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# CLS Cohort Studies

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## Abstract

This paper has two aims. The first is to examine the comparability of the 1958 British Birth Cohort Study, known as the National Child Development Study (NCDS) and the Office for National Statistics (ONS) Longitudinal Study (LS), in terms of the information they provide about the employment profile of their respective samples. The second aim is to describe changes in occupational segregation in England and Wales in the decade between 1991 and 2000/2001. By using the longitudinal data contained in both the NCDS and the LS it is possible to examine not only the aggregate changes in occupational segregation, but also individual transitions between different types of occupations characterised according to the percentage of women working within the occupation.

## Introduction

In this paper we use data from the 1958 National Child Development Study (NCDS) and the ONS Longitudinal Study (LS) to describe the employment status and occupations of a cohort of individuals born in England and Wales at the end of the 1950s. The focus is on the decade between 1991 and 2000/1. [1] The two datasets are longitudinal, providing information on change and stability over time in the situation of individuals. However, the datasets differ in important respects. The major strength of the LS-based cohort is its sample size, and its higher representative coverage. However, the NCDS contains much more detailed data for each time point and also includes retrospective information on employment histories for the period between observations.

Two broad questions guide this comparison methodologically. First, do the two studies provide comparable data on the employment and occupations of individuals born at the end of the 1950s? The second question seeks to clarify how different research designs, and the different forms of attrition associated with them, affect employment-related estimates. The answers to these questions will: a) increase our knowledge of the two datasets and, b) provide the foundations for further and more detailed work on the substantive topic behind this data comparison exercise: occupational sex segregation over the life course in England and Wales.

With a few notable exceptions (for example see Jacobs 1989; Jacobs 1995; Chan 1999) the majority of research on occupational segregation to date has focussed on cross sectional data (a basic selection of international and UK-based studies might include the following: Anker 1998, Blackburn *et al* 2000, Crompton 1997, Dale and Joshi 1993, Hakim 1998, Reskin and Roos 1990). By using longitudinal data it is possible not only to examine how aggregate levels of occupational sex segregation change over time, but also to investigate the extent to which members of a given cohort stay in, or move between, sex integrated and sex segregated occupations. Past research has shown that, whereas indices of aggregated occupational sex segregation tend to change little over time, there might be a great deal of individual movement across occupations classified into three sex types depending whether they are dominated by a high percentage of men or women or are integrated (male, female and integrated).[2] In order to classify each occupation, we use the percentage female in each Unit Group of the Standard Occupational Classification 1990 (SOC90 for short), [3] first published by Hakim (1998).

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[1] The data extracted from the LS that we use in this paper contains linked records from the 1991 and 2001 censuses. The NCDS data consists of sweep 5, which took place in 1991, and sweep 6, for which fieldwork started in the later part of 1999, but was implemented mainly in 2000.

[2] Though, so far, this claim has found clear support only in the highly fluid US labour market (see Jerry Jacobs 1989). Researchers using data for European countries have found that movement across sex-typed occupations is more limited than in the US (see Sheila Jacobs for the British case (1995), Li *et al* for the Swiss case (1998) and Blossfeld for the German case (1987). However, the great decline in aggregated indices of sex segregation during the 1990s (Blackwell and Guinea-Martin 2005) suggests that, in the last decade, mobility might have increased, at least in England and Wales.

[3] In SOC90 there were 9 Major Groups, 22 Sub-Major Groups, 77 Minor Groups and 371 Unit Groups, the most detailed level of the classification.

The first section of the paper describes the LS and the NCDS in more detail. The analysis is presented in the second and third sections. The second section provides a comparison of frequencies using the variables for economic activity, academic qualifications and current occupation. This section also includes a comparison of cohort members' transitions across the nine major groups of SOC90 and an extra category for people not in work (i.e. either unemployed or inactive).

In the third section we examine occupational segregation at both the aggregated and individual level. At the aggregated level we derive two of the most widely used indices of segregation (the Index of Dissimilarity and the Gini coefficient). These indices measure the extent to which men and women are segregated from each other across the entire occupational classification.[4] Finally, we study individuals' transitions across sex-typed occupations.

[4] Due to the relatively small sample sizes in the cohort data, we based segregation indices on the Minor Group Level of SOC90, containing 77 occupational titles, rather than the more detailed Unit Group Level with 371 occupational unit group

## Section I: The Data sets

*The 1958 National Child Development Study*

The National Child Development Study (NCDS) is the second of four British birth cohort studies. The NCDS has followed all those born in one week of 1958 and data has been collected from the same individuals at intervals through childhood and into adult life. The initial sample size was 17,416 and was estimated to include 98% of all births in Great Britain born in a particular week of 1958. To date, seven subsequent sweeps of the cohort have been carried out. In 1965, when the cohort members were aged 7, and then again in 1969 (age 11); 1974 (age 16); 1981 (age 23); 1991 (age 33); 2000 (age 42) and 2004 (age 46). The questions included in each sweep have been modified to reflect the life stage of the cohort and the agendas of the various agencies that have provided funding for the continuation of the study. The information gathered from the cohort over the years has covered health, social and economic circumstances, as well as material and psychological well-being. The 1991, 2000 and 2004 sweeps also included a detailed retrospective life-history questionnaire which included information on the dates of episodes of employment and unemployment. At each sweep cohort members have also been asked questions about their employment status, supervisory responsibilities, their job title and the nature of their work. This facilitates coding of occupations into standard categories such as SOC90 (used for the 1991 and 2000 surveys) and SOC2000 (used for the 2004 survey).

The NCDS data used in this paper is based on a sample of NCDS members who were present in both sweep five (1991) and sweep six (2000) of the study. In order to make the sample as comparable as possible with the LS sample (which covers England and Wales only) those who were living in Scotland in either 1991 or 2000 were excluded (942 individuals). The final NCDS longitudinal sample used in the analyses includes 8,948 individuals, of whom 6,464 (72.2 per cent) were in work both years.

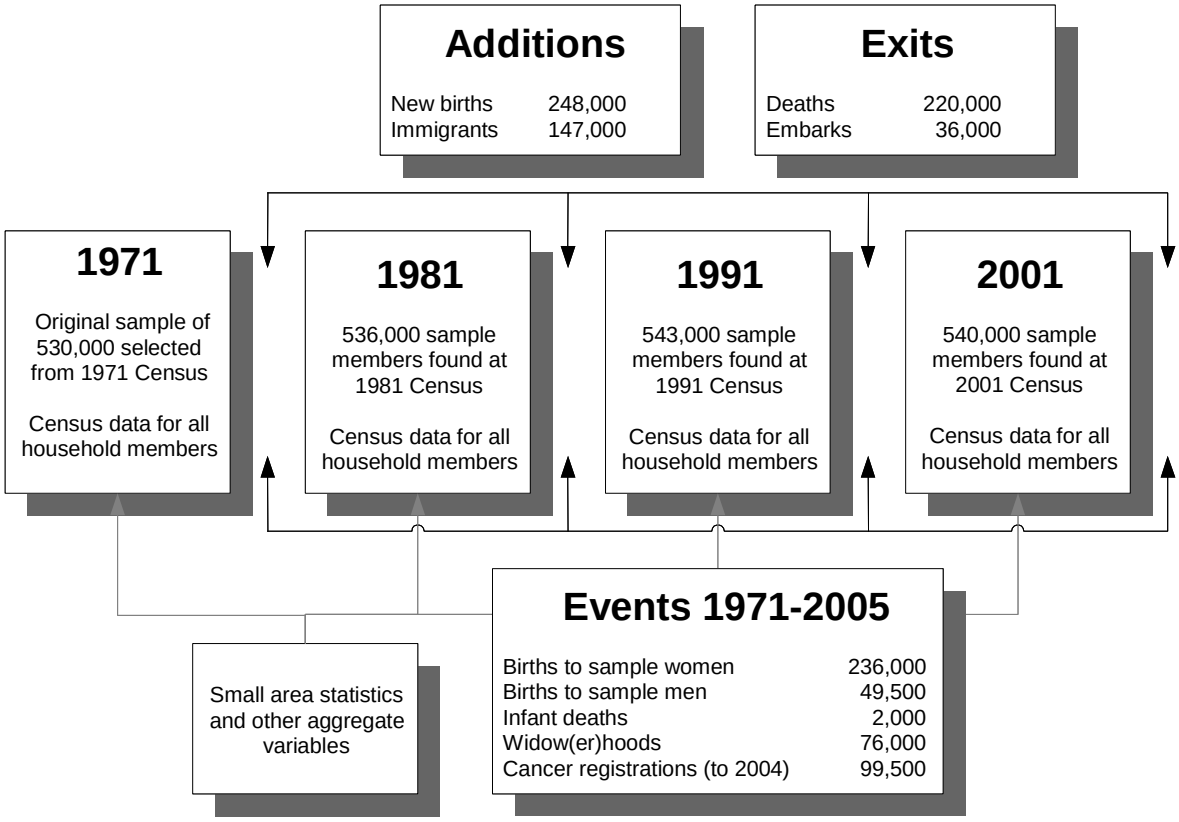
*The ONS Longitudinal Study*

The ONS Longitudinal Study is a record linkage study containing census and vital event information for one per cent of the population of England and Wales. The LS includes information for all people enumerated in the same household as an LS member. However, the LS is different from household panel surveys such as the German Socio-Economic Panel Study or the British Household Panel Study in that it is primarily a sample of individuals and, therefore, does not follow all household members from census to census; in the LS, only information on sample members is linked over time.

The sample is based on dates across the calendar year. At each census, data on slightly more than 500,000 sample members have been collected. New LS members enter the study through birth and immigration and existing members leave through death and emigration. Therefore, the LS represents a continuous sample of the population of England and Wales and, at any point in time, it is largely representative of the population as a whole. Routine event information, drawn from the ONS

registration systems, has also been linked to the individuals in the sample over the entire period of the study. These events include births and infant deaths registered to women in the study, cancer registrations, deaths and deaths of spouses.

**Figure 1: Structure of the ONS Longitudinal Study**




*Defining an LS-based cohort for comparison with NCDS data*

A cohort of LS members was constructed for comparison with the NCDS following broadly the same criteria of inclusion as for the NCDS sample. This meant dropping members of the LS born overseas who immigrated to England and Wales when they were 16 or older. In order to maximise the sample size, the LS cohort was drawn to include people born in 1957, 1958 and 1959 (we refer to this cohort throughout the paper as LS50s). The longitudinal sample of the LS50s cohort present in 1991 and 2001 has 19,037 members, and 12,042 (63.3 per cent) were in work both years. The cohort comparison is additionally augmented by an LS longitudinal sample that aims to represent the overall population of working age in England and Wales. It includes all traced LS members aged 16 to 55 in 1991 and 26 to 65 in 2001. We refer to this data as LS-All. Analysis of this sample can help to determine which results are cohort-specific and which are shared with the general population of working age. LS-All contains 242,780 members, of whom 132,568 (54.6 per cent) were in work in both years.

*Attrition in the NCDS and in the LS*

Attrition, i.e. the drop out of participants through successive waves of a prospective study, is a major methodological problem for longitudinal studies. Each time

individuals in a sample are re-contacted there is the risk that some will refuse to remain in the study, some will be untraceable, and some may have emigrated or died (Plewis *et al*, 2004). There are a number of ways in which sample retention can be maximised in longitudinal studies. In the National Child Development Study, stable addresses are collected from cohort members, and in addition a birthday card is sent each year accompanied by a summary of recent results from the study. Cohort members are asked to confirm their address and notify the research team of any change of contact information. However, as can be seen from Table 1, despite these efforts there is still attrition mainly due to a small number of refusals in each sweep and the difficulties of tracing cohort members who have moved.

