several studies show that members of minority groups tend to perform less well educationally, and therefore occupationally, than their white counterparts (for example Townsend and Brittan 1974; ILEA, 1981b). However, recent evidence from ILEA demonstrates the danger of subsuming all ethnic minority children into an underachieving group; a survey of standards in 1987 showed that only Bangladeshi, Turkish and Caribbean pupils performed at a below-average level (Times Educational Supplement, 26.6.87).

There is also strong evidence of differences between girls' and boys' achievement at school, in training and in the job market (DES, 1978; ILEA, 1981a; Fogelman, 1985; Cockburn, 1987). Girls do not underachieve in relation to boys, but they tend to opt for a different and rather narrow range of subjects which generally equip them for low-paid, low-status jobs.

Thus, there is considerable evidence of the importance of class origin, racial origin and gender in the structuring of educational and occupational opportunities. One purpose of this paper is to consider how these factors affect occupational choice. [1]

(Footnotes appear on page 64)

Section 2: Occupational expectations and outcomes: the conceptual background

2.1. Theories of occupational choice

Two major approaches to occupational choice can be distinguished, deriving from psychology and sociology respectively. The 'developmental' theory places more emphasis on individual choice and action, whilst the 'opportunity structures' approach focuses on social and structural constraints governing choice or selection of occupation. Indeed, the terminology - 'choice' or 'selection' - is significant in that the psychological approach considers the use of the word 'choice' as unproblematic, whilst the notion of 'selection', encompassing the possibility that choice is not always a possibility, is preferred by those who favour a more structural approach. As Butler (1968) says:

> "'choice' implies a rational and conscious act of deciding from a range of known alternatives; 'selection', on the other hand, suggests that the individual's destiny is determined at least in part by processes which are beyond his control"
>
> (Butler, 1968:19)

Roberts, an exponent of the 'opportunity structure' thesis, outlined below, goes further than this by using the term "allocation", implying that external forces play a primary role in determining occupational destinations.

2.1.1. Developmental theories of occupational choice

The 'developmental' theory evolved in reaction to the 'matching' theory originating in the writing of Parsons (1909). In this latter approach, occupational choice was seen as a process of matching

individuals of different interests, abilities and personalities with the requirements of available jobs; work situations are chosen because they fulfil the requirements of a person's values, personality and self-concept. Developmental theorists such as Ginzberg and Super saw the 'matching' theory as too static. Although still emphasising the importance of self-concept in the process of occupational choice, they place considerable importance on a long process of developing this self-concept. This process is quantified by Ginzberg (1951) by dividing life into age stages, each of which can be equated with a particular stage in the process of arriving at a point where an occupational choice can be made; from fantasy through realism and finally to specification (Speakman, 1980). Ginzberg sums up this philosophy thus:

> "The key to the study of occupational choice appears to lie in an appraisal of the way in which the individual, as he matures, reaches decisions with respect to his eventual occupation"
>
> (Ginzberg, 1951: 29)

Super's work (1957, updated in 1981) is similarly based on the notion of developmental stages and the growth of the self-concept; however, he places more emphasis on the social factors which inform the individual's interests and abilities. Moreover, he believes that the crystallisation of the self-concept does not occur at the time of first entering work, but during the early stages of a young person's career. Super's work has been influential in the development of vocational guidance in the UK; this point will be developed in Section 4.

2.1.2. The "opportunity structures" approach

More or less directly opposed to this position is the theory of

'opportunity structures'; Roberts (1968, 1973, 1981) argues that developmental theories do not take account of the labour market. Careers, initially and subsequently in a person's life, are developed by the 'opportunity structures' to which that person happens to have been exposed. Experiences in education and in employment structure the individual's and the group's opportunities. 'Climates of expectation', he argues, become associated with particular sorts of schools and play a significant part in shaping children's expectations; aspirations are linked to the streams in which children have been placed at school; this form of selection is in turn linked to the social class background of pupils. 'Opportunity structures' carry over into employment where, Roberts claims, expectations reflect the structures through which people pass in the early stages of employment.

Roberts' views have received much criticism, principally because what he says goes to the heart of the philosophy of careers education as practised in the USA and in the UK. Daws (1981) criticises Roberts for only considering those who wish to enter the labour market at 16 (that is principally working-class school-leavers), for exaggerating the importance of socialisation, and for being selective in his choice of evidence about the relationship between expectations and outcomes. Sociological accounts of the structural determinants of entry into the labour force do not, he says, obviate psychological accounts of the "inner determinants" of occupational choice; the two frameworks can operate independently of one another. Lastly, he accuses Roberts of undermining the tasks and confidence of careers officers and teachers, so that they doubt the feasibility of what they are trying to do. Dex (1985) finds Roberts' views too deterministic; whilst his position may

be based on realism, it nevertheless casts the actors in a passive role which allows for little individual or collective power.

These polarised positions are of course ideal types between which other positions can be located. Blau and others, for example, seek to develop a scheme which incorporates psychological characteristics, economic forces and social factors (Watts, 1981). Garnsey and others (1985) make a similar point:

> "Workers do have personal preferences... but their expectations are modified and further shaped by their experience of working life, and of the alternatives open to them."
>
> (Garnsey, Rubery & Wilkinson, 1985: 27)

A basic difference, then, between the two polarised positions is the degree of importance which each attaches to job expectations. Developmental theorists believe that the formation of career expectations is closely linked with the development of self-concept and is the culmination of a series of developmental stages; they believe that expectations have a direct bearing on occupational outcome. By contrast, 'opportunity structures' theorists discount the importance of expectations. They maintain that both expectations of and entry into the labour market are functions of personal characteristics deriving from socialisation processes and labour market characteristics - local labour market conditions, expansion/contraction of local industry, and the level of national economic growth.

An additional factor may be the differential realisation of occupational expectations by class of origin. An assumption appears in some of the literature (see, for example Speakman, 1980) that those

who are already advantaged in education - in general terms those of middle-class background - will also be advantaged in attaining their ambitions. Following this line of thought, since there is a tendency for the middle-class to aim for and work in professional occupations, it follows that there may be a stronger link between professional expectations and professional outcomes than exists between non-professional expectations and outcomes.

Schematically, three causal models can now be constructed:

1. occupational expectations -> occupational outcomes
   (Ginzberg, Super)

2. 'opportunity structures' -> occupational outcomes
   (Roberts) -> occupational expectations

3. 'opportunity structures'

occupational outcomes

occupational expectations
(Blau, Garnsey)

2.2. Relationship of these opposing positions to the research question

If there is a strong relationship between expectations and outcomes across the range of occupations, then this could be taken as support for the developmental theorists - that it is important that the individual develops a self-concept which shapes career choice and ultimate occupation.

On the other hand, a weak relationship between expectations and oucomes across the range of occupations could be taken as support for the 'opportunity structure' thesis: the jobs which the respondents get

at age 23 depend on a range of personal and labour market characteristics and not on career choice at age 16.

There is a third possibility: that there is a relationship between expectations and outcomes which holds for some occupational groups and not others: the possibility has been raised that the relationship may be strong for those who aim for professional occupations. Additionally, West & Newton's study (discussed below in Section 2.3) of the transition between school and work in two contrasting schools found that those pupils who intended to go into teaching, nursery nursing or engineering tended not to attain their aims (West & Newton, 1983). Although they offer no suggestion about why the expectation/ outcome relationship should be weak in these occupations, the possibility is raised that the relationship may hold for some occupations and not for others.

In summary, three positions can be drawn out from the previous research and from theories of occupational choice: (1) that there is a strong relationship between expectations and outcomes which holds true for all or most occupations; (2) that there is a weak or hardly existent relationship between expectations and outcomes which holds true for all or most occupations; (3) that the relationship between expectations and outcomes varies amongst occupational groups, and that the relationship may be stronger for professional occupations.

In addressing these alternatives, this paper also sets out to investigate the way in which gender and social class affect the strength of the relationship between occupational expectations and outcomes.

The question of what constitutes an 'outcome' is of course pertinent, and this point is discussed in relation to the NCDS data in section 3.2.

2.3. Research into the expectation/outcome relationship

Previous work on the relationship between occupational expectations and outcomes has been limited to small-scale studies which have tended to focus on a particular locality. Using longitudinal data, Carter's study of 200 school leavers in Sheffield found that only about 40% of career expectations had been realised after a year (Carter, 1962). Veness's study, conducted in geographically and socially contrasted locations, found a similarly low level of realised expectations (Veness, 1962). These findings were replicated in Maizels' research in the Willesden area of London, using a retrospective questionnaire, which examined 300 school leavers' occupational expectations and outcomes (Maizels, 1970). West & Newton's research into two schools in separate mining communities in Nottinghamshire explored many aspects of the transition from school to work, including the issue of career expectations and outcomes, and the relationship of these to different philosophies of careers guidance. Their findings indicate that just under 50% achieved their expected occupations (West & Newton, 1983).

2.3.1. Gender differences in the fulfilment of occupational expectations

Both Carter's and Veness's studies found that rather more girls than boys achieved their occupational aims - about one-third of boys and just under half of girls. However, Maizels' work found the opposite,

with about one-third of girls and about 40% of boys stating that jobs wanted and jobs attained were similar. West & Newton found no significant difference between girls and boys in the level of fulfilled expectations. There seems no obvious explanation for these differences in findings relating to gender, although it is likely that local factors relating to the availability of particular gender-bound opportunities are responsible. The small size of many of the samples may cast doubt on the conclusions, or at least on the extent to which they can be generalised. Analyses using large data sets may well give more reliable results about gender differences in occupational choice.

2.3.2. Social class differences in the fulfilment of occupational expectations

Since most of the previous work was small-scale and often limited to one, usually working-class, locality, it is difficult to draw any conclusions about the effect of social class on the expectation/outcome relationship. In West & Newton's study of two schools, social class made no significant difference to the fulfilment of expectations; by contrast, Maizels' work found a closer correspondence between the aims and attainment of sons of manual workers than was the case for the sons of non-manual workers. The social class background of girls was found to be unimportant in this respect (Maizels, 1970).

It is reasonable to assume that gender and social class will pattern, on the one hand, expectations and, on the other, outcomes, as the evidence cited in Section 1.2 demonstrates, and as the analyses using NCDS data confirm (figures 2 & 3). However, it is not clear from the

existing research how or if these variables affect the link between expectations and outcomes; this issue will be addressed in the analyses which follow.

In summary, previous research tends to have been small-scale and related to particular localities; it is inconclusive about the extent of congruence between expectations and outcomes, especially in relation to the effects of gender and social class on that congruence; in particular, there is little information about possible expectation/outcome differences amongst occupational groups. Thus little light is thrown on the theoretical perspectives which underpin occupational choice/selection.

Section 3: Occupational expectations and outcomes; findings from the NCDS

3.1. Classification of occupations

NCDS Sweep 3 uses an occupational categorisation which was constructed in a post hoc way to meet a situation where many of the responses were of a general or one-word nature (communication with NCDS Support Unit). NCDS Sweep 4 occupations were coded according to the condensed KOS categories which of course allow for a great deal more detail than the NCDS Sweep 3 categorisation.

In order to make comparisons between expectations at age 16 and outcomes at age 23, the NCDS Sweep 3 categories were recoded to condensed KOS categories (details in Appendix I). To minimise any inaccuracies in the recoding process, the recoded Sweep 3 KOS categories are only used at their least detailed level, that is Orders 1-17. Because of the grouping together of several occupations at the most detailed level of the NCDS 3 categorisation (see NCDS 3 codebook), there are a few instances, where direct recoding into KOS was not possible; these are indicated along with details of the recoding in Appendix I.

3.2. Occupational measurement

The NCDS uses three measures of occupation; first job (which may be at any age between 16 and 23), current job (at the time of the Sweep 4 survey, at age 23) and a work diary (which respondents were asked to record retrospectively on a monthly basis between Sweeps 3 and 4). However, at the time of preparing this paper, complete data from the

work diaries were not available.