**Table 1: The 1958 National Child Development Study, dates of contact and sample size**

| Survey | Year | Age (y) | Data collected from: | Cross-sectional target sample | Cross-sectional achieved sample | Longitudinal target sample | Longitudinal observed sample |
|---|---|---|---|---|---|---|---|
| PMS | 1958 | Birth | Mother & medical records | 17,634 | 17,416 | 17,634 | 17,415 |
| Sweep 1 | 1965 | 7 | Parents; school; tests; medical exam; cohort member | 16,727 | 15,425 | 16,500 | 15,051 |
| Sweep 2 | 1969 | 11 | Parents; school; tests; medical exam; cohort member | 16,754 | 15,337 | 16,253 | 14,757 |
| Sweep 3 | 1974 | 16 | Parents; school; tests; medical exam; cohort member; census | 16,901 | 14,647 | 16,068 | 13,917 |
| Exams | 1978 | 20 | Schools attended when cohort member attended in 1974 | 14,647 | 14,331 | 16,068 | 13,917 |
| Sweep 4 | 1981 | 23 | Cohort member; census | 16,482 | 12,537 | 15,885 | 12,044 |
| Sweep 5 | 1991 | 33 | Cohort member; spouse/partner; children (a); children's mother (b) | 16,240 | 11,407 | 15,567 | 10,986 |
| Sweep 6 | 2000 | 42 | Cohort member | 16,240 | 11,419 | 15,451 | 10,979 |
| Sweep 7 | 2004 | 46 | Cohort member | 16,012 | 9,554 | 15,023 | 9,057 |

PMS = Perinatal Mortality Survey
*Source*: NCDS

One aim of this paper is to compare NCDS and LS-based results in order to assess how they are affected by the different types of attrition associated with the research designs of these two studies. In the case of the LS50s cohort, 11 per cent (2,358 individuals) of members present in 1991 were not found in 2001 and were not recorded as having died or embarked in the interim period.[5] The corresponding figure for the NCDS is 13 per cent (1,450 people), of whom 5 per cent were refusals (554 individuals).[6] But whereas the overall percentage of attrition is roughly similar, its causes are different in each study.

Unlike NCDS, the LS does not collect data directly from members of the sample but rather through linkage of routinely collected administrative records, including Census information. Therefore, in the LS refusals are not a source of attrition and possible bias. However, there are LS members who are lost to follow up because they are not found in subsequent censuses and do not have a record of death or embarkation. Failure to link LS members may be partially explained by census under-enumeration, unreported embarkations and discrepancies in birth or other data used to achieve data matching. For example, individual characteristics in 1991 that were associated with non-linkage to 2001 Census records were being young, male, born outside of the UK and a member of an ethnic minority.[7] While it would be wrong to imply that the LS provides a complete enumeration of all those born on the designated dates, it clearly will not have the same patterns of missing data as the NCDS.

Another factor affecting attrition in the two cohorts is the restriction of the comparison to the 1990s. The LS-based cohort was drawn afresh from the overall 1991 LS sample. Therefore the LS50s cohort is subject to attrition across two time points only, with the sample in 2001 containing 89 per cent of the original members. In contrast, the NCDS started in 1958 and at the sixth-sweep in 2000 the persons interviewed comprised 66 per cent of the original members. The comparison will help gauge how far the loss of NCDS cohort members over four decades has impacted on the labour market characteristics of this surveyed population.

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[5] The details of the calculation of this lost to follow up percentage is as follows: Of the 21,748 members of the LS50s cohort present at the 1991 census, by 2001 110 had embarked and 243 had died. Thus, the expected sample size in 2001 was 21,395. However, of these only 19,037 were present at the 2001 census. This means that 2,358 of the LS50s cohort present in 1991 were lost to follow up in 2001, i.e., a 11.02 per cent of that sample.

[6] The calculation is as follows: the NCDS observed sample in 1991 had 11,469 individuals. Of these, 129 either died or embarked permanently between 1991 and 2000. Therefore, the expected sample in 2000 had 11,340 individuals, but only 9,890 were observed in the end. The discrepancy between expected and observed respondents is due to 554 refusals and 896 cases of uncertain eligibility due to being untraced (figures quoted from Plewis *et al*, 2004).

[7] For a comprehensive list, see ONS (2004) '*Longitudinal Study: Quality of linkage between the 1991 and 2001 Censuses*'. See also ONS (2003) '*Longitudinal Study 1971-2001: Completeness of Census Linkage*'.

*The Census and the NCDS questionnaires*

Using Census forms means that the LS has the limitations of a general self-completion questionnaire.[8] For example, proxy responses tend to be higher with this mode of data collection than with interviewer-administered surveys such as the NCDS – proxies tending to give less accurate answers than the targeted respondent would if asked directly. Moreover, lack of interaction with an interviewer increases the scope for the misunderstanding of questions and for giving contradictory answers at various points in the questionnaire.

Finally, the census covers many themes (among others, demographic, economic, educational, ethnic and health related information) but each is restricted to a small number of variables. As a consequence the data quality in any given area is expected to be lower than that of specialist surveys such as the Labour Force Survey in the case of labour market indicators (see Heap 2005 for a comparison of the 2001 Census and the LFS). In contrast with the Census, the core of the NCDS data for 1991 and 2000 comes from face-to-face interviews covering in great detail many areas of the members' lives. In the appendix we present the questions used for deriving the variables compared in this paper. Also, we describe briefly how SOC90 occupational codes were assigned to 2000/1 data in both datasets.

[8] The 2001 Census was the first one to use post-back; in earlier censuses enumerators collected the forms.

## Section 2: Comparison of economic activity, academic qualifications and current occupation in the LS and NCDS

In this section we compare the distribution of cohort members across the categories of two key variables of interest: economic activity and occupation. Regarding economic activity, the first noticeable difference in Tables 2 and 3 is that there were slightly more NCDS members in full-time employment than LS members (excluding the self-employed) in both 1991 and 2000/1. Conversely, the percentage unemployed is higher in the LS50s than in NCDS, particularly in 1991, a period of recession in the British economy. There were also more housewives in the LS50s cohort than in NCDS in both years.

**Table 2: Economic activity: 1991**

| **Males:** | **LS50s** | | | | **NDCS** | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Full time | **71.6** | 70.7 | 72.5 | 6636 | **74.9** | 73.6 | 76.2 | 3214 |
| Part time | **0.7** | 0.6 | 0.9 | 65 | **0.7** | 0.5 | 1.1 | 32 |
| Self employed | **16.0** | 15.2 | 16.7 | 1479 | **16.3** | 15.2 | 17.4 | 699 |
| Unemployed | **8.3** | 7.7 | 8.9 | 767 | **5.1** | 4.5 | 5.8 | 220 |
| Student | **0.7** | 0.5 | 0.8 | 61 | **0.3** | 0.2 | 0.6 | 14 |
| Sick | **2.0** | 1.8 | 2.4 | 190 | **1.5** | 1.2 | 2.0 | 66 |
| Housewife | **0.6** | 0.5 | 0.8 | 57 | **0.3** | 0.2 | 0.6 | 14 |
| Other[a] | **0.2** | 0.1 | 0.3 | 16 | **0.8** | 0.5 | 1.1 | 33 |
| **Total** | **100** | | | **9271** | **100** | | | **4292** |

| **Females:** | **LS50s** | | | | **NDCS** | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Full time | **30.4** | 29.5 | 31.3 | 2967 | **32.5** | 31.1 | 33.8 | 1491 |
| Part time | **26.6** | 25.8 | 27.5 | 2599 | **28.9** | 27.6 | 30.3 | 1329 |
| Self employed | **4.7** | 4.3 | 5.1 | 458 | **7.3** | 6.6 | 8.1 | 334 |
| Unemployed | **3.6** | 3.3 | 4.0 | 352 | **1.7** | 1.4 | 2.1 | 79 |
| Student | **0.7** | 0.5 | 0.9 | 67 | **0.9** | 0.6 | 1.2 | 40 |
| Sick | **1.8** | 1.5 | 2.1 | 175 | **0.8** | 0.5 | 1.1 | 35 |
| Housewife | **32.1** | 31.1 | 33.0 | 3129 | **27.2** | 25.9 | 28.5 | 1249 |
| Other* | **0.1** | 0.1 | 0.2 | 13 | **0.8** | 0.6 | 1.1 | 37 |
| **Total** | **100** | | | **9760** | **100** | | | **4594** |

[a] The category 'Other' includes the 'Retired' category of the original LS variable "econpo89", and the category 'Temporarily Sick' of the NCDS variable 'n500520'.
*Sources*: Authors' analysis. ONS Longitudinal Study and NCDS

**Table 3: Economic activity: 2000/1[a]**

| **Males:** | **LS50s** | | | | **NDCS** | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Full time | **68.4** | 67.4 | 69.4 | 5922 | **72.6** | 71.2 | 73.9 | 3127 |
| Part time | **2.2** | 1.9 | 2.5 | 187 | **1.3** | 1.0 | 1.7 | 56 |
| Self employed | **17.9** | 17.1 | 18.7 | 1549 | **18.1** | 17.0 | 19.3 | 782 |
| Unemployed | **3.1** | 2.7 | 3.4 | 264 | **2.6** | 2.1 | 3.1 | 110 |
| Student | **0.4** | 0.3 | 0.6 | 35 | **0.2** | 0.1 | 0.4 | 10 |
| Sick | **4.8** | 4.4 | 5.3 | 415 | **3.4** | 2.9 | 4.0 | 147 |
| Housewife | **1.2** | 1.0 | 1.4 | 101 | **0.6** | 0.4 | 0.9 | 27 |
| Other[b] | **2.1** | 1.8 | 2.4 | 181 | **1.2** | 0.9 | 1.6 | 51 |
| **Total** | **100** | | | **8654** | **100** | | | **4310** |

| **Females:** | **LS50s** | | | | **NDCS** | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Full time | **36.7** | 35.7 | 37.6 | 3334 | **40.2** | 38.8 | 41.6 | 1856 |
| Part time | **33.3** | 32.3 | 34.2 | 3026 | **32.0** | 30.6 | 33.3 | 1475 |
| Self employed | **6.8** | 6.3 | 7.3 | 619 | **7.8** | 7.1 | 8.6 | 360 |
| Unemployed | **2.2** | 2.0 | 2.6 | 204 | **1.5** | 1.1 | 1.8 | 67 |
| Student | **0.9** | 0.7 | 1.1 | 79 | **0.8** | 0.5 | 1.1 | 35 |
| Sick | **4.7** | 4.3 | 5.2 | 429 | **3.6** | 3.1 | 4.2 | 167 |
| Housewife | **13.0** | 12.3 | 13.7 | 1178 | **12.5** | 11.6 | 13.5 | 577 |
| Other* | **2.5** | 2.2 | 2.9 | 229 | **1.7** | 1.4 | 2.1 | 79 |
| **Total** | **100** | | | **9098** | **100** | | | **4616** |

[a] The 2001 LS data do not included imputed values.
[b] The category 'Other' includes the 'Retired' category of the original LS variable "econpo89", and the category 'Temporarily Sick' of the NCDS variable 'n500520'.
*Sources*: Authors' analysis. ONS Longitudinal Study and NCDS

Comparing data from Tables 2 and 3, we can see that male full-time employment rates decreased over the decade slightly,[9] whereas part-time rates increased – albeit from a very low base. However, the overall percentage of men in work remained stable at 88% in the case of LS50s and at 92 per cent in the NCDS (See Table 4). By contrast, female participation increased both in full and part-time employment (see Tables 2 and 3),[10] with an increase in their overall work rate from 62 per cent in 1991 to 76 per cent in the case of LS50s and from 69 per cent to 80 per cent in the NCDS (see Table 4).