The analyses in this paper are based on the respondents' current job. This measure is used in preference to respondents' first job because there is evidence from a variety of sources that young people tend to change their jobs frequently at the beginning of their working lives (see, for example, Carter, 1975; Manpower Services Commission, 1978; West & Newton, 1983). There are instances, nevertheless, when the first job measure may be more useful. The use of current job as a measure may, for example, exclude some women from the analysis because, by the age of 23, they are temporarily out of the labour force because of child-bearing and child-rearing.

However, whichever of these measures is chosen, its use is not without problems, since the measurement of occupation at one particular time point is not necessarily a good indicator of career trajectory. Ideally an occupational profile needs to be built up, giving information about movement in and out of employment, and between occupational or industrial groups. Working lives are clearly not static; Dex (1985) makes this point particularly in relation to women. Indeed, the measurement of the relationship between expectations at age 16 and outcomes at age 23 is just that; for example, lack of congruence may be established by using two particular time-points, say 18 and 23, while congruence might be established for that individual by measuring expectations and outcomes at, say, age 17 and 22. This is a further argument for using an occupational profile constructed from work diaries, rather than measures which fix on one time-point.

It should also be noted that the NCDS asks specifically about

expectations of respondents' first full-time job.

3.3. Measurement of social class

Class of origin is measured using the Registrar General's classification of occupational classes, dichotomised into I-IIIN, and IIIM-V (referred to in tables and figures by the shorthand MC and WC). The occupational class of respondents' fathers has been used. Ideally, of course, mothers' occupations should also be taken into consideration. However, the classification of women's occupations is not at all straightforward (see for example Dale, Gilbert & Arber, 1985), and it is doubtful whether the Registrar General's classification is appropriate for this task. The variable 'class of origin' is therefore used in this paper in the knowledge of the problems involved, both the crude dichotomy into 'middle-class' and 'working-class' and the exclusion of mothers' occupations in determining the class position of their children.

Finally, it should be noted that father's occupational class was last measured in the NCDS when respondents were aged 16; it was not measured in Sweep 4, when respondents were 23.

3.4. Expectations and outcomes: findings from the NCDS

As an introduction to the primary focus of this paper - the relationship between expectations and outcomes - the following section will cover briefly the gender and social class characteristics of, on the one hand, respondents' occupational expectations and, on the other, their occupational outcomes in each occupational group, as shown by cross-sectional analysis of NCDS Sweep 3 (age 16).

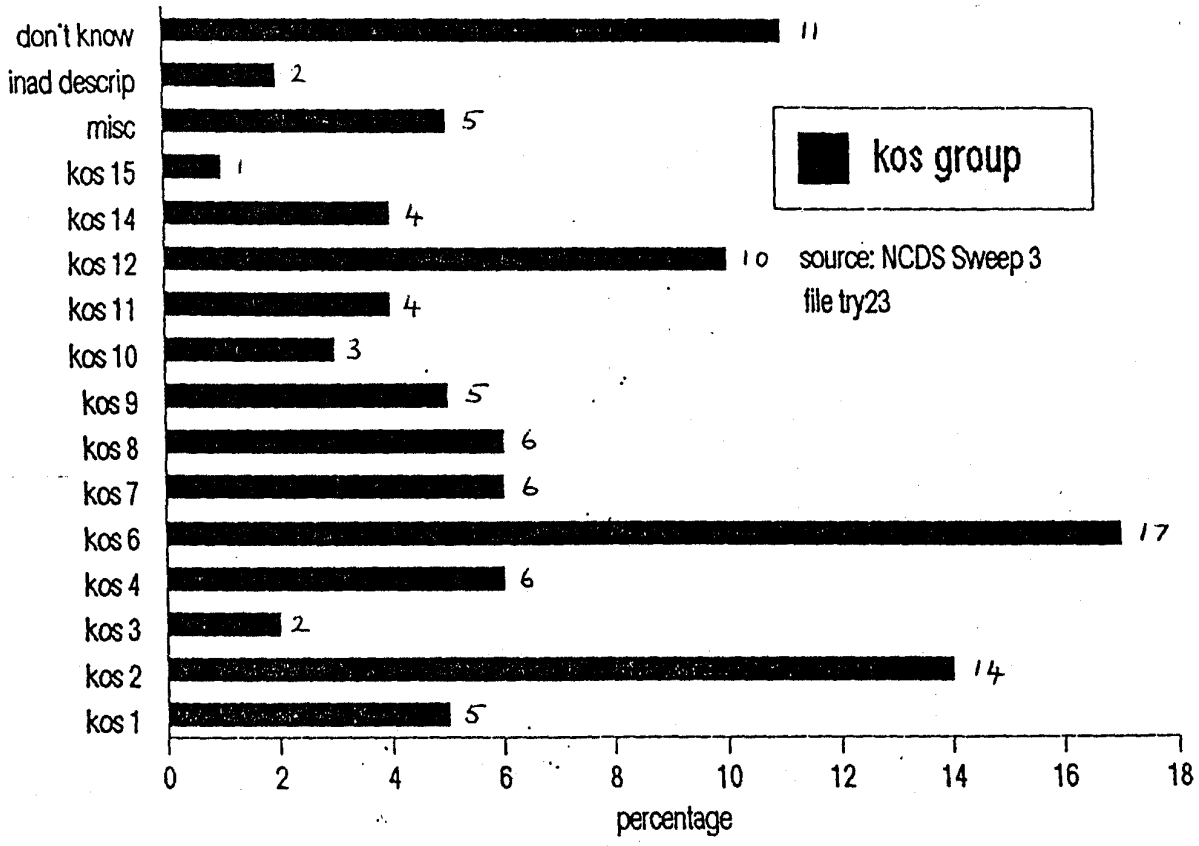
3.4.1. Expectations

An initial overview of the distribution of occupational expectations for the whole group without distinction by sex or by social class is shown in Figure 1. (See Appendix II for the data on which Figures 1-7 are based.) 16-year olds' occupational expectations are principally in KOS 2 (professionals in health, education and welfare), KOS 6 (clerical & related) and KOS 12 (metal & electrical processing & related). The 'don't know' category is also substantial at 11% of the total. KOS 5 (managerial) is absent from the classification of occupations for Sweep 3 (see Appendix I, Note 9).

Figure 2 breaks down this information by sex, showing clear differentiation in most occupational groups. Female segregation in occupational destinations has been noted in a range of sources (see for example Martin & Roberts, 1984; Hakim, 1979); the effect of gender on educational and occupational achievement was discussed in Section 1.2. The NCDS data confirm that 16-year-old girls' expectations are concentrated in KOS 2 (professional & related in education, welfare and health), KOS 6 (clerical), and to a lesser extent in KOS 7 (sales) and KOS 9 (personal services of various kinds), whilst boys' expectations are predominantly in KOS 12 (metal and electrical processing & related), KOS 8 (security services), KOS 4 (professionals in science & technology) and in KOS 14 (construction). A striking point which emerges from this analysis and from other sources is the narrow range of occupations which girls aim for in comparison to the range of occupations which boys see as suitable for themselves; 70% of girls' expectations, compared with 51% of boys', are concentrated in four occupational groups. Moreover, there are three occupational groups where girls' expectations are absent. Amongst those who are

Occupational expectations, KOS groups

age 16, 1974, all



KEY OCCUPATIONS FOR STATISTICAL PURPOSES (KOS)
Order 1 : Professional & administrative supporting management
Order 2 : Professional & rel. in education, health & welfare
Order 3 : Literary, artistic & sports
Order 4 : Professional & rel. in science, engineering & technology
Order 5 : Managerial
Order 6 : Clerical & rel.
Order 7 : Selling
Order 8 : Security and protective services
Order 9 : Catering, cleaning, hairdressing and other personal service
Order 10: Farming, fishing & rel.
Order 11: Materials processing (excl. metal & electrical)
Order 12: Processing, making & repairing (metal & electrical)
Order 13: Painting, assembling, product inspecting, packaging & rel.
Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 1

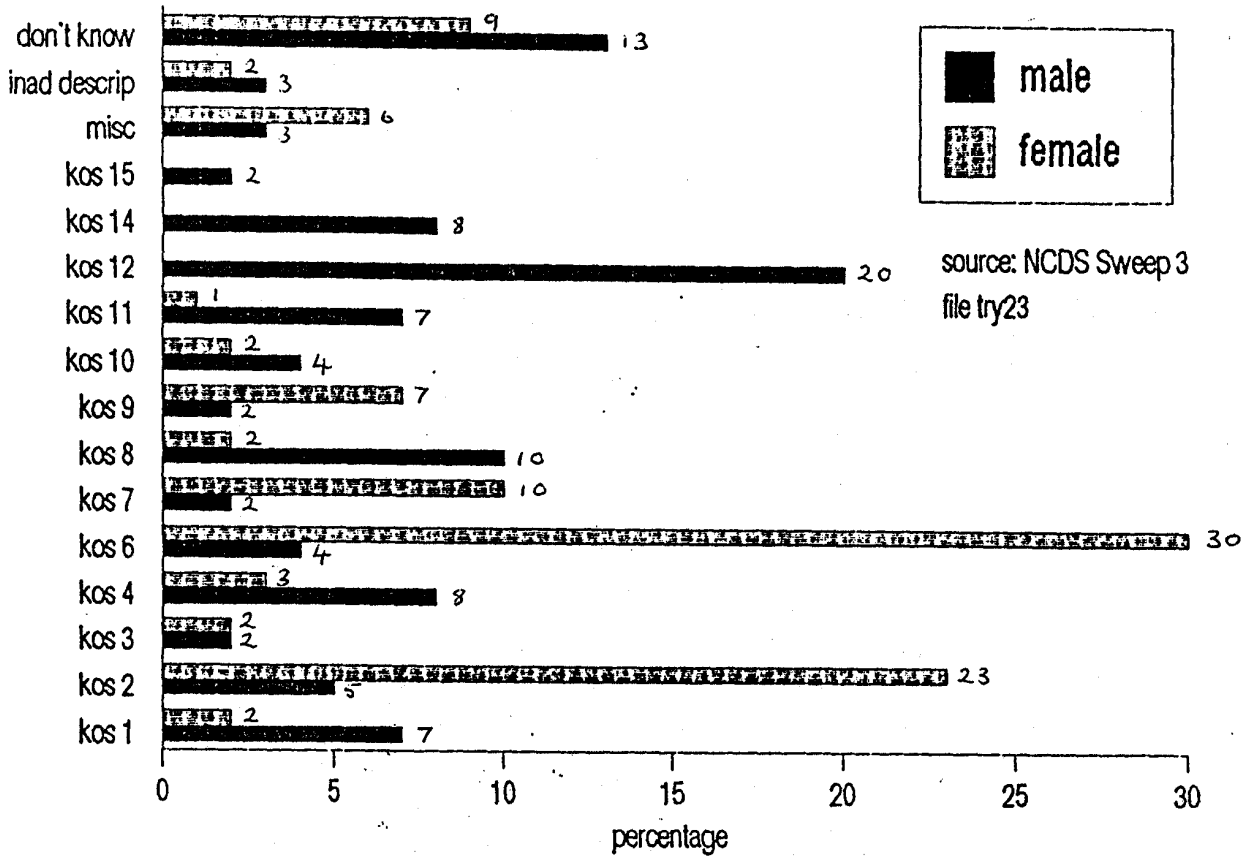
uncertain about their occupational expectations, there is a higher proportion of boys (13% of boys and 9% of girls).

Figure 3 disaggregates 16-year-olds' occupational expectations by class of origin. The effect of social class on educational and occupational achievement was discussed in Section 1.2.; the NCDS data confirm the social class patterning of expectations, although it is less pronounced than the differentiation by gender. In all occupational groups except one (KOS 15, transport operating & related), both middle-class and working-class respondents are represented; moreover, although there is some differentiation by class in most occupational groups, it is only in KOS 2 (professionals & related in education, health & welfare), KOS 12 (metal and electrical processing & related), KOS 14 (construction & related) and KOS 1 (professional & related supporting management) where there is marked differentiation. A greater proportion of middle-class 16-year olds' expectations are concentrated in KOS 1 (professional and related supporting management), KOS 2 (professional and related in education, health and welfare) and KOS 4 (professional & related in science, engineering and technology), whilst there are more working-class respondents' expectations in KOS 14 (construction, mining & related), KOS 12 (metal and electrical processing) and KOS 11 (materials processing). There is a higher proportion of middle-class 16-year olds who do not know what their occupational aims are at this stage; one explanation for this may be that these are pupils who intended to stay on in education and for whom occupational selection was not an urgent matter.