[9] From 71.6 to 68.4 per cent in the case of LS50s and from 74.9 to 72.6 per cent in the case of the NCDS.
[10] Female full time employment increased from 30.4 to 36.7 per cent in the case of the LS50s and from 32.5 to 40.2 per cent in the case of NCDS. Female rates of part time employment increased from 26.6 to 33.3 per cent in the case of the LS50s and from 28.9 to 32.0 per cent in the case of NCDS.

**Table 4: Percentage of cohort members in work at 1991 and 2000/1 by sex**

| | In work 1991 | In work 2000/1 |
|---|---|---|
| LS50s men | 88.2 | 88.3 |
| LS50s women | **61.7** | **76.2** |
| NCDS men | 91.9 | 92 |
| NCDS women | **68.5** | **79.9** |

*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

Using 100 per cent cross-sectional Census data for both years (Table 5) confirms the stability in employment rates among men aged 30 - 34 in 1991 and 40 - 44 in 2001 (at around 85 per cent). Generally speaking, in 1991 and in 2001 male employment rates remained above the 80 per cent mark from age 25 to 54. They were lower only among the youngest and oldest (particularly noticeable is the fact that employment rates reduced greatly for the under-25s). In contrast with this stability, there was a general increase in the rate of employment for all women aged 25 and above. In particular, there was a strong increase in work rates among women aged 25 - 34, with around a 7 percentage point increase over the decade. The difference in employment rates between women in their early 30s in 1991 and women in their early 40s in 2001 was 12.8 percentage points (60.7 per cent vs. 73.5 per cent). Thus, part of the sharp increase in the work rates of cohort women by 2000/1 was due to the overall increase in female employment rates across the board (with the exception of the under 24s, as in the case of men).

**Table 5: Percentage of people England and Wales in work in 1991 and 2001**

| | Men | | Women | |
|---|---|---|---|---|
| | **1991** | **2001** | **1991** | **2001** |
| 16 - 20 / 16 - 19 [a] | 47.0 | 29.1 | 45.9 | 23.8 |
| 21 - 24 / 20 - 24 [a] | 73.3 | 63.6 | 65.2 | 55.7 |
| 25-29 | 82.6 | 83.0 | 63.1 | 70.0 |
| 30-34 | 85.2 | 85.7 | 60.7 | 68.2 |
| 35-39 | 86.2 | 86.3 | 66.7 | 70.1 |
| 40-44 | 87.2 | 85.7 | 71.9 | 73.5 |
| 45-49 | 86.2 | 84.3 | 70.9 | 74.4 |
| 50-54 | 81.1 | 80.8 | 63.4 | 69.2 |
| 55-59 | 71.1 | 70.8 | 49.5 | 55.3 |
| 60-64 | 49.1 | 48.3 | 22.0 | 25.2 |

[a] First age group corresponds to 1991 data, second to 2001 data.
*Sources:* Table L08 of 1991 Census (100 percent) and table SO28 of 2001 Census (100 per cent). Both available at http://www.nomisweb.co.uk

Part of the increase in the work rates of cohort women by 2000/1 is due to the passing effect of caring for children under school age by the time these women are in their early 40s. It is well established that there is a strong association between the age of the youngest child in the household and a woman's probability of being in paid employment (see Joshi and Owen, 1981; Macran, Joshi and Dex, 1996). In 1991, 41.2 per cent of women in the NCDS sample (36.4 per cent in LS50s) reported having children aged four or under in the household, compared with just 10.6 per cent (8 per cent in the LS50s) by the 2000 survey.

In summary, both the LS and the NCDS give a similar picture of the changing labour market behaviour between 1991 and 2000/1 of a cohort of individuals born in the late 1950s. The only two statistically significant differences between the datasets concern the rates of full-time employment in both years and of unemployment in 1991. The former is statistically significantly higher among NCDS members, and the latter is lower, than among LS50s members. There are two possible reasons for this difference. On the one hand, the Census is known to overestimate unemployment (as compared with the Labour Force Survey - see Heap, 2005); on the other, it seems that differential rates of attrition for different groups within the NCDS may lead to fewer unemployed individuals being retained in the sample.

In addition, women in the NCDS were less likely to be housewives than LS50s members in both years. In Tables 6 and 7 we can see one possible reason for this, given the known positive association between qualifications and employment. A much greater proportion of NCDS members than LS50s members had degree-level or higher-degree level qualifications in both 1991 and 2001, and even though the difference declined over the decade, it remained substantial. However, caution is needed when interpreting these results as data on qualifications in the two studies is not strictly comparable. Whereas the NCDS collects data face-to-face and uses a detailed set of questions, particularly in areas such as education, the LS uses the Census self-completion form with only one question for education in 1991 and two in 2001.[11] This means proxy response is higher in the LS than in NCDS; and proxies are particularly prone to giving erroneous or inaccurate information. Therefore, researchers interested in the assessment of the continuing representativeness of the NCDS in relation to qualifications should use a dataset other than the LS.

[11] Which in addition, applied only to qualifications obtained after 18 years of age in 1991.

**Table 6: Possession of higher degree or degree-level qualification: 1991**

| | LS50s Men | | | | NDCS Men | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| No | 86.4 | 85.7 | 87.1 | 8,011 | 70.3 | 68.9 | 71.7 | 2,953 |
| Yes | 13.6 | 12.9 | 14.3 | 1,262 | 29.7 | 28.3 | 31.1 | 1,247 |
| **Total** | **100** | | | **9,273** | **100** | | | **4,200** |

| | LS50s Women | | | | NDCS Women | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| No | 91.0 | 90.4 | 91.5 | 8,881 | 74.9 | 73.6 | 76.1 | 3,381 |
| Yes | 9.0 | 8.5 | 9.6 | 882 | 25.1 | 23.9 | 26.4 | 1,135 |
| **Total** | **100** | | | **9,763** | **Total** | **100** | | **4,516** |

*Note:* Academic and non-academic qualifications included. Academic qualifications range from BAs and BSCs to PhDs. Non academic qualifications include professional qualifications and NVQs levels 4-6.
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

**Table 7: Possession of higher degree or degree-level qualification: 2000/1**

| | LS50s Men | | | | NDCS Men | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| No | 78.1 | 77.3 | 79.0 | 6,989 | 67.9 | 66.5 | 69.3 | 2,937 |
| Yes | 21.9 | 21.0 | 22.7 | 1,956 | 32.1 | 30.7 | 33.5 | 1,386 |
| **Total** | **100** | | | **8,945** | **100** | | | **4,323** |

| | LS50s Women | | | | NDCS Women | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| No | 79.2 | 78.4 | 80.0 | 7,515 | 71.7 | 70.4 | 73.0 | 3,317 |
| Yes | 20.8 | 20.0 | 21.6 | 1,974 | 28.3 | 27.0 | 29.6 | 1,308 |
| **Total** | **100** | | | **9,489** | **Total** | **100** | | **4,625** |

Note: Academic and non-academic qualifications included. Academic qualifications range from BAs and BSCs to PhDs. Non academic qualifications include professional qualifications and NVQs levels 4-6. LS data does not include imputed values.
*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

*A brief exploration of employment histories*

We have now established similarities and some differences in terms of economic activity and education levels between NCDS and LS50s members at two points in time. However, while the LS only provides information on sample members' economic activity in 1991 and 2001, the NCDS allows us to understand individuals' employment behaviour between those two points, because it collects retrospective employment histories. This is one of the major ways in which data from the NCDS can be understood to provide a more detailed longitudinal record than the LS. In order to explore individuals employment behaviour in more detail using the NCDS, we first classified cohort members into four groups: those who were in work at the time of each interview, those who were in work in 1991 but not in 2000/1, those who were not in work in 1991 but in work in 2001, and, finally, those who were not in work at both times. The results in Table 8 echo the pattern of results discussed above in that NCDS members are slightly more likely than LS members to be in work at both time points. In addition, while a very small percentage of men were not in employment in 1991 but were in employment in 2001, this figure is much higher for women and this gender difference is very similar across both studies. In short, while most men were in work in both years (over 80 per cent), one in five women was in work in their early forties (in 2000/1) but not in their early thirties (in 1991). As discussed earlier, this pattern of female economic activity reflects women's role in child-rearing.

**Table 8: Economic activity in 1991 and 2000/1**

| | **NCDS men** | | **LS50s men** | | **NCDS women** | | **LS50s women** | |
|---|---|---|---|---|---|---|---|---|
| | *col %* | *n* | *col %* | *n* | *col %* | *n* | *col %* | *n* |
| Work - work | 87.5 | 3,765 | 82.6 | 7,144 | 59.4 | 2,736 | 53.8 | 4,898 |
| Work - not in work | 4.6 | 198 | 6.3 | 544 | 9.5 | 435 | 8.7 | 789 |
| Not in work – work | 4.5 | 194 | 5.9 | 513 | 20.6 | 949 | 22.8 | 2,078 |
| Not in work -not in work | 3.3 | 133 | 5.2 | 452 | 10.5 | 461 | 14.6 | 1,330 |
| **Total** | | **4,290** | | **8,653** | | **4,581** | | **9,095** |

*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

This is as far as we can take the longitudinal comparison between the NCDS and the LS50s. However, the NCDS data does allow for examination of the work experience of cohort members between interviews. We therefore explore the work history data briefly by a) calculating the average percentage of time spent in work between interviews for members of each of the four groups presented above, and b) calculating the mean number of jobs held in that period (see Table 9). This way we see that those men not in work at both interviews spent on average only 27.6 per cent of the time between interviews in work, whereas for women the percentage is even smaller at only 16.7 per

cent. We can see that men in this category on average held only one job in the period, and women fewer than one. In contrast, both men and women in work at both time points spent almost all the time between interviews in work (98.5 per cent vs. 96.2 per cent). Interestingly, women in this group held more jobs on average than men (2.09 per cent vs. 1.8 per cent). Finally, men and women in work at one interview spent around three quarters of the interim time in work.

**Table 9: Time in work and number of jobs held between 1991 and 2000**

| | NCDS men | | | | NCDS women | | | |
|---|---|---|---|---|---|---|---|---|
| | *Percentage of time in work* | *St. Dev.* | *Mean # of jobs* | *n* | *Percentage of time in work* | *St. Dev.* | *Mean # of jobs* | *n* |
| Work - work | 98.5 | 9.1 | 1.8 | 3765 | 96.2 | 14.9 | 2.1 | 2736 |
| Work - not in work | 68.5 | 31.0 | 1.7 | 198 | 66.7 | 31.2 | 1.7 | 435 |
| Not in work – work | 77.8 | 31.2 | 2.3 | 194 | 67.1 | 32.2 | 1.9 | 949 |
| Not in work - not in work | 27.6 | 35.5 | 1.0 | 133 | 16.7 | 30.2 | 0.6 | 461 |

*Note*: Individuals with either start or end year of spell in work missing were dropped from this analysis. When only either start and/or end month were missing, we used the convention of imputing month 3 (March) for start month, and month 9 (September) for end month. This gives a 6-moth duration for jobs in the same year with start and end months missing, and 18-month duration if the start and end months were unknown but in consecutive years.
*Source:* Authors' analysis. NCDS

*Current occupation*

Having examined the employment behaviour of individuals from the NCDS and the LS, we now turn to look in more detail at the occupations held by individuals. An initial comparison of the distribution of cohort members in work across the nine SOC90 major occupational groups in 1991 and in 1999/2001 reveals that there are only very minor differences between the LS50s and the NCDS and that these are not statistically significant.[12]

[12] Note that respondents to the Census and to the NCDS questionnaire can be assigned to an occupation without, for that reason, being currently in work. However, in this working paper the analysis of occupations is limited to those who were in work at the time of the interview.