NCDS data thus confirm information from other sources that gender and

Occupational expectations, KOS groups

age 16, 1974, by sex



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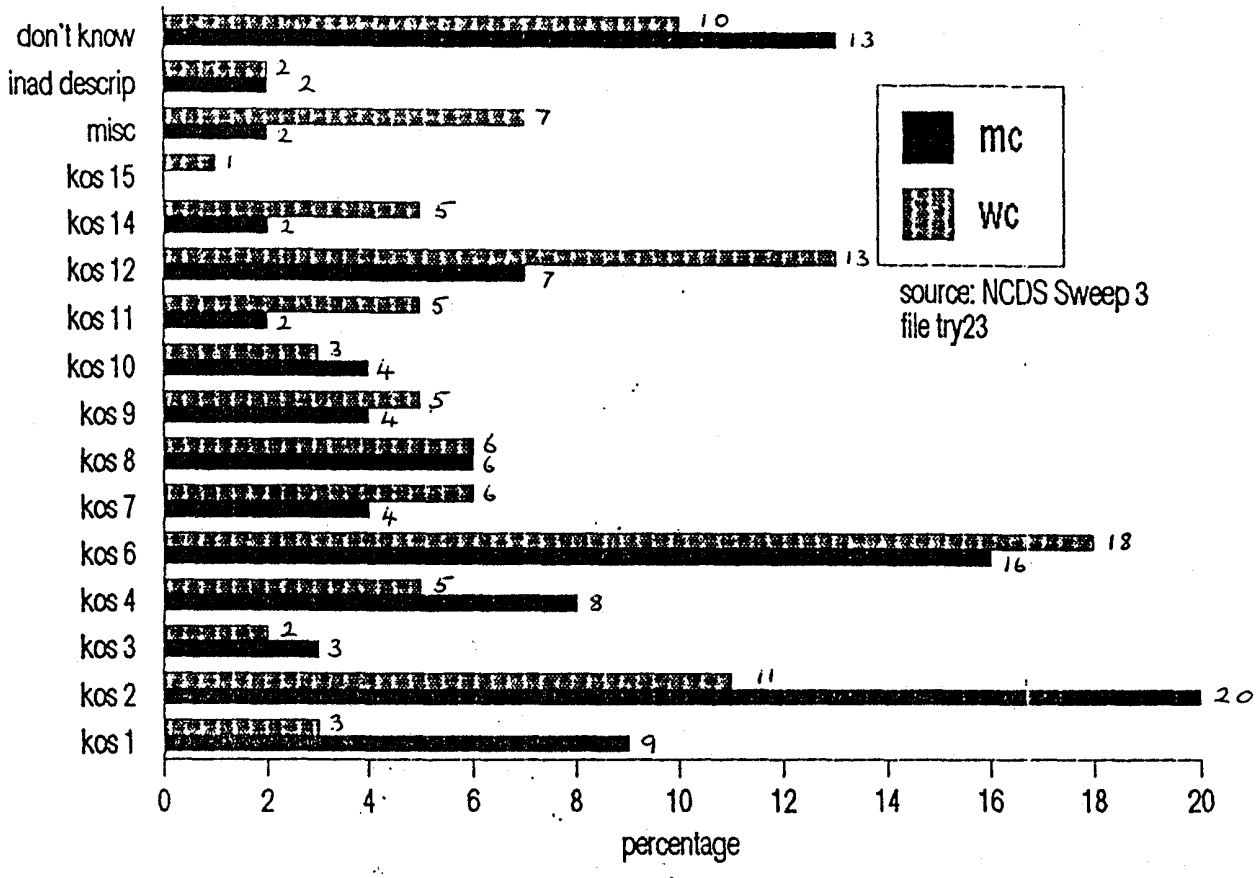
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 2

Occupational expectations, KOS groups

age 16, 1974, by class of origin



KEY OCCUPATIONS FOR STATISTICAL PURPOSES (KOS)
Order 1 : Professional & administrative supporting management
Order 2 : Professional & rel. in education, health & welfare
Order 3 : Literary, artistic & sports
Order 4 : Professional & rel. in science, engineering & technology
Order 5 : Managerial
Order 6 : Clerical & rel.
Order 7 : Selling
Order 8 : Security and protective services
Order 9 : Catering, cleaning, hairdressing and other personal service
Order 10: Farming, fishing & rel.
Order 11: Materials processing (excl. metal & electrical)
Order 12: Processing, making & repairing (metal & electrical)
Order 13: Painting, assembling, product inspecting, packaging & rel.
Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 3

social class pattern occupational expectations. Occupational outcomes will now be briefly examined in the same way.

3.4.2. Occupational outcomes

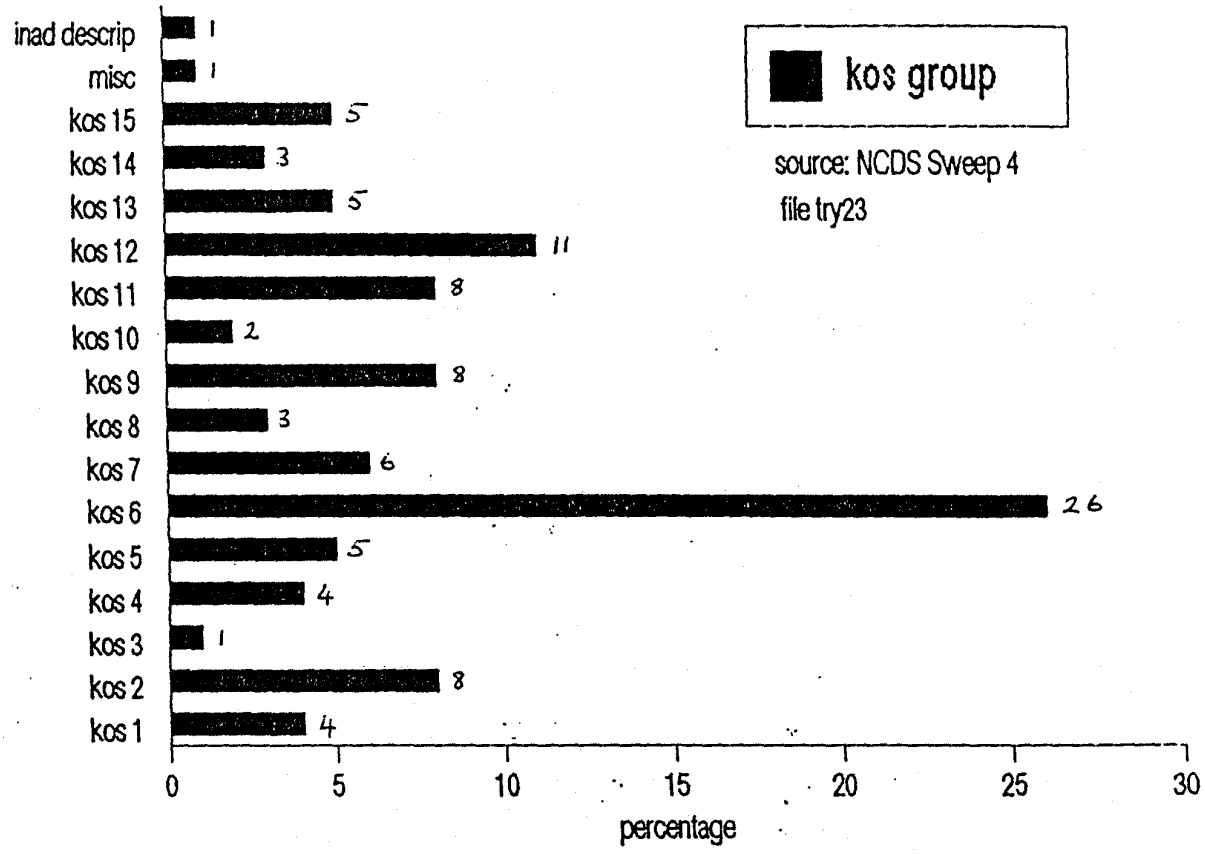
Figure 4 gives the overall distribution of occupational outcomes, without differentiation by sex or by social class. There are many similarities with Figure 1, occupational expectations, except that in Figure 4, the concentration in KOS 2 (professionals in education, health & welfare) is markedly less, whilst KOS 6 (clerical & related) is considerably larger, accounting for 26% of the total, suggesting that this is an occupation which may not be a popular aim, but which is nevertheless a likely outcome.

The proportions shown in the diagram of occupational expectations (Figure 1), are closer to the proportions found in the adult labour market than in those of the youth labour market. The evidence from the NCDS shown in Figure 4 thus confirms the findings of the Labour Force Survey in Table 1, suggesting that young people's expectations may be based on a broad knowledge of the labour market as it applies to older people and that they may be ignorant of the segmented nature of youth labour markets.

Figures 5 (occupational outcomes by sex) and 6 (occupational outcomes by social class) demonstrate that whilst the overall pattern of gender and social class differentiation within occupational groups for outcomes is similar to that for expectations, there are, nevertheless, some interesting differences, partly due to a cohort effect, between the 16-year old and the 23-year old profiles, particularly in relation to gender. For example, in the materials processing group (KOS 11), which includes occupations traditionally seen as masculine, and which tend to be unlikely career choices for 16-year old girls, there has

Occupational outcomes, KOS groups

age 23, 1981, all



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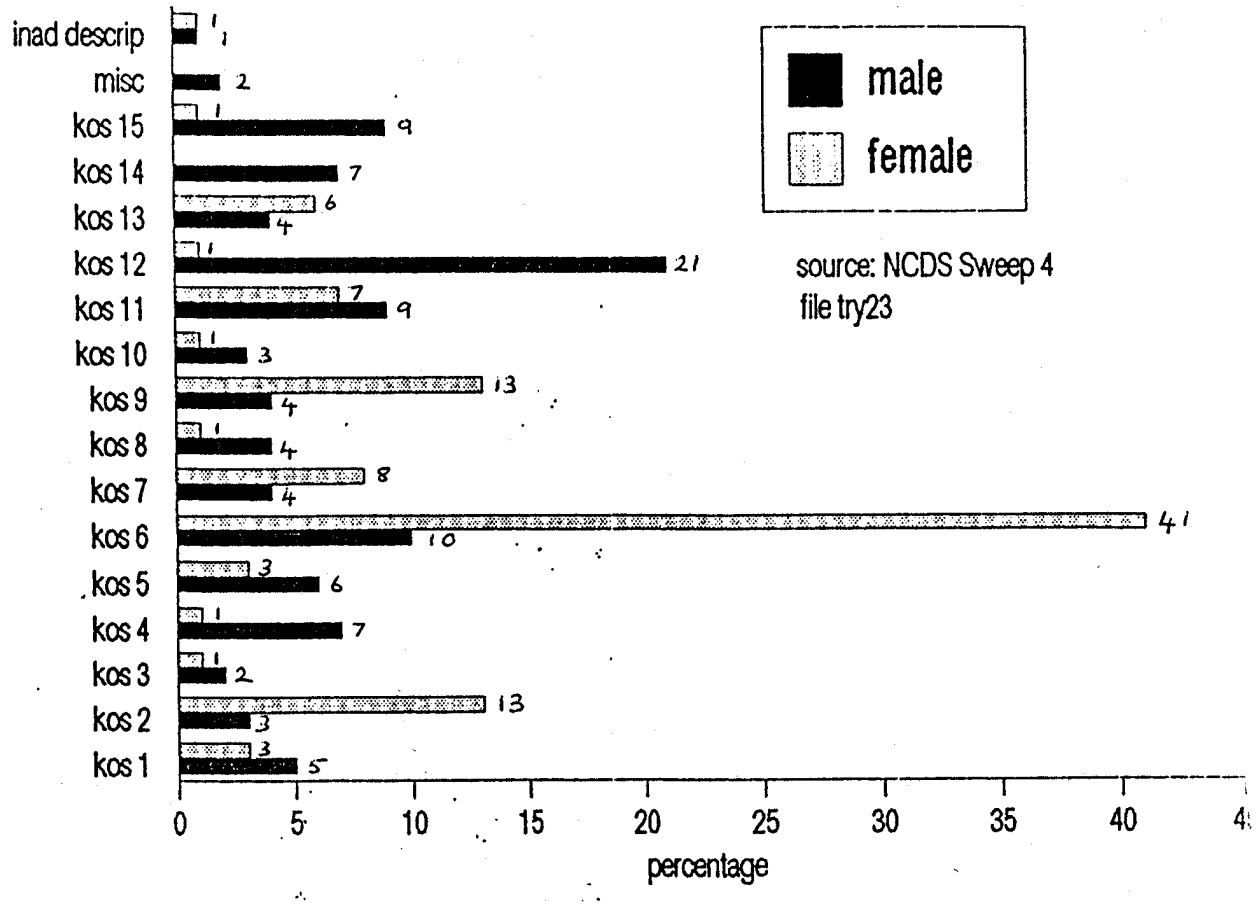
Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 4