**Table 10: Occupation: 1991**

| | LS50s Men | | | | NDCS Men | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Managers | 21.2 | 20.3 | 22.1 | 1,723 | 23.0 | 21.6 | 24.4 | 833 |
| Professionals | 10.0 | 9.4 | 10.7 | 817 | 10.9 | 9.9 | 12.0 | 396 |
| Associated Prof. | 9.1 | 8.5 | 9.8 | 742 | 10.9 | 9.9 | 12.0 | 396 |
| Clerical | 5.6 | 5.1 | 6.1 | 456 | 5.6 | 4.9 | 6.4 | 202 |
| Crafts | 24.5 | 23.5 | 25.4 | 1,990 | 21.8 | 20.4 | 23.1 | 789 |
| Personal | 6.2 | 5.7 | 6.7 | 502 | 6.1 | 5.4 | 6.9 | 221 |
| Sales | 3.6 | 3.2 | 4.0 | 291 | 4.5 | 3.9 | 5.2 | 164 |
| Plant Operatives | 13.8 | 13.1 | 14.6 | 1,123 | 11.9 | 10.9 | 13.0 | 432 |
| Other | 6.1 | 5.6 | 6.6 | 496 | 5.3 | 4.7 | 6.1 | 194 |
| **Total** | **100** | | | **8,140** | **100** | | | **3,627** |

| | LS50s Women | | | | NDCS Women | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Managers | 12.6 | 11.8 | 13.5 | 757 | 12.0 | 10.9 | 13.3 | 365 |
| Professionals | 8.0 | 7.4 | 8.7 | 481 | 9.7 | 8.7 | 10.8 | 295 |
| Associated Prof. | 12.3 | 11.5 | 13.2 | 736 | 14.1 | 12.9 | 15.4 | 428 |
| Clerical | 27.7 | 26.6 | 28.8 | 1,657 | 27.0 | 25.4 | 28.6 | 818 |
| Crafts | 2.8 | 2.4 | 3.3 | 169 | 1.4 | 1.0 | 1.8 | 41 |
| Personal | 13.9 | 13.1 | 14.9 | 835 | 16.4 | 15.1 | 17.8 | 497 |
| Sales | 10.1 | 9.3 | 10.9 | 603 | 8.5 | 7.5 | 9.5 | 257 |
| Plant Operatives | 4.6 | 4.1 | 5.2 | 275 | 4.2 | 3.5 | 5.0 | 127 |
| Other | 7.9 | 7.3 | 8.6 | 475 | 6.7 | 5.9 | 7.6 | 203 |
| **Total** | **100** | | | **5,988** | **100** | | | **3,031** |

*Note*: The occupational classification used is SOC90 at the Major Group Level. Only people in work are included in the table.
*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

**Table 11: Occupation: 2000/1**

| | LS50s Men | | | | NDCS Men | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Managers | 24.9 | 23.9 | 25.9 | 1,894 | 27.9 | 26.5 | 29.3 | 1,059 |
| Professionals | 11.8 | 11.1 | 12.6 | 900 | 11.0 | 10.0 | 12.0 | 418 |
| Associated Prof. | 9.6 | 8.9 | 10.3 | 728 | 10.6 | 9.7 | 11.7 | 404 |
| Clerical | 5.7 | 5.2 | 6.2 | 430 | 5.7 | 5.0 | 6.4 | 215 |
| Crafts | 20.8 | 19.9 | 21.7 | 1,581 | 19.6 | 18.3 | 20.9 | 744 |
| Personal | 5.0 | 4.6 | 5.5 | 382 | 4.7 | 4.0 | 5.4 | 177 |
| Sales | 3.2 | 2.8 | 3.6 | 245 | 3.6 | 3.0 | 4.2 | 135 |
| Plant Operatives | 13.6 | 12.9 | 14.4 | 1,035 | 12.0 | 11.0 | 13.1 | 456 |
| Other | 5.4 | 4.9 | 6.0 | 413 | 5.1 | 4.4 | 5.8 | 193 |
| **Total** | **100** | | | **7,608** | **100** | | | **3,801** |

| | LS50s Women | | | | NDCS Women | | | |
|---|---|---|---|---|---|---|---|---|
| | % | Confidence Interval | | n | % | Confidence Interval | | n |
| Managers | 15.4 | 14.5 | 16.2 | 1,065 | 13.1 | 12.0 | 14.2 | 479 |
| Professionals | 9.6 | 8.9 | 10.3 | 665 | 11.4 | 10.4 | 12.5 | 417 |
| Associated Prof. | 12.8 | 12.0 | 13.6 | 884 | 13.6 | 12.5 | 14.7 | 496 |
| Clerical | 24.3 | 23.3 | 25.3 | 1,686 | 25.8 | 24.4 | 27.2 | 943 |
| Crafts | 2.0 | 1.7 | 2.3 | 136 | 1.3 | 0.9 | 1.7 | 46 |
| Personal | 16.6 | 15.8 | 17.5 | 1,153 | 17.0 | 15.9 | 18.3 | 623 |
| Sales | 9.5 | 8.9 | 10.3 | 661 | 8.1 | 7.3 | 9.1 | 298 |
| Plant Operatives | 3.3 | 2.9 | 3.7 | 227 | 3.2 | 2.7 | 3.9 | 118 |
| Other | 6.6 | 6.0 | 7.2 | 458 | 6.5 | 5.7 | 7.3 | 237 |
| **Total** | **100** | | | **6,935** | **100** | | | **3,657** |

*Note*: The occupational classification used is SOC90 at the Major Group Level. Only people in work are included in the table (imputed values for economic activity in the 2001 LS data are not included).
*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

In order to look at occupational change longitudinally, we have next examined individuals' transitions across the nine major groups of SOC90 and an extra category for people not in work - i.e. people either unemployed or economically inactive (see Tables

12 to 15 in the appendix). Adding up the percentages on the diagonals of each of these tables we get very similar overall rates of stability for NCDS and LS50s members. 53.8 per cent of NCDS men and 52.3 per cent of LS50s men, and 42.9 per cent of NCDS women, and 43 per cent of LS50s women, were in the same state both years, whether the same major occupational group or out of work. In other words, women were more likely to change state than men. Part of the reason for this is that, as argued earlier, large numbers of women moved back into the labour market during their thirties, usually after an episode out of paid employment caring for young children. But, as we have seen in the previous section, women in work in 1991 and 2000 held more jobs on average than men.

Concentrating on male 'changers' only (Tables 12 and 13 in the appendix), in both data sets the most common transition was to Managers (25.6 per cent in NCDS became Managers and Administrators in 2000 vs. 21.6 per cent in LS50s in 2001) whereas the least common was to Personal and Protective Service Occupations (2.5 per cent of all movers in NCDS vs. 3.7 per cent in LS50s).[13]

Turning our attention to male 'stayers', that is, those who remained in the same occupational major group or out of work at the two time points, we can derive a measure of the degree of stability for each state by dividing the cell percentage in the diagonal by the row total. This provides a measure of the proportion of those starting in a given major group (or out of work) in 1991 and remaining there in 2000/1. The two datasets share the same three major groups as the most stable: Managers, Professional Occupations and Craft and Related Occupations. They also share Sales Occupations as the least stable with 74.1% of workers who were coded to this major group being coded to some other major group (or being out of work) in NCDS in 2000 (and 72.7 per cent of LS50s men).

Turning now to women (see Tables 14 and 15 in the appendix) a rather different picture emerges: Managers, the major destination for male movers, was only the fourth most common destination for female movers (12.5 per cent in NCDS vs. 14.2 per cent in LS50s). Instead, the most common transitions among these women were to Clerical Occupations (in the case of NCDS women with 18.1 per cent of all movers vs. 16.6 per cent of LS50s movers) and to Personal/Protective occupations (with around 16 per cent of movers in both cohorts). The least common moves were to predominantly male major groups such as Crafts (1.1 per cent in NCDS vs. 1.8 per cent in LS50s) and Plant and Machine Operatives (2.9 per cent in NCDS and 3 per cent in LS50s).

The two data sources share in the same order the four major groups with the highest degree of female stability over the decade, which comprised the most prestigious and highly paid occupations. The most stable was Professional Occupations (around 70 per

[13] It is important to note that the base for these percentages is formed by all those who moved state by 2000/1, that is, those who were employed at both time points and changed occupational major group, in addition to those who were employed in 1991 but not in work in 2000/1 and those who were out of work in 1991 but employed in 2000/1. The numerator is formed by all those who moved to a particular major group or out of work by 2001.

cent of women from both data sources who were classified to this major group were also classified as professionals in 2000/1); the second one was Associate Professional occupations and the third was Clerical Occupations (55.6 per cent in NCDS vs. 52.6 per cent in LS50s). The least stable groups consisted of women in 'Other Occupations', Plant and Machine Operatives and Sales Occupations.

If we then compare these cohorts with the LS-All dataset which includes all LS members who were aged 16 to 55 in 1991 (see Tables A and B in the Appendix), we observe that most of the transition patterns described for the cohorts were shared by the overall population. One reason for this is that individuals were in their core employment years over the 1990s. The only noticeable differences are the slightly greater likelihood of male cohort members to remain in, or move into, Managers ('only' 49.2 per cent of LS-All men who were Managers in 1991 were likewise in 2001, and 'only' 15.6 per cent of all movers became Managers in 2001). Also, given that the LS-All sample included people in their 50s in 1991, moving out of employment was the most common transition for these men, with 32.7 per cent of all movers.

Among women, the most noticeable differences with the cohort born in the late 1950s include the fact that being out of employment was the most stable state over the decade for LS-All, with 60.4 per cent of those women who were in such position in 1991 still in the same position by 2001. This fact again highlights the place that being in their 30s has in the life course of women in England and Wales, i.e. years characterised by withdrawal from the labour market for childrearing.

In summary, a preliminary exploration of these occupational mobility tables suggests that the LS and NCDS provide a similar profile of mobility between occupational groups and, indeed, they provide a relatively good match to the occupational mobility patterns of the overall population. However, in order to test statistically whether the NCDS and the LS50s data produce equivalent mobility patterns, we need to model the cell frequencies found in the tables. The goal is to determine whether or not the association between origins and destinations is independent of the data sources used. To this end, we created a single dataset by combining the two data sources with only three variables: one for origin, one for destination, and a dummy for cohort membership. We followed this procedure separately for men and women. Table 16 shows the results of applying loglinear modelling to these data.

**Table 16: Loglinear modelling of occupational mobility data**

| | | Men | | | Women | | |
|---|---|---|---|---|---|---|---|
| | **Models** | **$G^2$** | **DF** | **P** | **$G^2$** | **DF** | **P** |
| 1) | Main effects [O] [D] [S] | 13825.77 | 180 | < 0.05 | 9239.091 | 180 | < 0.05 |
| 2) | Conditional Independence [O D] [S] | 207.1784 | 99 | < 0.05 | 209.9438 | 99 | < 0.05 |
| 3) | All 2-way [O D] [O S] [D S] | 118.6197 | 81 | < 0.05 | 92.04887 | 81 | 0.189 |
| 4) | Saturated model [O D S] | 0 | 0 | 1 | 0 | 0 | 1 |

Notation:
O = Origin (9 SOC90 major groups + 'not in work' category)
D = Destination (9 SOC90 major groups + 'not in work' category)
S = Data source (LS50s/NCDS)
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

If we hypothesise that origin and destination are associated, but that this association does not vary depending on what data sources is used, then the expected cell frequencies produced by Model 2 should not be significantly different from the observed frequencies. As it turns out, however, these two sets of frequencies are different in both the case of men and women ($p < 0.05$) and so Model 2 does not fit the data well. The only model that does so is, in the case of men, the saturated model (Model 4) and, in the case of women, the model with all two-way associations (Model 3). Both models indicate that origin and destination are not independent of data source.

In order to determine which transitions in the table account for the divergence between the NCDS and LS50s data, we examined the expected frequencies produced under Model 2. Table 17 shows the transitions for which the standardised residuals were equal to, or greater than the absolute value 1.96. These results suggest that the greater stability of NCDS members, both male and female, in two of the most prestigious occupational major groups (Managers and Associated Professionals) provide the main explanation for the lack of fit of Model 2. Gender-specific patterns were a) the greater than expected numbers of NCDS women remaining in Personal occupations, and b) the greater than expected number of LS50s men remaining out of work or moving from out of work to Personal occupations.

**Table 17: Transitions with standardised residuals equal or greater than |1.96| under the assumptions of Model 2**

| **Transitions with more NCDS men and fewer LS50s men than expected** | **Transitions with more NCDS women and fewer LS50s women than expected** |
|---|---|
| Managers to Managers | Professionals to Professionals |
| Associated Professionals to Associated Professionals | Associated Professionals to Associated Professionals |
| | Personal to Personal |
| **Transitions with fewer NCDS men and more LS50s men than expected** | **Transitions with fewer NCDS women and more LS50s women than expected** |
| Non-work to: Personal<br>Nonwork | None |

*Note:* Only transitions with n > = 50 in each dataset are included
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

## Section 3: Occupational segregation

*The aggregate level*

The study of occupational segregation can focus on the aggregate and/or the individual level. At the aggregate level, indices of segregation provide a summary of the distribution of men and women across all the occupations listed in a given classification. Many indices do the job (see Siltanen 1995 *et al*. for an overview), but probably the two most common are the Index of Dissimilarity and the Gini coefficient. Both range between 0 (complete integration) and 1 (complete segregation). Also, multiplied by 100, the Index of Dissimilarity can be interpreted as the percentage of people who would need to change occupation for all occupations to have the same share of women and men that there is in the labour market as a whole.

Blackwell and Guinea-Martin (2005) have previously used the Gini coefficient to measure occupational sex segregation in England and Wales over the 1990s, based on Census and Labour Force Survey Data. At first glance, the decrease of the coefficient over the 1990s, shown in Table 18, may seem modest. However, its true magnitude can only be appreciated against the backdrop of almost complete stability during most of the twentieth century (Hakim 1981). It can be seen that the decline in occupational segregation was very slight in the 1970s, the decline was more pronounced in the 1980s and then even more dramatic in the 1990s - the decade with the biggest change in occupational sex segregation of the last century.[14]

**Table 18: Gini indices[a] of occupational sex segregation by year and data source (1971 to 2001)**

| Year | 1971 | 1981 | 1991 | 1996 | 2001 |
|---|---|---|---|---|---|
| Classification<br>Data source | CO70[b] | CO80[c] | SOC90[d] | SOC90 | SOC90 |
| LFS[e] | - | - | 0.76 | 0.75 | - |
| ONS LS | 0.81 | 0.80 | 0.77 | - | 0.72 |

Notes:
[a] Gini indices standardised to 200 occupations in this and the following tables (using the formulae presented in Blackburn and Jarman, 2005)
[b] The OPCS Classification of Occupations 1970 (with 223 Unit Groups).
[c] The OPCS Classification of Occupations 1980 (with 350 Unit Groups).
[d] The Standard Occupational Classification 1990 (with 371 Unit Groups).
[e] Great Britain
*Sources:* ONS Longitudinal Study and Labour Force Survey (LFS). Original analysis by Blackwell and Guinea-Martin (2005), Table 1, p. 503.

[14] Whereas the 1970s had witnessed the most change in this regard in the USA (Reskin and Roos, 1990).

However, if we turn to our two sources of data in order to examine the cohort born at the end of the 1950s (Table 19), the aggregate level of sex segregation, for this cohort, appears to have declined only marginally in the 1990s. Moreover, this change was not statistically significant. In other words, the women and men born in the late 1950s were equally segregated from one another in their early forties (by the end of the 1990s as they had been in their early thirties (at the beginning of the 1990s). Testing this result, by using cross-sectional Census data, confirms that intra-cohort occupational sex segregation decreased the least among people born between 1957 and 1966, in comparison with older and younger cohorts (Table 20). The reasons as to why this is the case will be explored by examining individual transitions across occupational sex types in the next section. Incidentally, we can see in Table 20 that segregation declined for all cohorts from 1991 to 2001, and that segregation remained at its highest among the earlier born cohorts. This suggests that the overall decline in segregation is the result of the earliest and most segregated cohorts being replaced by more recent and less segregated ones.[15] Also, Table 20 indicates that, at least during the 1990s, women did not become more segregated as they aged, in contrast with previous analysis (Chan, 1999). However, a proper life-course analysis of one or more cohorts over a longer period of time would be needed in order fully to research this question.

**Table 19: Gini coefficient and Indexes of Dissimilarity of occupational sex segregation for the NCDS and LS50s cohorts (1991-2000/1)**

| | 1991 | | 2000/1 | | | |
|---|---|---|---|---|---|---|
| | Gini | ID | Gini | ID | Change Gini | Change ID |
| NCDS | 0.78 (0.76 - 0.79) | 0.61 (0.59 - 0.63) | 0.77 (0.76 - 0.79) | 0.60 (0.58 - 0.62) | -0.01 | -0.01 |
| LS50s | 0.76 (0.75 - 0.77) | 0.60 (0.58 - 0.61) | 0.75 (0.74 - 0.76) | 0.58 (0.57 - 0.59) | -0.01 | -0.02 |

*Notes*: Indices based on the 77 minor groups of SOC90, but coefficients standardized to 200 occupations (using the formulae presented in Blackburn and Jarman, 2005)
*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

[15] As Wooton (1997) suggests in her explanation of similar results for the US case in the 1985-1995 period, it is the most recent cohorts who have enjoyed higher levels of education and a more egalitarian cultural and legal environment.

**Table 20: Occupational segregation of the women and men in each cohort**

| | Gini Coefficients[a] | | |
|---|---|---|---|
| Cohort born between | 1991[b] | 2001[c] | Diff. |
| 1977-1986 | n/a[d] | 0.60 | n/a |
| 1967-1976 | 0,72 | 0,66 | -0,06 |
| 1957-1966 | 0,75 | 0,73 | -0,02 |
| 1947-1956 | 0,81 | 0,74 | -0,07 |
| 1937-1946 | 0,82 | 0,75 | -0,07 |
| 1927-1936 | 0.82 | n/a[e] | n/a |
| Overall index[d] | 0,78 | 0,69 | -0,09 |

*Notes*:
People of working age and in employment only.
[a] Coefficients standardized to 200 occupations (using the formulae presented in Blackburn and Jarman, 2005)
[b] SOC90 - used 77 minor groups
[c] SOC2000 - used 81 minor groups
[d] Part of this cohort was below working age in 1991
[e] Part of this cohort was above working age in 2001
*Sources*: Authors' analysis: 100 per cent 1991 and 2001 Censuses of England and Wales.

*The individual level*

So far we have concentrated on the *aggregate* levels of sex segregation. Yet, from other studies (Jacobs, 1989; Chan, 1999) we know that this can mask mobility at the individual level. There are a number of possibilities here. First, it might be that, indeed, there was little individual mobility between occupations.

**Table 21: Occupational movers and stayers**

| | NCDS | | | LS50s | | |
|---|---|---|---|---|---|---|
| | **Men** | **Women** | **All** | **Men** | **Women** | **All** |
| Mover | 62.9 | 69.0 | 65.5 | 60.8 | 67.5 | 63.5 |
| Stayer | 37.1 | 31.0 | 34.5 | 39.2 | 32.5 | 36.5 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** |

*Note*: People of working age and in employment only.
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS.

Second, stability in aggregate indices of segregation might be the result of significant individual mobility across occupations with similar levels of segregation. Third, it might be that moves across occupations with different levels of segregation cancelled each

other out. As it turns out, in the 1990s there was a surprisingly high proportion of occupational movers (see Table 21). Around 65 per cent of individuals moved between occupations in the NCDS and LS50s cohorts. We can therefore discount the first possibility and the following analysis will help determine which of these two other options apply to the cohort born at the end of the 1950s.

*Occupational movers*

American sociologist Jerry Jacobs has been the most influential author inquiring into the relationship between aggregate and individual-level occupational segregation (Jacobs 1989). He examined workers' transitions across occupations, classified on the basis of their sex type. As explained earlier, in order to replicate his analysis we have used the percentage female in each occupational unit group derived from a ten percent sample of the 1991 Census (Hakim 1998). This means that the sex-type of occupations is anchored in 1991 (and in SOC90) and kept constant throughout the decade. Because both NCDS and LS50s had occupations coded to the SOC90 classification in 2000/1, we were able to append this occupational information and to construct an occupational sex-type history for each cohort member. At first, we will restrict the following analysis to cohort members in work in both years and who changed occupations, i.e. occupational 'movers'. This means we have dropped from the analysis 34.5 per cent of the NCDS sample (2,231 individuals, leaving a sample of 4,233 respondents) and 36.5 per cent of the LS50s sample (4,392 individuals, leaving a sample of 7,650 respondents). As Jacobs argues, we are justified in dropping occupational stayers from the analysis because they are 'found entirely on the main diagonal, which has the effect of inflating the observed relationship' (Jacobs 1989: 142). In other words, given that the data are organised around the sex type of occupations in 1991, people who stayed in the same occupations in 2000/1 did not change sex types and are constrained to be on the diagonal. However, later on we will expand the analysis to include everyone in each cohort with a view to examining the patterns of individuals' movements into and out of the labour force.

Tables 22 and 23 reflect, in terms of the individual mobility across sex types, the relatively little change manifested at the aggregated level by the indices of segregation. However, we can also discern the reason why the indices of segregation declined slightly (as displayed in Table 19): there is a tendency for women to move into previously male dominated occupations.