Occupational outcomes, KOS groups

age 23, 1981, by sex



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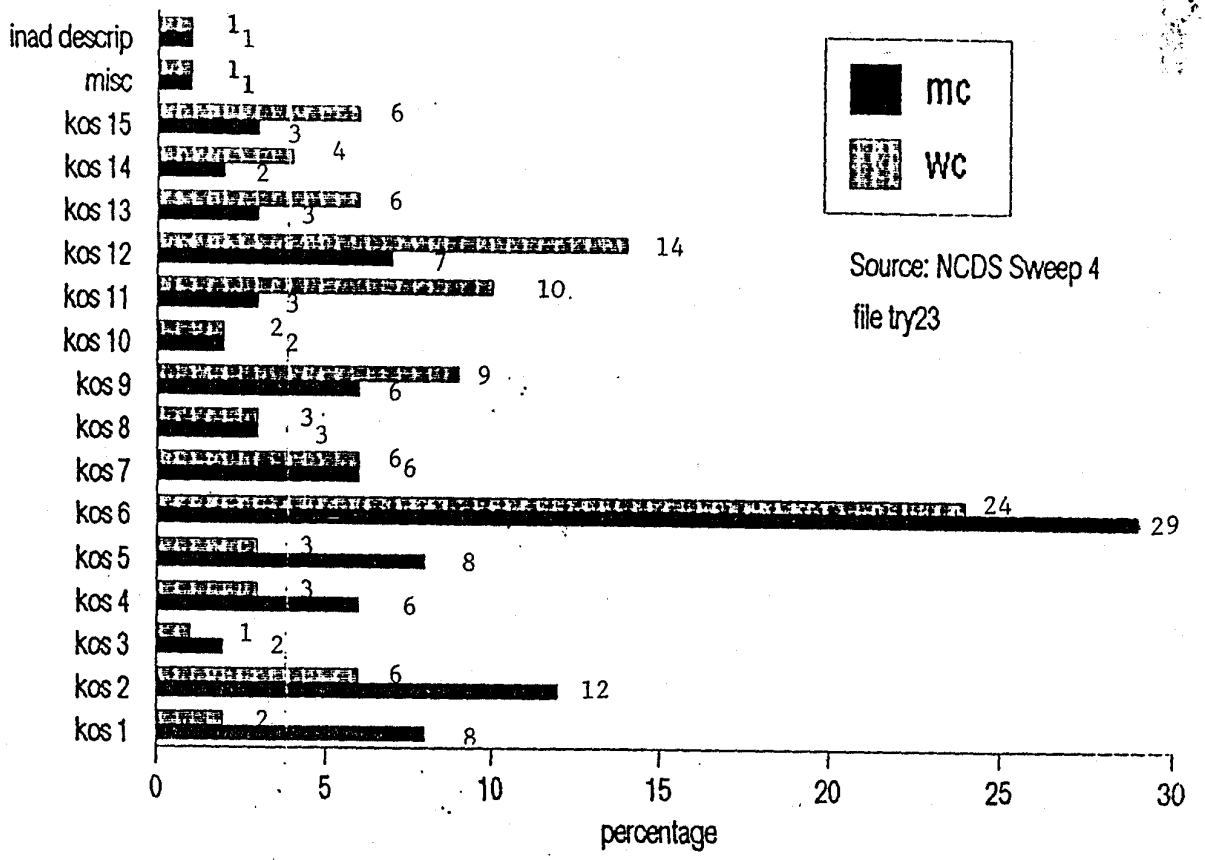
Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 5

Occupational outcomes, KOS groups

age 23, 1981, by class of origin



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Order 11: Materials processing (excl. metal & electrical)
Order 12: Processing, making & repairing (metal & electrical)
Order 13: Painting, assembling, product inspecting, packaging & rel.
Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS

Figure 6

been an increase from 1% of female expectations to 7% female outcomes. It is probably unwise to attribute any significance to the differences in the KOS 15 (transport) group, since in Sweep 3 the numbers in this group were small. In the science & technology group, the movement between Sweep 3 and Sweep 4 is in the opposite direction (3% of female expectations and 1% of female outcomes); this will be discussed in greater detail in Section 5. (2)

Whilst cross-sectional analysis can provide sets of distributions at two time-points, it cannot tell us whether those who expect to enter a particular occupational group are the same people who succeed in entering that group. The next section will use the longitudinal nature of the NCDS to address the issue of the significance of expectations in relation to outcomes.

3.5. Expectations and outcomes: longitudinal analyses

The theoretical positions outlined earlier in Section 2.3 differed from one another in the importance they attached to occupational expectations in occupational choice. This section explores the link between occupational expectations and outcomes in order to establish the proportions in each occupational group of fulfilled expectations in order to help assess the importance of occupational choice. Table 2 gives details of occupational expectations at age 16 by occupational outcomes at age 23, for 13 occupational categories. This information has been disaggregated by sex and by class of origin.

Table 2: Proportions of each occupational group with fulfilled occupational expectations (current occupation)

KOS group	occup-ational structure %	all %	men %	women %	m-c %	w-c %
KOS 1 (prof. in admin/management)	4	21	23	12	24	14
KOS 2 (prof. in education,health & rel)	9	34	25	35	38	30
KOS 3 (lit., arts & sport)	1	16	17	15	(16)	(13)
KOS 4 (prof. in science, engineering & tech)	4	23	28	10	25	21
KOS 6 (clerical & related)	26	66	41	69	68	64
KOS 7 (sales)	6	18	13	19	20	19
KOS 8 (security & protection)	3	20	21	14	23	20
KOS 9 (services)	8	34	29	36	26	39
KOS 10 (farming, fishing	2	25	30	(10)	24	24
KOS 11 (materials processing)	7	38	38	40	45	38
KOS 12 (metal/elec processing)	11	49	50	(7)	48	52
KOS 14 (construction & related)	3	23	23	-	(16)	26
KOS 15 (transport operating)	5	25	32	-	(33)	(24)
all		31	26	35	32	31
		(8615)	(4196)	(4419)	(2381)	(4128)

(NB KOS 5,13 are missing because there were no expectations coded in these groups; KOS 16 (miscellaneous) and KOS 17 (inadequate description) are omitted; for this reason the first column does not sum to 100. Brackets denote cells where base numbers are less than 10, and these have been ignored in the discussion which follows.)

Source: NCDS Sweeps 3 & 4
(file TRY15 and TRY15A)

Examining initially the proportion of fulfilled expectations for all,

without distinction by sex or by social class, Table 2 shows that there is a wide range of values. Whilst, at one extreme, only 16% of those who aimed for occupations in KOS 3 (literary, arts and sport) fulfilled their expectations, at the other extreme, in KOS 6 (clerical & related) 66% achieved their expectations.

Summing over all occupational groups, the mean proportion of fulfilled expectations is 31%. This is at least 10 percentage points below the proportions found in previous research (Carter, 1962; Veness, 1962; Maizels, 1970, West & Newton, 1983). One possible reason for this difference is the 7-year time lapse between Sweeps 3 and 4 of the NCDS; in the previous work cited above, follow-up took place within one or two years. In order to assess the effect of this time lapse, the same analysis was carried out using first job rather than current job. The results are shown in Table 3.

Table 3: Proportions of each occupational group with fulfilled occupational expectations (first occupation)

KOS group	occup-ational structure %	all %	men %	women %	m-c %	w-c %
KOS 1 (prof. in admin/management)	2	15	17	(9)	19	(9)
KOS 2 (prof. in education,health & rel)	6	27	22	28	33	21
KOS 3 (lit., arts & sport)	1	14	15	14	(7)	17
KOS 4 (prof. in science, engineering & tech)	4	22	26	11	25	19
KOS 6 (clerical & related)	29	77	60	79	78	76
KOS 7 (sales)	10	38	30	39	38	41
KOS 8 (security & protection)	2	20	23	(10)	20	22
KOS 9 (services)	8	55	56	55	54	56
KOS 10 (farming, fishing	3	45	49	34	47	41
KOS 11 (materials processing)	9	58	58	58	64	58
KOS 12 (metal/elec processing)	13	63	64	(15)	67	62
KOS 14 (construction & related)	2	24	24	-	26	23
KOS 15 (transport operating)	3	21	26	-	22	20
all		36	32	40	36	37
		(8618)	(4199)	(4419)	(2803)	(4129)

Source: NCDS Sweeps 3 & 4
File: TRY15, TRY15C

(NB KOS 5,13 are missing because there were no expectations coded in these groups; KOS 16 (miscellaneous) and KOS 17 (inadequate description) are omitted; for this reason the first column does not sum to 100. Brackets denote cells where numbers are less than 10, and these have been ignored in the discussion which follows. Proportions shown in the occupational structure column are different from those in Table 2 because first job, which may occur at any age between 16 and 23, is being measured.)

Source: NCDS Sweeps 3 & 4
(file TRY15 and TRY15A)

The measurement of fulfilled expectations on the basis of current job (Table 2) and first job (Table 3) reveals some differences. Table 3 shows that in most groups (KOS 6,7,9,10,11,12), there is a higher proportion of fulfilled expectations than in the analysis which measures current job (Table 2), whilst in two groups (KOS 1 and 2) the proportion is lower, although not markedly so. The mean proportion of fulfilled expectations across all occupational groups is 36% compared to 30% when current job is used as a measure. There may be several reasons for these differences. Firstly, there may be a difference of 6 or 7 years between the measurement of first job and current job; during that time structural changes involving a shift from manufacturing to service sectors may account for the decrease in fulfilled expectations in KOS 11 and 12 (broadly manufacturing groups). Secondly, the higher proportions in KOS 6 (clerical), KOS 7 (sales) and KOS 9 (services) when first job is measured may be because these are occupations which are taken up by younger women who leave the labour force relatively quickly for domestic reasons. Thirdly, frequent job-changing is a feature of some young people's employment patterns (section 3.2).

An important methodological point emerges from the comparison of fulfilled expectations measured by first job and by current job: the time-lapse between the stated expectation and the follow-up seems to make a marked difference to the results in terms of fulfilled expectations. As discussed earlier, previous studies have tended to follow up their respondents relatively quickly; this may well yield higher proportions of fulfilled expectations. Because of frequent job-changing in the initial stages of some young people's occupational

patterns, later measurement of fulfilled expectations seems likely to yield a more accurate picture of realised expectations, which may be more representative of long-term destinations. The difference between the results of early and late measurement as shown in Tables 2 and 3 provide more support for the use of a career profile rather than measurement at fixed time points.

The discussion which follows will be based on Table 2, using current job as a measure.

Earlier, three competing positions emerging from previous research and from theories of occupational choice were outlined. The findings shown in Table 2 do not provide evidence to support either (1) that there is a strong relationship between expectations and outcomes across all occupational groups or (2), that there is no relationship, or a weak relationship, between expectations and outcomes across all occupational groups . Rather, there is considerable evidence to support one aspect of (3), that the relationship between expectations and outcomes varies amongst occupational groups. However, the assumption contained in (3) that the relationship would be strongest amongst professional occupations is not borne out by the analysis; one reason for this may be that some professional training is still in progress at this age. The findings relating to professional occupations are discussed further below (Section 3.5.1.).