**Table 22: Male transitions across sex-typed occupations (cell percentages)**

| | NCDS | | | | LS50s | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 sex types | | | | 2001 sex types | | | |
| 1991 Sex types | Male | Integrated | Female | Total | Male | Integrated | Female | Total |
| Male | 51.9 | 13.3 | 3.3 | 68.5 | 55.5 | 12.0 | 4.1 | 71.6 |
| Integrated | 13.6 | 8.1 | 2.3 | 23.9 | 11.6 | 6.6 | 2.3 | 20.5 |
| Female | 3.5 | 2.9 | 1.2 | 7.6 | 3.8 | 2.8 | 1.4 | 7.9 |
| **Total** | **68.9** | **24.3** | **6.8** | **100** | **70.8** | **21.4** | **7.8** | **100** |

*Notes*: Data based on occupational movers in employment in both years only. Occupations classified into sex-types on the basis of one lookup table with percentage female derived from one 10 per cent sample of the 1991 Census (Hakim, 1998).
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

**Table 23: Female transition across sex-typed occupations (cell percentages)**

| | NCDS | | | | LS50s | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 sex types | | | | 2001 sex types | | | |
| 1991 Sex types | Male | Integrated | Female | Total | Male | Integrated | Female | Total |
| Male | 3.3 | 4.2 | 4.4 | 11.8 | 4.8 | 4.3 | 4.7 | 13.9 |
| Integrated | 3.7 | 11.2 | 13.6 | 28.5 | 4.9 | 9.0 | 13.3 | 27.1 |
| Female | 5.5 | 15.8 | 38.4 | 59.7 | 7.4 | 14.9 | 36.7 | 59.0 |
| **Total** | **12.6** | **31.1** | **56.3** | **100** | **17.1** | **28.2** | **54.7** | **100** |

*Notes*: Data based on occupational movers in employment in both years only. Occupations classified into sex-types on the basis of one lookup table with percentage female derived from one 10 per cent sample of the 1991 Census (Hakim, 1998).
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

Tables 22 and 23 demonstrate that there is a slight tendency for female occupational movers to go to male occupations, whereas men tend to stay put in sex typical occupations: around half of men stayed in male occupations both years, compared with only around 38 per cent of women who remained in female occupations in spite of changing jobs. In addition, when men shifted sex types, overall moves cancelled each other. Focusing on the LS data in Table 22 (throughout this section, only figures from the LS50s are quoted for brevity, but the patterns exposed apply to the NCDS data perfectly), around 4 per cent of male movers went from male to female occupations, but the approximately same percentage moved in the opposite direction. Also, around 12 per cent moved from male to integrated occupations, and vice versa.

In contrast, among female occupational movers not all changes cancelled each other. Around 7 per cent moved from female to male occupations, whereas a lower

percentage, 5 per cent, moved from male to female occupations. As a result, female occupational movers were able to increase their percentage in male occupations in 2001 (17 per cent vs. 14 per cent in 1991. See LS50s data in Table 23). This increase was mirrored by women's reduced percentage in female occupations (from 59 per cent in 1991 to 55 per cent in 2001). Women also slightly increased their presence in integrated occupations because 15 per cent moved from female to integrated occupations, whereas only 13 per cent took the opposite road.

*Occupational stayers and people out of paid employment*

In short, Tables 22 and 23 tell the story of why the segregation of men and women of the same cohort declined slightly over the 1990s: men did not change their position very much, but women did increase their presence in sex atypical occupations, albeit very slightly. But these tables do not tell the whole story: they do not include people out of paid work, a group that, from previous analysis, we know was substantial and predominantly female in 1991 (see Tables 24 and 25 below). We also know that it reduced its size greatly by 2000/1 (see the female marginal difference in rates of being out of paid work in Table 25, -11.8 in NCDS and -14.2 in LS50s, whereas for men it is almost equal to 0).[16] What is particularly interesting is that most of the decrease in female rates of non-work was absorbed by the increase in female rates of employment in female occupations (9.8 percentage points in the LS50s). Well behind are the increases in women's rates of employment in integrated occupations (2.5 percentage points in the LS50s) and in male occupations (2 percentage points).

Once more, these dramatic changes in the labour market profile of women as they age from their early thirties to their earlier forties contrasted with men's stable profile in this same life stage (see Table 24) - again a reflection of moves cancelling each other; for example, 4.2 per cent of LS50s men moved from being out of paid work to male occupations, but 4.5 per cent moved the opposite way).

[16] But despite this reduction, tables 25 and 26 also show that being out of paid employment in both years was a predominantly female experience: around 11 per cent (NCDS) and 15 per cent (LS50s) of women were in this position, versus between 3 per cent (NCDS) and 5 per cent (LS50s) of men.

**Table 24: Male transitions across sex-typed occupations (cell percentages)**

| 1991 Sex types | NCDS 2001 sex types | | | | | | LS50s 2001 sex types | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Integrated | Female | Nonwork | Total | Marginal diff. | Male | Integrated | Female | Nonwork | Total | Marginal diff. |
| Male | 53.9 | 7.1 | 1.8 | 3.5 | 66.3 | -0.1 | 52.9 | 6.0 | 2.1 | 4.5 | 65.4 | -0.7 |
| Integrated | 7.3 | 10.4 | 1.2 | 0.8 | 19.7 | 0.2 | 5.8 | 8.9 | 1.1 | 1.3 | 17.1 | 0.2 |
| Female | 1.8 | 1.6 | 2.2 | 0.3 | 5.9 | -0.2 | 1.9 | 1.4 | 2.6 | 0.5 | 6.4 | 0.1 |
| Nonwork | 3.3 | 0.8 | 0.6 | 3.5 | 8.1 | 0.0 | 4.2 | 1.1 | 0.7 | 5.3 | 11.2 | 0.4 |
| **Total** | **66.2** | **19.9** | **5.7** | **8.2** | **100** | | **64.7** | **17.3** | **6.5** | **11.5** | **100** | |

Notes: All members of the NCDS longitudinal sample (1991-2000) included. Occupations classified into sex-types on the basis of one lookup table with percentage female derived from one 10 per cent sample of the 1991 Census (Hakim, 1998).
*Sources:* Authors' analysis: ONS Longitudinal Study and NCDS

**Table 25: Female transitions across sex-typed occupations (cell percentages)**

| 1991 Sex types | NCDS 2001 sex types | | | | | | LS50s 2001 sex types | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Integrated | Female | Nonwork | Total | Marginal diff. | Male | Integrated | Female | Nonwork | Total | Marginal diff. |
| Male | 3.1 | 1.7 | 1.7 | 1.3 | 7.8 | 0.4 | 3.4 | 1.6 | 1.7 | 1.1 | 7.8 | 2.0 |
| Integrated | 1.5 | 8.9 | 5.4 | 2.4 | 18.2 | 3.7 | 1.8 | 7.4 | 4.8 | 2.4 | 16.3 | 2.5 |
| Female | 2.2 | 6.3 | 27.9 | 5.6 | 42.0 | 7.7 | 2.7 | 5.4 | 25.0 | 5.2 | 38.3 | 9.8 |
| Nonwork | 1.4 | 5.0 | 14.7 | 10.8 | 31.9 | -11.8 | 1.9 | 4.5 | 16.5 | 14.7 | 37.7 | -14.2 |
| **Total** | **8.2** | **21.9** | **49.7** | **20.1** | **100** | | **9.7** | **18.9** | **48.0** | **23.4** | **100** | |

*Notes*: All members of the LS50s longitudinal sample (1991-2001) included. Occupations classified into sex-types on the basis of one lookup table with percentage female derived from one 10 per cent sample of the 1991 Census (Hakim, 1998).
*Sources*: Authors' analysis: ONS Longitudinal Study and NCDS

In summary therefore these analyses of occupational movers suggest that, as we have already noted, the relative stability in the aggregate levels of segregation through the 1990s mask a great deal of mobility among the cohort at an individual level. From Table 22 we can see that for men this mobility tends to be within groups of occupations which have the same sex profile. Just over 60 per cent of men lie on the diagonal of Table 22, demonstrating that male occupational movers tend to move from a male dominated occupation to another male dominated occupation, or from an integrated occupation to another integrated occupation, for example. Furthermore, the patterns are very similar whether we examine results from the NCDS or the LS. Table 23 shows a slightly different pattern for women with a smaller percentage lying on the diagonal (52.9 per cent using the NCDS and 50.5 per cent using the LS). This suggests that women are more likely than men to move to an occupation with a different sex profile. In addition, as noted above there is a slight net flow of women from female dominated occupations into male-dominated occupations and into integrated occupations.

The reason for the observed stability in the aggregate level of occupational segregation for this cohort can therefore be summarised as arising from a great deal of individual mobility being restricted to moves between occupations with similar sex-profiles, and where individuals move across occupations with different sex-profiles, these moves tend to cancel each other out, particularly among the men.

## Section 4: CONCLUSIONS

The analysis of the NCDS and an analogous cohort extracted from the ONS Longitudinal Study produces similar results in relation to labour market variables in 1991 and 2000/1. However, there are some minor but systematic differences between the datasets due to the different levels and causes of attrition which impact on the nature of the samples. In particular, those in the NCDS dataset were more likely than those in the LS dataset to be in paid employment in both years. Moreover, NCDS men were slightly more likely than LS50s men to remain as Managers, Professionals and Associate Professionals. In contrast, LS50s men were more likely to remain out of work, and LS50s women were more likely to be out of the labour market looking after home and family.

How is attrition related to these differences? Previous research has concluded that the NCDS members more likely to be absent from the sample (due to refusal or difficulty in tracing them) are those with lower educational attainments than the members retained (Hawkes and Plewis, 2006). A greater proportion of NCDS members have qualifications at degree level and above than do LS50s members (see Tables 4 - 6), and this was the biggest difference between the two datasets found in the course of this research.[17] This is of relevance because it is well known that qualifications and employment are closely associated. Furthermore, Hawkes and Plewis also demonstrated that cohort members no longer included in the NCDS sample have less stable employment patterns and, in general, more disadvantaged circumstances.[18]

However, despite these minor differences between the two datasets, it is noteworthy that the percentage of individuals in the LS50s and NCDS who remained in the same major occupational group during the 1990s is very similar (52 per cent and 53.8 per cent of men and 43.3 per cent and 42.9 per cent of women respectively). This allays fears that the NCDS may underestimate occupational mobility due to the difficulties of tracing cohort members who are geographically mobile. In short, what is remarkable is that despite the differences between both studies in terms of history, sample design, data collection and causes of attrition, the NCDS and the LS50s identify the same trends in the employment circumstances of those born in Britain in the late 1950s.

In terms of occupational sex segregation, the two cohorts produced essentially the same results. Whereas during the 1990s aggregate levels of overall occupational sex segregation displayed a marked decline (Blackwell and Guinea-Martin, 2005), women and men born in the late 1950s were almost equally segregated from one another at the beginning of the 1990s when they were in their early thirties as they

[17] However, we need to be cautious and not overstretch the differences found in this point, given the very different attention that each study pays to the collection of information on qualifications - and the different modes of data collection used by the NCDS and the Census.
[18] In the LS the evidence about people lost to follow up shows contrasting patterns for men and women. A study of the percentage of traced LS members found in 1991 but not accounted for in 2001, by social class in 1991 and sex, concluded that, for men, linkage failure is higher at the bottom of the social classification (with 16.6 per cent of males in unskilled occupations in 1991 not found in 2001), whereas for women linkage failure is at its highest among professional women, at 11.6 per cent (Blackwell *et al.* 2003, p30).

were a decade later, when they were in their early forties. However, there was a slight decrease in segregation largely due to the feminisation of certain occupations (Grimshaw and Rubery, 2007). In the cohort analysis this was manifested by the fact that the percentage of women who moved from female-dominated occupations into integrated and male-dominated occupations was slightly larger than the percentage of women who moved in the opposite direction.