The information shown in the column 'occupational structure' demonstrates that occupational sectors vary greatly in size. Irrespective of expectations, occupational structure is of course pre-determined such that, for example, only a small proportion will be

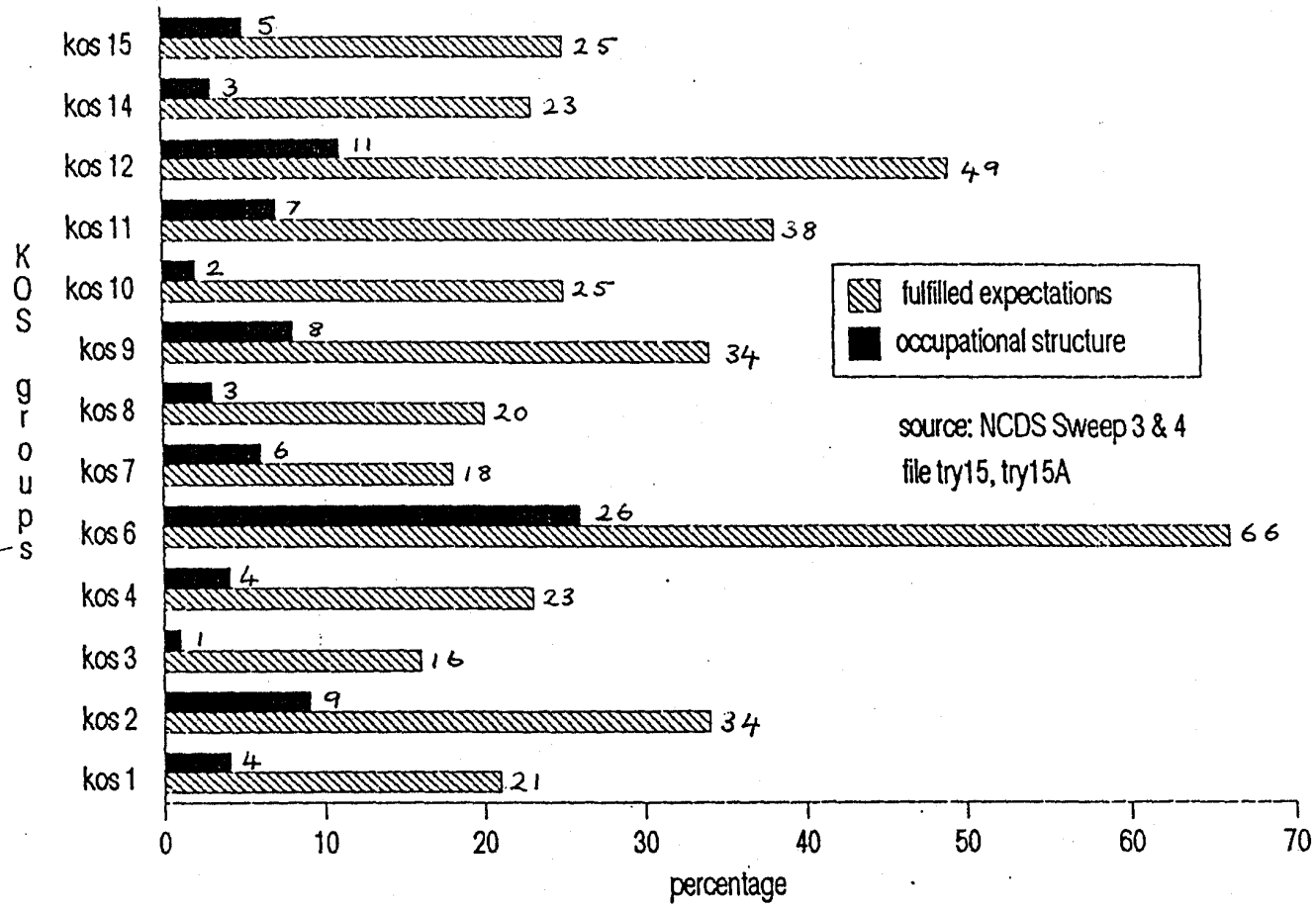
able to enter managerial and professional occupations, whilst a larger proportion will be able to enter semi-skilled and unskilled occupations (Ashton & Field, 1976); this is likely to be one reason for the differences between the proportions of fulfilled expectations in occupational groups. For example, the clerical group (KOS 6) contains many more jobs than the literary, arts and sports group (KOS 2). KOS 6 expectations are therefore more likely to be fulfilled than those in KOS 2, because, all else being equal, the availability of jobs must affect the fulfilment of expectations. Figure 7 demonstrates the relationship between proportions of fulfilled expectations in each group and the relative size of occupational groups, showing that where an occupational group occupies a large portion of the youth labour market, so the proportion of fulfilled expectations is higher. Conversely, a group which represents a small share of the youth labour market also has a low proportion of fulfilled expectations. Thus, availability of particular sorts of jobs is an important factor in the achievement of expectations, suggesting that this factor needs to be taken into account in the model.

3.5.1. Professional occupations

One aspect of hypothesis (3) was that the relationship would be strongest for those who expected to enter professional occupations (roughly KOS 1-4), and who, as the cross-sectional analysis of expectations (Figure 3) showed, are also likely to be middle class. Occupational choice was expected to play a more central role in vocational achievement for middle class than for working class young people (Roberts, 1981; Speakman, 1980).

Fulfilled expectations by occupation

relative to occupational structure



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Order 14: Construction, mining & rel.
Order 15: Transport operating, materials moving and storing & rel.
Order 16: Miscellaneous
Order 17: Inadequately described

Source: Classification of Occupations (1980), OPCS .

Figure 7

Summing over all occupational groups, the mean proportion of fulfilled expectations is very similar for middle-class and working-class respondents (32% and 31% respectively). This seems to refute the expectation that class of origin would affect the fulfilment of expectations, and that occupational choice would have more significance for middle-class young people than for those of working-class origin.

However, this global calculation may mask differences amongst occupational groups. In KOS 1 (professionals in administration/ management) 24% of middle class young people had fulfilled expectations, but only 14% of working class young people. In KOS 2 (professionals in education, health and welfare), the equivalent figures are 38% and 30%. However, despite these differences, the overall picture in the professional groups is of a generally low level of fulfilled expectations, indicating that occupational choice does not play an important role in access to the professional occupations.

In examining the low congruence between expectations and outcomes in professional occupations, however, it is important to take into account the length of time which has elapsed between the stated expectation and the eventual outcome, because of the length of training which is often necessary. Many changes could have occurred during the seven-year period between sweeps. A further reason for the low expectation/outcome congruence in professional occupations may lie in the pyramidal nature of the occupational structure. There are relatively few jobs available in the higher status jobs; those who aim high are relatively unlikely to succeed, whilst those who aim for the more numerous lower status jobs are relatively more likely to have

their expectations met; this further illustrates the point, made earlier, that availability affects the achievement of expectations.

A structural explanation for the weak relationship between expectations and outcomes in professional occupations may be the segmented nature of the youth labour market. Table 1 showed that professional and managerial occupations tend to be held disproportionately by older people. It is thus possible that in Sweep 5 of the NCDS when the cohort is aged 30, the relationship between expectations and outcomes in professional occupations could be much stronger than it is at age 23.

3.5.2. Fulfilled expectations and gender

Columns 3 and 4 of Table 4 show proportions of fulfilled expectations for men and women in each occupational group. There is a higher degree of fulfilment of expectations for men in KOS 1 (professionals in administration/management), KOS 4 (professionals in science, engineering and technology) and KOS 8 (security and protection). There is a greater fulfilment of expectations for women than men in KOS 2 (professionals in education, health and welfare), KOS 6 (clerical) and KOS 9 (services). Men tend to have unfulfilled expectations in occupational groups which are traditionally thought of as more female than male; for example, in KOS 2 (professionals in education, health and welfare), occupations which tend to be conceptualised as female, only 25% of men realised their aims, compared to 35% of women. Similarly women tend to have a lower level of fulfilled expectations in occupational groups which are traditionally seen as more male than female; for example in KOS 4 (professionals in science, engineering and technology), only 10% of

women achieved their aims compared to 28% of men. This suggests that any divergence (however minimal) from traditional sex-typed occupations which may have shown itself at age 16 tends to have decreased by the age of 23. There are undoubtedly many pressures on young men and women to conform to sex-typed occupations; the NCDS findings suggest that if these influences have not taken effect by the age of 16, they are likely to have done so by the age of 23.

Conclusions from previous small-scale research differed in their comparisons of proportions of male and female fulfilled expectations. Findings from the NCDS shown in Table 5 show that there is a higher rate of fulfilled expectations for young women than for young men, with 35% of young women and only 26% of young men achieving their occupational expectations.

3.6. Summary of empirical evidence

Principal points arising from (a) the cross-sectional analyses of expectations and outcomes and (b) the longitudinal analysis of the relationship between expectations and outcomes are listed below.

(a) 1. Occupational expectations show clear patterning by social class, and more especially by sex.

2. There is a substantial group of 16-year olds who have no formulated expectations at the time of interview; there are more boys than girls, and more middle-class than working-class respondents in this group.

3. The general patterns of expectations and outcomes are similar, except that the proportion represented by KOS 6 (clerical) is markedly larger in the distribution of outcomes than in that of expectations.

4. There are some gender differences between the patterns of expectations and of outcomes, but few social class differences.

(b) 1. About 30% of respondents fulfilled their occupational

expectations.

2. The rate of fulfilment of expectations varies considerably amongst occupational groups.

3. The rate of fulfilment in different occupational groups appears to be proportional to the supply of jobs in those groups.

4. Over all occupational groups, social class does not appear to affect the rate of fulfilment of expectations, although there are class differences within occupational groups.

5. There is a generally lower proportion of fulfilled expectations in professional occupations than in non-professional.

6. Fulfilment of expectations varies by sex; unfulfilled expectations tend to be in non gender-typical occupations.

The relationship between expectations and outcomes has implications for careers guidance and for manpower planning. These implications are explored in Section 4.

Section 4: Policy implications for careers guidance and for manpower planning

The relationship between occupational expectations and outcomes is of key importance to two groups of practitioners: firstly those working in careers or vocational guidance, and secondly those concerned with the planning of so-called 'manpower'.

4.1. Careers guidance

As Daws (1981) suggested, different expectation/outcome relationships have different implications for careers or vocational guidance [3]; for example, if hypothesis (1) had been shown to be correct, an approach based on developmental theories of occupational choice would not be useful and might even be counter-productive, since it could ignore the realities facing many young people - levels of unemployment, drudgery of work and so on. On the other hand, had evidence been found to support hypothesis (2), then the developmental approach could be considered more appropriate. However, the observed relationship (Table 2) shows that, although the expectation/outcome relationship is generally weak, it is stronger for some occupational groups than for others, and where the supply of jobs is good, then the proportion of fulfilled expectations is relatively high.

It could be argued, from a manpower planning standpoint emphasising the need to reconcile labour supply and demand, that careers education should take into consideration the structural constraints of the youth labour market. Thus, following this argument, in some occupational groups, where availability of jobs is good, a developmental approach to careers education might be judged to be

appropriate, whilst in others, where the chances of access are poor, an 'opportunity structures' approach might be more suitable. There are clear practical objections to such a hybrid approach, however, as well as the likelihood that it would be seen as elitist (West & Newton, 1983). Moreover, whilst the reconciliation of supply and demand is one aim of manpower planning, it is not that of typical British careers education. The developmental traditions of careers education will be addressed in the following section.

4.1.1. The theoretical bases of careers education

The developmental approach, outlined in Section 2.1., was the basis for careers education in the USA for some considerable time before it took hold in the UK in the late 1960s, thus replacing the use of psychometric tests for vocational guidance (Watts, 1981). A Vocational Guidance Research Unit was set up at Leeds University in the early 1970s with the purpose of spreading the ideas of developmental psychology in careers education and guidance. The National Institute for Careers Education and Counselling was formed in 1975 and, under its aegis, Super, one of the prime supporters in the USA of the developmental approach, spent three years in the UK in order to develop firmer theoretical foundations for careers guidance in this country. Weekly seminars and large-scale conferences, attracting both theoreticians and practitioners, were held to carry out this aim (Watts, 1981).