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# APPENDIX 1

## Part I: The NCDS and Census questions underpinning the variables compared in the paper

*Qualifications*

| NCDS 1991 | NCDS 2000 |
|---|---|
| B1a) Now I would like to ask you about your education and training. Since March 1981 [date of last interview] have you been on any courses that were meant to lead to qualifications? | How old was [name of Cohort Member] when s/he left full-time continuous education?<br><br>Can I just check, did [name of Cohort Member] start any other full-time education within three years of finishing his/her full-time continuous education? |
| B1b) How many courses that were designed to lead to qualifications have you been to on since March 1981? | How old was [name of Cohort Member] when he/she finished his/her last period of full-time education? |
| B5a) What was the name of this course?<br>PROBE: What were the main subjects that you studied? | Please look at card P1. Has [name of Cohort Member] obtained any of the qualifications on this card (since 1991)?<br><br>Please look at card P1 and tell me which of these qualifications [name of Cohort Member] has obtained? |
| B5b) Where did you take this course? | 1 GCSE<br>2 GCEO<br>3 CSE |
| B5c) Was it a full-time or part-time course? | 4 AS<br>5 GCEA<br>6 Scot |
| B5d) Which qualification was the course meant to lead to? | 7 Diploma of Higher Education<br>8 Degree (eg. BA, BSc)<br>9 Other degree level qualification such as graduate membership of professional institute |
| B5e) Did you obtain any qualifications from this course? | 10 Higher degree (eg PhD, MSc)<br>11 Nursing or other para-medical qualification not yet mentioned<br>12 PGCE “Postgraduate Certificate of Education” |
| B5f) Which qualifications? | 13 Other teaching qualification<br><br>Please Look at card P2. Has [name of Cohort Member] obtained any of the qualifications on this card? |
| | 1 BTEC, BEC, TEC, SCOTBEC, SCOTEC, or SCOTVEC qualification<br>2 City and Guilds qualification<br>3 RSA qualification<br>4 Pitman’s qualification<br>5 NVQ – National Vocational Qualification<br>6 GNVQ – General National Vocational Qualification<br>7 ONC/OND not covered elsewhere<br>8 HNC/HND not covered elsewhere<br>9 Recognised trade apprenticeship<br>10 HGV licence<br>11 Other qualification |

*Qualifications*

| Census 1991 | Census 2001 |
|---|---|
| *Has the person obtained any qualifications after reaching the age of 18 such as:*<br>- *degrees, diplomas, HNC, HND,*<br>- *nursing qualifications,*<br>- *teaching qualifications (see * below),*<br>- *graduate or corporate membership of professional institutions,*<br>- *other professional, educational or vocational qualifications?* | *15 If you are aged 16 to 74 → Go to 16*<br>*If you are 15 and under, or 75 and over → Go to 36*<br><br>*16 Which of these qualifications do you have> Tick all the qualifications that apply or, if not specified, the nearest equivalent* |
| *Do not count qualifications normally obtained at school such as GCE, GSE, GCSE, SCE and school certificates.* | 1 + O levels/CSEs/GCSEs (any grades) |
| *If box 2 is ticked, write in all qualifications even if they are not relevant to the person's present job or if the person is not working.* | 5+ O levels, 5+ CSEs (grade 1), 5+ GCSEs (grades A-C), School Certificates<br>1+ A levels/AS levels |
| Please list the qualifications in the order in which they were obtained. | 2+ A levels, 4+ AS levels, Higher School Certificate |
| If more than three, please enter in a spare column and link with an arrow. | First degree (eg BA, BSc) |
| * *For a person with **school teaching qualifications**, give the full title of the qualification, such as 'Certificate of Education' and the subject(s) which the person is qualified to teach. The subject 'education' should then be shown if the course had no other subject specialization.* | Higher Degree (eg MA, PhD, PGCE, post-graduate certificates, diplomas) |
| | NVQ Level 1, Foundation GNVQ |
| | NVQ Level 2, Intermediate GNVQ |
| | NVQ Level 3, Advanced GNVQ |
| 1 - NO – no such qualifications | NVQ Levels 4-5, HNC, HND |
| 2 – YES - give details | |
| | Other Qualifications (eg City and Guilds, RSA/OCR, BTEC/Edexcel) |
| 1 Title | |
| Subject(s) | No Qualifications |
| Year | |
| Institution | *17. Do you have any of the following professional qualifications?* |
| | *Tick all the boxes that apply* |
| | No Professional Qualifications |
| | Qualified Teacher Status (for schools) |
| | Qualified Medical Doctor |
| | Qualified Dentist |
| | Qualified Nurse, Midwife, Health Visitor |
| | Other Professional Qualifications |

*Economic activity*

| NCDS 1991 | NCDS 2000 |
|---|---|
| *Which of the things on this card describes what you are currently doing?* (VARIABLE r500520) | *I would like to get a few details about what you are doing at the moment.* (VARIABLE ECONACT) |
| Full-time paid employee (30+ hours a week) | Full-time paid employee (30+ hours a week) |
| Part-time paid employee (under 30 hours a week) | Part-time paid employee (under 30 hours a week) |
| Full-time self-employed | Full-time self-employed |
| Part-time self-employed | Part-time self-employed |
| Unemployed and seeking work | Unemployed and seeking work |
| Full-time education | Full-time education |
| Temporarily sick/disabled (up to 6 months) | On a government scheme for employment training |
| Permanently sick/disabled | Temporarily sick/disabled |
| Looking after home/family | Permanently sick/disabled |
| Other (PLEASE SPECIFY) | Looking after home/family |
| | Whole retired |
| | Other (Specify at next question) |

| Census 1991 |
|---|
| Which of these things was the person doing last week (VARIABLE ECONPO89) |
| Was working for an employer full time |
| (More than 30 hours a week) |
| Was working for an employer part time |
| (one hour or more a week) |
| Was self-employed, employing other people |
| Was self-employed, not employing other people |
| Was on a government employment or training scheme |
| Was waiting to start a job he/she had already accepted |
| Was unemployed and looking for a job |
| Was at school or in other full time education |
| Was unable to work because of long term sickness or disability |
| Was retired from paid work |
| Was looking after the home or family |
| Other, *please specify* |

The LS variable for comparing economic activity in 2001 with 1991 and 1981 data is ECOP80, which was derived on the basis of answers to the following questions:

18: Last week, were you doing any work:

- As an employee, or on a Government sponsored training scheme,
- As self-employed/freelance, or in your own/family business?

  Yes → Go to 24 No→ Go to 19

19: Were you actively looking for any kind of paid work during the last 4 weeks?

Yes No

20: If a job had been available last week, could you have started it within 2 weeks?

Yes No

21: Last week, were you waiting to start a job already obtained?

Yes No

22: Last week, were you any of the following?

Retired
Student
Looking after home/family
Permanently sick/disable
None of the above

23: Have you ever worked?

Yes No

24: Answer the remaining questions for the *main* job you were doing last week, or if not working last week, your last *main* job. Your *main* job is the job in which you usually work the most hours.

25: Do (did) you work as an employee or are (were) you self-employed?

35: How many hours a week do you usually work in your *main* job? Answer to nearest whole hour. Give average for last four weeks

*Occupation*

| NCDS 1991 | | NCDS 2000 |
|---|---|---|
| A4a) | I'd like to start by asking about your present job. What is the name or title of that job? | What is your (main) job? |
| A4b) | What kind of work do you do most of the time? IF RELEVANT: What materials or equipment do you use? | What do you mainly do in your job? |
| A4c) | What are the minimum qualifications or training that you need for that job? | What does the firm or organisation you work for mainly make or do (at the place where you work)? |
| A6a) | What does your employer make or do at the place where you usually work? | |

| Census 1991 | Census 2001 |
|---|---|
| 15. Please give the full title of the person's present or last job and describe the main things he/she does or did in the job. | 27: What is the full title of your main job? For example, PRIMARY SCHOOL TEACHER, STATE REGISTERED NURSE, CAR MECHANIC, TELEVISION SERVICE ENGINEER, BENEFITS ASSISTANT. |
| At a), give the full title by which the job is known, for example: 'packing machinist'; 'poultry processor'; 'jig and tool fitter'; 'supervisor of typists'; 'accounts clerk'; rather than general titles like 'machinist'; 'process worker'; 'supervisor' or 'clerk'. Give rank or grade if the person has one. | 28. Describe what you do in your main job. |
| At b), write down the main things the person actually does or did in the job. If possible ask him/her to say what these things are an write them down. | 29. Do you supervise any other employees? |
| 16. At a), please give the name of the employer. Give the trading name if one is used. Do not use abbreviations. | 30. What is the business of your employer at the place where you work? |
| | For example, MAKING SHOES, REPAIRING CARS, SECONDARY EDUCATION, FOOD WHOLESALE, CLOTHING RETAIL, DOCTOR'S SURGERY. |
| At b), describe clearly what the employer (or the person if self-employed) makes or does (or did). | If you are self-employed/freelance or have your own business, what is the nature of your business? |

## Part 2: Transition Tables

### Table A: Transition table of LS-All men in and out of work and between the 9 SOC90 major occupational groups (cell percentages)

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal / Protective | Sales | Plant operatives | Other | Out of work | Total | Horizontal moves | Degree of stability |
| Managers | 9.0 | 0.9 | 0.9 | 0.8 | 0.8 | 0.4 | 0.7 | 0.7 | 0.3 | 2.3 | 16.6 | 46.1 | 54.0 |
| Professionals | 1.4 | 4.5 | 0.5 | 0.2 | 0.2 | 0.0 | 0.1 | 0.2 | 0.0 | 1.0 | 8.1 | 44.1 | 55.9 |
| Assoc. Professionals | 1.2 | 1.0 | 2.6 | 0.2 | 0.3 | 0.1 | 0.1 | 0.2 | 0.1 | 0.8 | 6.6 | 60.2 | 39.8 |
| Clerical | 1.2 | 0.3 | 0.5 | 1.7 | 0.2 | 0.2 | 0.2 | 0.4 | 0.2 | 0.8 | 5.6 | 70.3 | 29.7 |
| Crafts | 1.6 | 0.5 | 0.9 | 0.4 | 10.5 | 0.4 | 0.2 | 2.0 | 0.7 | 2.6 | 19.8 | 47.1 | 52.9 |
| Persona/Protective | 0.5 | 0.1 | 0.3 | 0.2 | 0.2 | 1.9 | 0.1 | 0.3 | 0.1 | 0.7 | 4.4 | 57.2 | 43.0 |
| Sales | 1.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.9 | 0.3 | 0.1 | 0.5 | 3.6 | 76.0 | 24.0 |
| Plant operatives | 0.8 | 0.2 | 0.4 | 0.6 | 1.2 | 0.3 | 0.2 | 5.2 | 0.8 | 2.1 | 11.8 | 55.8 | 44.2 |
| Other | 0.4 | 0.1 | 0.1 | 0.3 | 0.5 | 0.2 | 0.1 | 0.8 | 1.9 | 1.1 | 5.5 | 65.2 | 34.8 |
| Out of work | 1.9 | 1.8 | 1.3 | 0.9 | 1.7 | 0.6 | 0.4 | 1.4 | 0.8 | 7.1 | 18.0 | 60.4 | 39.6 |
| **Total** | **19.0** | **9.7** | **7.7** | **5.4** | **15.8** | **4.2** | **2.8** | **11.5** | **5.0** | **19.0** | **100** | | |
| % vertical moves | 10.0 | 5.2 | 5.1 | 3.7 | 5.3 | 2.3 | 1.9 | 6.2 | 3.1 | 11.9 | | | |
| % vert. moves over all moves | 18.3 | 9.5 | 9.3 | 6.8 | 9.7 | 4.2 | 3.5 | 11.4 | 5.6 | 21.8 | | | |
| % of 'stayers' (diagonal) | 45.3 | | | | | | | | | | | | |
| % movers (off diagonal) | 54.7 | | | | | | | | | | | | |