There is evidence that this approach was firmly espoused from the late 1960s onwards and that it continues to exert a strong influence. For example, the DES document 'Careers Guidance in Schools' (1965) states:

> "young people form their ideas of a career over a long period of time...boys and girls should be led to think of themselves as capable of success in a number of alternative occupations, all equally attractive, all equally within their range"
>
> (DES, 1965:7)

Since this was written at a time when youth unemployment was at a low level, it is reasonable to expect that local and national labour market conditions should not impinge upon choice; rather that choice was contingent upon personal preferences and abilities. Nevertheless, in 1973, although beginning to sound a note of caution by mentioning the need to adapt to conditions in an adult world and drawing attention to regional variation in occupational opportunities for young people, the DES was still stressing personal development, decision-making and the need to make choices based on self-concept (DES, 1973).

Practitioners similarly adhere to the developmental approach. For example, Hayes & Hopson (1972) stress the need for schools to help the process of individual choice:

> "It remains a primary educational obligation that we help young people to make a promising start of the tasks of self-definition and decision-making."
>
> (Hayes & Hopson, 1972:19)

Furthermore, in a recent publication reporting on a Schools Council project to bring together practitioners to define the means and ends of careers guidance, the developmental approach continues to be adopted:

> "careers education is about enabling individual growth and development"
>
> (Fawcett, 1985:75)

What careers education is emphatically not about, this group felt, was the meeting of the needs of a changing economy. Written at a time of high youth unemployment, the group acknowledges a clash between, on the one hand, the philosophy informing careers practice and, on the other, manpower requirements. Thus

> "What much of the rhetoric of careers education and guidance most clearly does not advocate is specific inclusion of service to the economy and its manpower requirements."
>
> (Fawcett, 1985:2)

The clash of interests between vocational guidance and manpower planning is made explicit:

> "Ensuring that ...future manpower requirements are satisfied is not the (careers) counsellor's job. His (sic) responsibility is to his students ...These two roles, the counsellor and the recruiter, are quite distinct and their goals are incompatible."
>
> (Hayes & Hopson, 1972:234)

Furthermore, Fawcett states that some careers education practitioners advocate the obverse of serving the requirements of industry - that careers education, with its developmental philosophy, should force the existing structure of opportunity to change (Fawcett, 1985), although it is unclear from the document what the mechanisms of this process would be. Faced with high youth unemployment, careers education needs to move away from

> "tight notions of jobs with pay to wider issues concerned with the quality and dimension of adult life"
>
> (Fawcett, 1985:76)

There is strong evidence, then, that careers education in the 1980s

continues to espouse the developmental approach, and that few, if any, concessions are made to the changing needs of the economy; indeed careers teachers may approach the issue of unemployment by advocating a broadening of the definition of work to include unpaid (but presumably personally rewarding) work.

By contrast, the aims of manpower planners are fundamentally different from those of careers educationalists, as shown in the following section.

4.2. Manpower Planning

The relationship between expectations and outcomes is important to manpower planners in two principal ways. Firstly, a major function of manpower planners is to identify 'shortage' occupations and to devise means of matching up supply and demand in these areas, for example via interventionist programmes which seek to change young people's minds about the kind of occupation which they wish to have. The findings that for many young people career expectations based on personal preference have limited bearing on eventual outcomes has implications for such programmes: such programmes may indeed change expectations, but will not affect outcomes if the relationship between expectations and outcomes depends on factors other than personal preference. This point will be discussed further with particular reference to science, engineering and technology occupations in Section 5.

Secondly, since manpower planning is primarily concerned with the regulation of imbalances or 'rigidities' in the supply and demand of labour, it does not necessarily concern itself with the issue of fulfilment of occupational choice. Indeed, it could be argued that

manpower planners would rather see a workforce which did not have chosen occupations, since this would be one way of achieving a flexible labour force. The philosophical divergence of, on the one hand, manpower planners, and on the other, vocational advisers, can be illustrated by considering their likely respective attitudes towards young people who have not reached occupational decisions. To manpower planners, a large group of labour force entrants with no fixed occupational expectations, such as the 11% of 16-year olds in NCDS 3 (Figure 1), is unproblematic, and even advantageous. However, to careers guidance practitioners, this group represents failure, since the process of developing a self-image in terms of future work has not brought about a positive result. Thus, in this and in other respects, manpower planning and vocational guidance are fundamentally at variance with one another.

Table 2 showed that KOS 4 (science, engineering and technology, SET) was one of the groups with a weak relationship between expectations and outcomes. Perhaps more than any other occupational group, SET has come to be seen as the key to industrial wealth and progress in this country and elsewhere; in this context, therefore, the issue of occupational choice and the links between expectations and outcomes are of particular importance. Section 5 will consider manpower planning implications with particular reference to science, engineering and technology occupations.

Section 5: Expectations and outcomes; the case of science, engineering & technology

5. Premises of manpower planning

In contrast to the principles embodied in the Robbins Report (1962) whereby educational planning was to be geared to individual demand, Manpower planning is geared to the perceived needs of employers for labour; its appeal lies in seeking to determine the level of educational investment necessary to achieve specific targets of economic growth (Ahamad & Blaug, 1973). Manpower planning seeks to avoid imbalances in supply and demand because, at the level of the individual, they cause unemployment or underemployment (for example professional engineers employed as technicians) and at the level of the economy, growth is restricted by inadequate supply. Thus the rationale for making manpower forecasts is:

> "to ensure that new supplies of manpower become available at the same time that new demands materialize"
>
> (Ahamad & Blaug, 1973: 4)

A basic premise is that if the supply of a shortage occupation is to be changed, manpower planning needs to take place at the level of educational planning, that is at the level of the school.

Manpower planning or forecasting is, however, likely to be inaccurate because of the difficulty of foreseeing all the possible contingencies (Gannicott & Blaug, 1973; Parnes, 1965). Under capitalism, manpower planning in its strict sense can only take place in those sectors which are controlled by the state. For example, the future supply of teachers and doctors could be regulated by a policy decision related to a particular yardstick - a particular pupil/teacher ratio, or the

number of patients on a G.P.'s register. However, most occupations cannot be controlled in this way (and nor, arguably, is it in the interests of capitalism for supply and demand to be subject to this sort of regulation).

How, then, given the lack of a specific yardstick, can manpower planning be applied to SET occupations? A series of reports from the early 1960s onwards (for example from the Zuckerman Committee, 1963; Jackson Report, 1965; Dainton Report, 1968, Swann Report, 1968; cited in Gannicott & Blaug, 1973) have attempted to measure demand by surveying employers' needs. There is general agreement, however, in these reports that employer surveys are a blunt weapon; criticisms from other sources (Gannicott & Blaug, 1973, for example) are based on the problem of asking employers to assess their long-term needs in a political and economic vacuum. Where the criticisms diverge, however, is about whether these inaccuracies matter. As Parnes says:

> "(forecasts) are not so much predictions of what will happen in the manpower field as indicators of what must happen if certain targets for economic growth are to be realized"
>
> (Parnes, 1965:31)

Gannicott & Blaug argue against manpower planning, favouring a reassertion of individual choice backed up by a large increase in vocational guidance which is

> "firmly rooted in actual job opportunities, not in the metaphysical world of (employer) needs"
>
> (Gannicott & Blaug, 1973:259)

By contrast, Finniston (1980) in the most recent government-commissioned report on engineering supply and demand, accepts the

problems of forecasting demand accurately and concentrates on the issue of increasing supply, in the context of the overall aim of stimulating growth, explicitly linking potential growth in the UK economy to the supply of engineers. Thus:

> "The regeneration of UK manufacturing competitiveness must be given overriding priority in developing market-oriented engineering excellence"
>
> (Finniston, 1980:161)

5.1. Supply of scientists, engineers and technologists

Despite the often cited view that there is a shortfall in the supply of SET labour, surveys of employers have shown that there is patchy evidence of an overall shortage. Rather, employers report a shortage in specific areas (electronics, for example) and a shortfall, not of candidates in general, but of quality candidates (Roizen & Jepson, 1985). There is also evidence of underemployment (Finniston, 1980) with employers using professional engineers as technicians. In 1982, about 12% of new engineering graduates were unemployed; this was the highest point for a decade (but also the lowest graduate unemployment rate of all disciplines); since 1982, the unemployment rate of graduate engineers has dropped, and in 1985 only 6% were unemployed (THES, 19.6.87). However, recent evidence confirms predictions (Finniston, 1980; Institute of Manpower Studies, 1982) of an overall shortfall of engineers in the late 1980s (figures from the Engineering Industry Training Board, quoted in the T.H.E.S. of 19.6.87).

In the early 1980s, then, there was an imbalance between supply and demand which showed itself in the unemployment rate of potential SET employees. Nevertheless, there were still calls for an increase in the supply of scientists and technologists because the UK's wealth

creation was seen to lie in the development of technology.

5.2. The SET group in the NCDS

It has already been seen that only 23% of those with SET expectations at age 16 had SET outcomes at age 23. This finding has particular importance for vocational guidance, whose aim, as discussed in Section 4, is to lead pupils towards an occupational choice. From the point of view of manpower planning, however, the issue of unfulfilled choices is not as important as the total supply of SET workers. It is likely that manpower planners would be interested in knowing why people who originally intended to follow careers in SET did not end up doing so, and they would also be interested in knowing the characteristics of people with SET outcomes, but non-SET expectations. Large-scale surveys using questionnaires are clearly not the best instruments to throw light on motivations and individual reasonings, for which small-scale, highly detailed, qualitative studies would be appropriate. However, it is possible to get some idea from the NCDS data of the characteristics of three groups which show different combinations of SET expectations and outcomes:

(1) fulfilled SET expectations, where there is both an SET expectation and an SET outcome,

(2) unfulfilled SET expectations, where there is an SET expectation and a non-SET outcome,

(3) unexpected SET outcomes, where there is a non-SET expectation and an SET outcome.

Table 4 gives details of the three groups by sex (percent female) and by class of origin (percent working-class).

Table 4: SET expectation/outcome groups by sex and by class of origin, row percentages

	female	wc
	%	%
fulfilled SET expectations	10 (12)	48 (45)
unfulfilled SET expectations	29 (109)	53 (167)
unexpected SET outcomes	21 (51)	43 (80)
all	50	64

Source: NCDS Sweeps 3 & 4
File: TRY21

The low proportion of women who expect to enter SET occupations, and the even lower proportion who enter these occupations, has already been noted from the cross-sectional analyses. Similarly, young people of working-class origin were underpresented by comparison with their middle-class counterparts (Section 3). Using longitudinal analysis, Table 4 shows that only 10% of women fulfil their SET expectations, whilst women represent 29% of the group who have unfulfilled SET expectations; a similar pattern is shown for working-class young people, although the class influence is not as strong as that of gender. Thus, women, in particular, tend to fail to follow through their occupational aims in SET.

What are the implications of these findings for manpower planners who wish to boost the supply of SET workers? Finniston (1980) states that women, who represent a large pool of untapped SET talent, need

encouragement to take up SET occupations; there is an implicit belief in this statement that occupational choice affects occupational outcome. Yet the NCDS data shows that, especially for women, occupational choice may be unimportant in terms of eventual outcome. Thus if encouragement to take up SET occupations is seen as the best way forward by manpower planners, the timing of this encouragement may well be significant. Following Finniston's recommendations, there have been recent efforts, some of which are supported by the Engineering Industry Training Board, to encourage girls to consider SET training and occupations (for example Women into Science & Engineering (WISE), Insight courses, Girls into Science & Technology (GIST)). These initiatives have been aimed both at girls who are at the stage of choosing degree courses and those who are at the stage of choosing options at school; GIST has also tried to change institutional practices, for example teacher practices, which may turn girls away from science and technology at school. Such efforts may therefore have a direct effect on expectations only. There has been a recent increase in the proportion of women **starting** engineering courses; in universities the proportion has increased from 8.7% (806) in 1982/3 to 11.3% (1337) in 1986/7 (Engineering Council, 1987). This growth has been attributed by the Engineering Council to the effect of the W.I.S.E. intervention project. It is too early to see whether the increase at the Higher Education level translates itself into an increase in the number of women in SET occupations, but judging from the NCDS findings, there may be good reason to be pessimistic about this.

The findings from the NCDS indicate, therefore, that outcomes, rather than expectations, may be the major problem. The mere fact of

bringing about a change in expectations, as the intervention programmes attempt to do, may not change the SET labour supply; a more detailed picture of the processes which bring about, or do not bring about, SET outcomes may be necessary. There are doubtless many factors which serve to discourage women with initially positive attitudes to SET; important among these may be attitudes of employers. The encouragement of recruitment policies which take into consideration the common wish of many women to combine family and work responsibilities might be a useful approach for manpower planning to pursue. Other processes which might interfere with SET outcomes include role prescription, fear of success and sexual harassment (Breakwell,1985). Longitudinal analysis using two time-points cannot of course uncover these processes; nevertheless the use of the information in the NCDS work diaries, when they are available for secondary analysis, should allow for a more detailed analysis of cause and effect by examining, in effect, change on both sides of the equation.

The present findings cast some doubt on the basic premise of manpower planning - that intervention, to be effective, needs to take place at the level of the school. It may be, perhaps particularly in the case of women, that a more appropriate approach is one which is informed by a knowledge of women's typical employment trajectories, and which also intervenes at the level of employer practices. Thus it may be more effective for intervention schemes to focus on outcomes rather than expectations, and on the processes which cause women, particularly, to drop their original intentions.

Section 6: Occupational choice: conclusions and policy issues

Initially, three opposing positions were identified from the literature on occupational choice and from previous research. Firstly, occupational choice was judged to be unimportant and expectations were seen as a poor predictor of outcomes; secondly, occupational choice was presumed to play an important part in determining occupational destinations; thirdly, the importance of occupational choice was hypothesised to vary between occupational groups, being more significant for professional than for non-professional occupations.

Findings from the analyses of the NCDS do not unequivocally support any of these three hypotheses. The results showed that the role of occupational choice at age 16 varied markedly in importance between occupational groups. In occupational groups which occupied a proportionately larger share of the labour market, the relationship between expectation and outcome tended to be strong; the converse of this was also true. To an extent, then, the findings support the third hypothesis. However, the third hypothesis included the supposition that the expectation/outcome relationship would be stronger in professional groups, and this was not found to be the case.

These findings imply that theories of occupational choice need to be refined since it appears to be more meaningful to examine the role of occupational expectations for different occupational groups than to concentrate on a global figure of occupational fulfilment, as previous studies have tended to do (possibly because the sample numbers were too small for any degree of disaggregation).

The findings also have implications for policy, primarily in relation to vocational guidance. The notion of choice plays a central role in vocational guidance practice, where the philosophy of developmental psychology stresses the need to bring the individual child to a decision about her/his chosen occupation. Since the findings demonstrate that occupational choice does not play a consistent role across all occupational groups, but rather varies according to the supply of jobs, it could be argued that, in order to be effective, careers teachers should base their advice on a closer knowledge of youth labour markets, and that, in order to avoid frustration on the part of young people, they should encourage realism rather than the development of the self-concept. This, of course, is a fatalistic and pessimistic view of the function of careers advice, and, as the discussion in Section 4.1.1 showed, not one which is likely to be undertaken by careers teachers, primarily because they see little relationship between their work and the 'needs' of the labour market, but also because such an approach could be divisive and elitist. Nevertheless, there is a dilemma here which merits some consideration from the vocational advice profession. A weak relationship between occupational expectations and outcomes may lead to frustration at an individual level and at the level of the workforce. Yet vocational advice which merely slotted individuals into vacancies in the labour force regardless of their personal preferences would be likely to be unacceptable. A more acceptable political solution (although of course a rather cynical one) would be continued support of the notion of choice through the careers service, accompanied by promotion of measures gearing education more particularly to the needs of industry; indeed schemes such as CPVE and TVEI are currently receiving generous

government funding.

The issue of occupational choice is not central to policies of manpower planning, and indeed it is probably not in the interest of the economy to have a workforce with set ideas of occupational destinations, especially at a time when there is a strong belief that the economy requires a flexible labour force; occupational uncertainty leads to flexibility. Yet, the individual who has not reached a decision about her/his future constitutes a "failure" for the careers service. Manpower planning and vocational guidance thus pursue quite different ends. Manpower planning is concerned with boosting the supply of certain shortage subjects; the case of science, engineering and technology was discussed in this respect. Policy implications for manpower planners are that a potential pool of talent, women, is being wasted since not only are few considering SET occupations, but even fewer are achieving SET outcomes. The findings suggest that if intervention policies are to be effective in increasing the supply of women in SET occupations, then they may need to pay more attention to the outcomes of SET expectations, rather than to the creation of SET expectations alone. Manpower planners need to know more about the processes which may be at work during the period delimited at one end by a positive approach to SET, and at the other by a negative SET outcome.

Previous research into occupational choice is not conclusive about the role of social class and gender in the relationship between expectations and outcomes. This paper addressed the question of whether boys or girls, and those of middle-class or working-class background, were more likely to achieve their occupational

expectations. The analyses showed little overall difference in relation to social class, although there were differences within some occupational groups, particularly professional. Girls were found to be more likely than boys to achieve their expectations both over all occupational groups and within some groups. One explanation for this difference may be the sort of occupations which girls tend to expect to achieve. Cross-sectional analyses of the NCDS data showed that girls tended to aim for a narrow range of generally low-status and low-paid occupations which were also in good supply. Under these conditions, it is likely that girls' expectations will be fulfilled.

Further research could examine the effect of a range of factors which might influence the expectation/outcome relationship. The importance of locality was discussed at the beginning of this paper; other factors might include the effect of parental expectations, of different types of school and of different approaches to careers education. This paper has merely indicated the contribution which secondary analysis of large scale quantitative data can make to theory and policy implications relating to the issue of occupational choice.

Footnotes

(1) Only gender and class variables are used in the analyses, since respondents from racial minorities are under-represented in Sweep 4 of NCDS, thus affecting the validity of findings relating to race (Fogelman, 1985). Locality has not been used as a variable in the analyses, because there is no information in the NCDS about regional levels of unemployment, and nor are there details of particular kinds of regional industry; an analysis using regional factors would require the mapping into the data set of various kinds of supplementary information, and this was not within the scope of the paper.

(2) The analysis of expectations did not include the occupational group KOS 5 (managerial) for reasons set out in Appendix II, note 9. This group does figure in the analysis of outcomes, however, and is shown to be segregated by sex, containing twice as many young men as young women, and by class of origin, containing more than twice as many middle-class as working-class respondents.

(3) There are minor differences between the terms 'careers advice' and 'vocational guidance'; however the terms have been used interchangeably in this paper.

BIBLIOGRAPHY

Ahamad, B & Blaug M (1973) The practice of manpower forecasting, Amsterdam, Elsevier

Allison, P (1984) Event History Analysis, Beverly Hills & London, Sage Publications

Ashton, D, Maguire, M & Garland, V (1982) Youth in the Labour Market, Department of Employment Research Paper No. 34

Ashton, D & Field, D (1976) Young Workers, London, Hutchinson

Blau, P, Gustad, J, Jessar, R, Parnes, H & Wilcock, R (1956) 'Occupational choice - a conceptual framework', Industrial and Labour Review, Vol. 9, No. 4, pp 531-543

Breakwell, G (1985) The Quiet Rebel, London, Century

Butler, J (1968) Occupational choice, Science Policy Studies No. 2, London, HMSO

Carter, M (1962) Home, school and work, Oxford, Pergamon

Carter, M (1975) 'Teenage workers: a second chance at 18' in Brannen, P (ed) Entering the world of work: some sociological perspectives, London, HMSO

Casson, M (1979) Youth unemployment, Basingstoke, MacMillan

Cockburn, C (1987) Two track training: sex inequalities and the Youth Training Scheme, London & Basingstoke, Macmillan

Dale, A, Gilbert, G.N.,Arber, S (1985) 'Integrating women into class theory', Sociology,Vol. 19, No. 5

Dale, A & Glover, J (1987)A comparative analysis of women's employment patterns in the UK, France and the USA, unpublished report submitted to the Department of Employment

Davie, R and others (1972) From Birth to Seven, London, Longman.

Daws, P (1981) 'The socialisation/opportunity structure theory of the occupational location of school leavers: a critical appraisal' in Watts A & others (eds) Career development in Britain, Cambridge, CRAC

Department of Education and Science (DES) (1965) Careers guidance in schools, Education Pamphlet No. 48, London, HMSO

Department of Education and Science (DES) (1973) Careers education in secondary schools, Education Survey 18, London, HMSO

Department of Education and Science (DES) Statistics of Education 1978, Vol 3, London, HMSO

Dex, S (1985) The sexual division of work, Brighton, Harvester

Douglas, J W B and others (1968) All Our Future, London, Panther

Employment Gazette, March 1982

Employment Gazette, December 1986

Engineering Council (1987) Science and engineering degree courses: Women entrants 1982/3 to 1986/7, London.

Fawcett, B (1985) What trace of careers education?: Schools Council Training for and Approaches to Careers Education Project, York, Longman

Finniston Report (1980) Engineering our future, London, HMSO

Fogelman, K (1983) 'A study of the response rates of 16-year olds in the NCDS' in Fogelman, K (ed) Growing up in Great Britain, London & Basingstoke, Macmillan

Fogelman, K (1985) After school; the education and training experiences of the 1958 cohort, London, Further Education Unit

Gannicott, K & Blaug, M (1973) 'Scientists and engineers in Britain', in Ahamad B & Blaug, M (eds) The practice of manpower forecasting, Amsterdam, Elsevier

Garnsey, E, Rubery, J & Wilkinson F (1985) 'Labour market structure and workforce divisions' in Labour:processes and control, DE325, Block 3, Units 8-12, Milton Keynes, Open University Press

Ginzberg, E, Ginsberg, S W, Axelrad S & Herm, J (1951) Occupational choice: an approach to a general theory, New York, Columbia University Press

Goldstein, H (1979) The design and analysis of longitudinal studies, London, Academic Press

Goldthorpe, J H (1980) Social Mobility and Class Structure in Modern Britain, Oxford, Clarendon Press

Hakim, C (1979) Occupational segregation, DE Research Paper no 9, London, Department of Employment

Halsey, A H and others (1980) Origins and Destinations, Oxford, Clarendon Press

Hayes J & Hopson B (1972) Careers guidance: the role of the school in vocational development, London, Heinemann

Inner London Education Authority (ILEA) (1981a) School Examination Results in the ILEA 1979 and 1980, London, ILEA

Inner London Education Authority (ILEA) (1981b) ILEA Literacy Study, London, ILEA

Institute of Manpower Studies (1982) Graduate Supply: Projections to 1984, Information Brief No 5, London, IMS

Jones, G (1986) Youth in the social structure: transitions to adulthood and their stratification by class and gender, PhD thesis, University of Surrey

Labour Force Survey (1981), London, HMSO

Maizels, J (1970) Adolescent needs and the transition from school to work, London, Athlone

Manpower Services Commission (1977) Young People and Work, London, HMSO

Manpower Services Commission (1978) Young People at Work, London, HMSO

Manpower Services Commission (February 1987) Labour Market Quarterly Report, pp 8-9

Martin, J & Roberts, C (1984) Women and employment: a lifetime perspective, Report of the 1980 Women & Employment Survey, London, HMSO

Massey, D (1984) Spatial Divisions of Labour: Social Structures and the Geography of Labour, London, Macmillan

Office of Population Censuses and Surveys (1980) Classification of Occupations, London, HMS

Office of Population Censuses and Surveys (1980) Population Estimates, England & Wales, 1980, London, HMSO

Office of Population Censuses and Surveys (1985) Population and Vital Statistics, England & Wales, London, HMSO

Parnes, H (1965) 'Scope and methods of human resources and educational planning' in OECD, Manpower forecasting in educational planning, Paris, Directorate for Scientific Affairs

Parsons, F (1909) Choosing a vocation, Boston, Houghton Mifflin

Plewis, I (1983) Analysing change: measurement and explanation using longitudinal data, Chichester, Wiley
Robbins Report (1962) Higher Education, London, HMSO

Roberts, K (1968) 'The entry into employment: an approach towards a general theory', The Sociological Review,16, pp 165-84

Roberts, K (1973) 'An alternative theory of occupational choice' in Education and Training, 15, pp 310-11

Roberts, K 'The sociology of work entry and occupational choice' in Watts, A, Super, D & Kidd, J (1981) Career Development in Britain, Cambridge, CRAC

Roberts, K, Dench, S & Richardson, D (1986) 'Youth Labour Markets in the 1980s', Employment Gazette, July, pp 241-246

Roizen, J & Jepson, M (1985) Degrees for jobs: employer expectations of Higher Education, Guildford, SRHE & NFER-Nelson

Shepherd, P (1985) The National Child Development Study: An introduction to the background to the study and the methods of data collection, NCDS User Support Group Working Paper no. 1

Speakman, M (1980) 'Occupational choice and placement' in Esland, G & Salaman, G (1980) The politics of work and occupations, Milton Keynes, Open University Press

Super, D E (1981) 'Approaches to occupational choice and career development' in Watts, A & others (eds) (1981) Career development in Britain, Cambridge, CRAC

Super, D E (1957) The psychology of careers, New York, Harper & Row

Townsend, H & Brittan, E (1974) Organisation in Multi-racial Schools, Slough, NFER

Unemployment Unit Bulletin, February 1987

Veness, T (1962) School leavers - their aspirations and expectations, London, Methuen

Watts, A, Super, D & Kidd, J (eds) (1981) Career Development in Britain, Cambridge, CRAC

Weitzman, L and others (1976) 'Sex-role socialization in picture books for preschool children' in Children's Rights Workshop Sexism in Children's Books, London, Writers and Readers

West M & Newton P (1983) The transition from school to work, London, Croom Helm

Appendix I

Re-coding of NCDS Sweep 3 occupational categorisation into Condensed KOS Major Orders (OPCS, 1980)

NCDS Sweep 3	KOS Major Order
00	10
01	10
02	10
03	10
04	10
05	10
10	3
11	3
12	3
13	3
14	3
15	3
16	3
17	3
18	3
19	3
20	2
2X	2
21	2
22	1
23	2
24	4
25	4
26	2
27	1
28	4
29	2
30	9
31	8
32	8
33	15
34	15
35	7
36	9
37	9
38	7
39	9
40	6
41	6
42	6
43	6
44	6
50	16
51	14
52	12
53	11
54	11
55	11
56	16

NCDS Sweep 3	KOS Major Order
57	15
58	16
59	14
60	8
61	8
70	11
71	11
72	12
73	11
74	11
75	11
76	11
80	17
91	17
92	17
93	17
95	17
96	17
97	17
98	17

Notes on re-coding

Because the NCDS occupational categorisation is much less detailed than KOS (at its more detailed level which informs the Major Orders), there are several instances, noted below, where occupations have been grouped together under one heading at the NCDS 2-digit, most detailed, level; when one or more of these occupations is categorised differently under KOS, it is not possible, without recourse to the actual questionnaire responses, to separate out this occupation from the others in its group. When this occurs, I have re-coded on the basis of the KOS categorisation of the majority of occupations within that group. In most cases, this unavoidable inaccuracy does not affect the analyses since the numbers involved are generally small.

1.NCDS3 classifies economists and statisticians in the SET occupational group, whilst KOS classifies them in Order 1 (professional & related supporting managerial functions). The re-coding groups them in Order 4 along with other SET occupations.

2.The NCDS3 classification subsumes all grades of farm workers in one group, whilst KOS differentiates between farm managers/owners and farm workers. The re-coding places all in KOS Order 10.

3. The NCDS3 classification groups computer programmers with various kinds of SET technicians, whilst KOS places them in KOS 1. The re-coding places them in KOS 4 with other SET occupations.

4. The NCDS3 classification groups postmen with occupations which KOS regards as transport, materials and related; because of the impossibility of separating postmen (whom KOS regard as clerical & related), they have been re-coded into KOS 15 (transport, materials and related).

5. NCDS3 classifies window dressers as service workers, whilst KOS groups them in the literary & artistic category. The re-coding keeps them in the service workers group (KOS 9).

6. Re-coded KOS 14 contains a number of occupations which could not be coded into the appropriate KOS groups; they are painters & decorators (KOS 13), plumbers (KOS 12), carpet fitters (KOS 11) and sign writers (KOS 14). These occupations have had to be coded into KOS 14 because of the KOS 14 coding of other occupations in the NCDS group. Because of these inaccuracies, care should be taken in drawing conclusions about re-coded KOS 14 in particular.

7. NCDS3 does not differentiate between Armed Forces officers and other ranks, whilst KOS does so. All Armed Forced have been re-coded into KOS 8.

8. NCDS has a general category for 'manual work - industrial'; since there were no more details than this, this group has been re-coded into KOS 16 (miscellaneous manual).

9. It is always difficult to categorise managerial occupations, since there is the difficulty of deciding whether the emphasis of the job is more specifically managerial than technical; in order to decide this with any degree of accuracy, access to the questionnaire responses is necessary. KOS differentiates between those with a primarily managerial or supervisory position in a particular field and those who may have a supervisory role but who have more to do with the technical aspects of the job. The NCDS Sweep 3 coding did not make this distinction, and so it was not possible to re-code into KOS 5 (managerial). Consequently, KOS 5 is missing from the classification of occupational expectations.

Appendix II

Data for Figures 1 & 2, Occupational expectations, all and by sex

	FEMALE	MALE	ALL
KOS 1	2.4	7.2	4.8
KOS 2	22.9	4.6	13.7
KOS 3	2.4	2.0	2.2
KOS 4	2.7	8.2	5.5
KOS 6	30.4	3.7	17.0
KOS 7	9.5	2.3	5.9
KOS 8	2.1	10.0	6.1
KOS 9	7.0	2.1	4.5
KOS 10	1.7	4.4	3.0
KOS 11	1.1	6.6	3.9
KOS 12	0.2	20.2	10.3
KOS 14	-	7.9	4.0
KOS 15	0.4	1.5	0.9
KOS 16	6.1	3.4	4.8
KOS 17	1.9	2.5	2.2
DON'T KNOW	9.2	13.3	11.3
	100.0	100.0	100.0
	(5478)	(5538)	(11016)

SOURCE: NCDS SWEEP 3, FILE TRY23

Data for Figure 3, occupational expectations by father's occupational class (RG I-IIIN & IIIM-V)

	mc	wc
KOS 1	9.0	2.6
KOS 2	19.9	10.7
KOS 3	2.8	1.6
KOS 4	8.0	4.8
KOS 6	15.8	17.7
KOS 7	3.6	6.4
KOS 8	6.1	5.8
KOS 9	3.5	5.0
KOS 10	3.6	2.6
KOS 11	2.2	4.7
KOS 12	6.6	13.0
KOS 14	1.8	5.1
KOS 15	0.3	1.2
KOS 16	1.7	6.5
KOS 17	2.2	2.3
DON'T KNOW	12.9	10.1
	100.0	100.0
	(2906)	(5096)

SOURCE: NCDS SWEEP 3, FILE TRY23

Data for Figures 4 & 5, Occupational outcomes for all and by sex

	FEMALE	MALE	ALL
KOS 1	2.7	4.9	3.8
KOS 2	13.3	3.1	8.2
KOS 3	1.1	1.6	1.4
KOS 4	1.3	6.6	3.9
KOS 5	3.1	6.3	4.7
KOS 6	41.0	10.0	25.5
KOS 7	7.7	4.4	6.0
KOS 8	0.8	4.3	2.5
KOS 9	13.0	3.7	8.4
KOS 10	0.7	3.1	1.9
KOS 11	7.0	8.6	7.8
KOS 12	1.3	20.6	10.9
KOS 13	5.5	4.1	4.8
KOS 14	-	6.8	3.4
KOS 15	0.8	9.0	4.9
KOS 16	0.1	2.1	1.1
KOS 17	0.6	0.8	0.7
	100.0	100.0	100.0
	(6131)	(6122)	(12253)

SOURCE: NCDS SWEEP 4, FILE TRY23

Data for Figure 6, Occupational outcomes by father's occupational class,

	mc	wc
KOS 1	7.5	2.0
KOS 2	12.1	6.4
KOS 3	2.2	0.8
KOS 4	6.3	2.9
KOS 5	7.6	3.4
KOS 6	28.5	23.7
KOS 7	5.6	6.0
KOS 8	2.9	2.5
KOS 9	5.8	9.0
KOS 10	2.2	1.8
KOS 11	3.4	10.1
KOS 12	7.2	13.5
KOS 13	2.8	6.0
KOS 14	1.5	4.3
KOS 15	3.3	5.7
KOS 16	0.5	1.3
KOS 17	0.6	0.8
	100.0	100.0
	(2975)	(5403)

SOURCE: NCDS SWEEP 4, FILE TRY23

Data for Figure 7, fulfilled expectations by occupation

	fulfilled expectations	occupational structure
kos 1	20.7	3.9
kos 2	33.7	8.8
kos 3	16.0	1.4
kos 4	23.4	4.2
kos 6	65.5	26.2
kos 7	18.0	6.0
kos 8	19.5	2.8
kos 9	34.2	8.1
kos 10	24.8	1.9
kos 11	38.2	7.3
kos 12	49.0	10.9
kos 14	23.3	3.0
kos 15	25.4	4.5
		(8615)

source: NCDS Sweeps 3 & 4
file: TRY 15A

National Child Development Study User Support Group Working Paper Series

This Working Paper is one of a number, available from the National Child Development Study User Support Group, which report on the background to the Study and the research that has been based on the information collected over the years. Other Working Papers in the series are listed below.

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N A T I O N A L C H I L D D E V E L O P M E N T S T U D Y

The National Child Development Study (NCDS) is a continuing longitudinal study which is seeking to follow the lives of all those living in Great Britain who were born between 3 and 9 March, 1958.

It has its origins in the Perinatal Mortality Survey (PMS). This was sponsored by the National Birthday Trust Fund and designed to examine the social and obstetric factors associated with the early death or abnormality among the 17,000 children born in England, Scotland and Wales in that one week.

To date there have been four attempts to trace all members of the birth cohort in order to monitor their physical, educational and social development. These were carried out by the National Children's Bureau in 1965 (when they were aged 7), in 1969 (when they were aged 11), in 1974 (when they were aged 16) and in 1981 (when they were aged 23). In addition, in 1978, details of public examination entry and performance were obtained from the schools, sixth-form colleges and FE colleges.

For the birth survey information was obtained from the mother and from medical records by the midwife. For the purposes of the first three NCDS surveys, information was obtained from parents (who were interviewed by health visitors), head teachers and class teachers (who completed questionnaires), the schools health service (who carried out medical examinations) and the subjects themselves (who completed tests of ability and, latterly, questionnaires). In addition the birth cohort was augmented by including immigrants born in the relevant week in the target sample for NCDS1-3.

The 1981 survey differs in that information was obtained from the subject (who was interviewed by a professional survey research interviewer) and from the 1971 and 1981 Censuses (from which variables describing area of residence were taken). Similarly, during the collection of exam data in 1978 information was obtained (by post) only from the schools attended at the time of the third follow-up in 1974 (and from sixth-form and FE colleges, when these were identified by schools). On these last two occasions case no attempt was made to include new immigrants in the survey.

All NCDS data from the surveys identified above are held by the ESRC Data Archive at the University of Essex and are available for secondary analysis by researchers in universities and elsewhere. The Archive also holds a number of NCDS-related files (for example, of data collected in the course of a special study of handicapped school-leavers, at age 18; and the data from the 5% feasibility study, conducted at age 20, which preceded the 1981 follow-up), which are similarly available for secondary analysis.

Further details about the National Child Development Study can be obtained from the NCDS User Support Group.