*Source*: ONS Longitudinal Study
n=107,162

**Table B: Transition table of LS-All women in and out of work and between the 9 SOC90 major occupational groups (cell percentages)**

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal/ Protective | Sales | Plant operatives | Other | Out of work | Total | Horizontal moves | Degree of stability |
| Managers | 2.9 | 0.3 | 0.4 | 1.2 | 0.1 | 0.4 | 0.4 | 0.1 | 0.1 | 1.8 | 7.6 | 61.4 | 38.6 |
| Professionals | 0.4 | 3.2 | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 1.1 | 5.2 | 38.7 | 60.9 |
| Assoc. Professionals | 0.6 | 0.4 | 3.4 | 0.4 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 1.2 | 6.5 | 47.6 | 52.1 |
| Clerical | 2.5 | 0.4 | 1.1 | 9.3 | 0.1 | 0.8 | 0.8 | 0.2 | 0.3 | 4.3 | 19.5 | 52.7 | 47.4 |
| Crafts | 0.1 | 0.0 | 0.1 | 0.2 | 0.5 | 0.2 | 0.1 | 0.2 | 0.2 | 0.8 | 2.3 | 79.2 | 21.2 |
| Persona/Protective | 0.5 | 0.2 | 0.6 | 0.6 | 0.1 | 3.0 | 0.4 | 0.1 | 0.4 | 2.2 | 8.1 | 63.2 | 37.0 |
| Sales | 0.7 | 0.1 | 0.2 | 0.8 | 0.1 | 0.5 | 1.9 | 0.1 | 0.3 | 1.8 | 6.5 | 70.2 | 30.1 |
| Plant operatives | 0.1 | 0.0 | 0.1 | 0.3 | 0.1 | 0.2 | 0.2 | 0.8 | 0.3 | 1.2 | 3.4 | 75.9 | 24.1 |
| Other | 0.2 | 0.0 | 0.1 | 0.3 | 0.1 | 0.8 | 0.3 | 0.1 | 1.5 | 1.8 | 5.4 | 71.7 | 28.3 |
| Out of work | 2.4 | 2.0 | 1.9 | 3.7 | 0.3 | 3.3 | 1.8 | 0.6 | 1.7 | 17.8 | 35.6 | 50.1 | 49.9 |
| **Total** | **10.5** | **6.7** | **8.2** | **16.8** | **1.3** | **9.6** | **6.1** | **2.3** | **4.8** | **33.7** | **100** | | |
| % vertical moves | 7.6 | 3.6 | 4.8 | 7.5 | 0.8 | 6.6 | 4.2 | 1.4 | 3.3 | 16.0 | | | |
| % vert. moves over all moves | 13.6 | 6.4 | 8.6 | 13.5 | 1.4 | 11.9 | 7.5 | 2.6 | 6.0 | 28.6 | | | |
| % of 'stayers' (diagonal) | 44.2 | | | | | | | | | | | | |
| % movers (off diagonal) | 55.8 | | | | | | | | | | | | |

*Source:* ONS Longitudinal Study
n=115,171

**Table 12: Transition table of NCDS men in and out of work and between the 9 SOC90 major occupational groups (cell percentages)**

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal/ Protective | Sales | Plant operatives | Other | Out of work | **Total** | Horizontal moves | Degree of stability |
| Managers | 13.6 | 1.1 | 1.4 | 1.0 | 1.2 | 0.3 | 1.1 | 0.8 | 0.3 | 0.6 | **21.5** | 36.7 | 63.3 |
| Professionals | 1.7 | 6.3 | 0.9 | 0.1 | 0.5 | 0.1 | 0.1 | 0.2 | 0.1 | 0.4 | **10.2** | 38.4 | 61.6 |
| Assoc. Professionals | 2.3 | 1.1 | 4.7 | 0.4 | 0.6 | 0.1 | 0.2 | 0.3 | 0.0 | 0.5 | **10.2** | 54.2 | 45.8 |
| Clerical | 1.3 | 0.4 | 0.3 | 1.8 | 0.2 | 0.0 | 0.2 | 0.6 | 0.2 | 0.2 | **5.1** | 65.7 | 34.3 |
| Crafts | 2.0 | 0.3 | 0.8 | 0.6 | 12.4 | 0.3 | 0.2 | 1.4 | 0.6 | 1.1 | **19.6** | 36.9 | 63.1 |
| Persona/Protective | 1.2 | 0.1 | 0.2 | 0.2 | 0.2 | 3.1 | 0.1 | 0.2 | 0.1 | 0.2 | **5.6** | 44.5 | 55.6 |
| Sales | 1.5 | 0.2 | 0.3 | 0.1 | 0.3 | 0.1 | 1.1 | 0.4 | 0.1 | 0.2 | **4.2** | 74.1 | 25.9 |
| Plant operatives | 0.8 | 0.3 | 0.4 | 0.5 | 1.3 | 0.1 | 0.2 | 5.3 | 0.8 | 1.0 | **10.7** | 50.8 | 49.1 |
| Other | 0.5 | 0.0 | 0.2 | 0.2 | 0.3 | 0.1 | 0.1 | 0.7 | 2.0 | 0.5 | **4.6** | 56.7 | 43.3 |
| Out of work | 0.4 | 0.4 | 0.7 | 0.4 | 1.1 | 0.1 | 0.2 | 0.8 | 0.5 | 3.7 | **8.3** | 55.3 | 44.7 |
| **Total** | **25.4** | **10.3** | **9.9** | **5.3** | **17.9** | **4.2** | **3.3** | **10.7** | **4.7** | **8.4** | **100.0** | | |
| % vertical moves | 11.8 | 4.0 | 5.2 | 3.5 | 5.5 | 1.1 | 2.2 | 5.4 | 2.7 | 4.7 | | | |
| % vert. moves over all moves | 25.6 | 8.6 | 11.3 | 7.7 | 11.9 | 2.5 | 4.8 | 11.7 | 5.8 | 10.1 | | | |
| % of 'stayers' (diagonal) | 53.8 | | | | | | | | | | | | |
| % movers (off diagonal) | 46.2 | | | | | | | | | | | | |

*Source*: National Child Development Study

**Table 13: Transition table of LS50s men in and out of work and between the 9 SOC90 major occupational groups (cell percentages)**

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal/ Protective | Sales | Plant operatives | Other | Out of work | **Total** | Horizontal moves | Degree of stability |
| Managers | 11.7 | 1.4 | 1.0 | 0.8 | 1.0 | 0.4 | 0.8 | 0.7 | 0.4 | 1.0 | **19.0** | 38.6 | 61.4 |
| Professionals | 1.8 | 5.5 | 0.6 | 0.3 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.3 | **9.0** | 38.6 | 61.4 |
| Assoc. Professionals | 1.8 | 1.5 | 3.5 | 0.2 | 0.4 | 0.1 | 0.2 | 0.1 | 0.0 | 0.4 | **8.2** | 57.1 | 42.9 |
| Clerical | 1.1 | 0.2 | 0.5 | 1.7 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 0.4 | **5.0** | 65.4 | 34.6 |
| Crafts | 1.7 | 0.7 | 1.2 | 0.4 | 13.0 | 0.2 | 0.2 | 2.0 | 0.7 | 1.5 | **21.6** | 39.9 | 60.1 |
| Persona/Protective | 0.7 | 0.2 | 0.3 | 0.2 | 0.3 | 2.7 | 0.1 | 0.4 | 0.1 | 0.5 | **5.3** | 49.7 | 50.3 |
| Sales | 1.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.9 | 0.3 | 0.1 | 0.2 | **3.2** | 72.7 | 27.3 |
| Plant operatives | 1.0 | 0.3 | 0.5 | 0.5 | 1.4 | 0.2 | 0.2 | 6.1 | 0.8 | 1.2 | **12.3** | 50.1 | 50.0 |
| Other | 0.3 | 0.1 | 0.1 | 0.3 | 0.5 | 0.2 | 0.1 | 0.9 | 1.9 | 0.8 | **5.2** | 63.1 | 36.8 |
| Out of work | 0.7 | 0.5 | 0.5 | 0.4 | 1.4 | 0.4 | 0.2 | 1.1 | 0.6 | 5.3 | **11.2** | 52.9 | 47.1 |
| **Total** | **22.0** | **10.5** | **8.4** | **5.0** | **18.4** | **4.4** | **2.8** | **12.1** | **4.8** | **11.5** | **100.0** | | |
| % vertical moves | 10.3 | 5.0 | 4.9 | 3.3 | 5.4 | 1.8 | 2.0 | 5.9 | 2.9 | 6.3 | | | |
| % vert. moves over all moves | 21.6 | 10.4 | 10.3 | 6.9 | 11.4 | 3.7 | 4.1 | 12.4 | 6.0 | 13.1 | | | |
| % of 'stayers' (diagonal) | 52.3 | | | | | | | | | | | | |
| % movers (off diagonal) | 47.7 | | | | | | | | | | | | |

*Source*: ONS Longitudinal Analysis

**Table 14: Transition table of NCDS women in and out of work and between the 9 SOC90 major occupational groups (cell percentages)**

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal/ Protective | Sales | Plant operatives | Other | Out of work | **Total** | Horizontal moves | Degree of stability |
| Managers | 3.3 | 0.4 | 0.6 | 1.5 | 0.1 | 0.3 | 0.5 | 0.0 | 0.2 | 1.2 | **8.2** | 59.9 | 40.1 |
| Professionals | 0.4 | 4.7 | 0.4 | 0.2 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.7 | **6.6** | 28.9 | 71.1 |
| Assoc. Professionals | 0.7 | 0.8 | 5.6 | 0.7 | 0.0 | 0.5 | 0.2 | 0.0 | 0.2 | 1.1 | **9.6** | 42.2 | 57.8 |
| Clerical | 2.2 | 0.7 | 1.0 | 10.3 | 0.1 | 1.0 | 0.7 | 0.2 | 0.2 | 2.2 | **18.4** | 44.4 | 55.6 |
| Crafts | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | **0.8** | 62.1 | 37.8 |
| Persona/Protective | 1.0 | 0.3 | 0.7 | 1.2 | 0.1 | 4.4 | 0.5 | 0.3 | 0.9 | 1.7 | **11.2** | 61.0 | 39.0 |
| Sales | 0.6 | 0.2 | 0.2 | 1.2 | 0.1 | 0.6 | 1.6 | 0.1 | 0.3 | 0.8 | **5.8** | 71.8 | 28.2 |
| Plant operatives | 0.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.4 | 0.3 | 0.8 | 0.1 | 0.5 | **2.8** | 72.1 | 27.9 |
| Other | 0.2 | 0.0 | 0.1 | 0.5 | 0.0 | 1.0 | 0.3 | 0.3 | 1.0 | 1.0 | **4.5** | 76.8 | 23.2 |
| Out of work | 1.8 | 1.8 | 2.1 | 4.7 | 0.2 | 5.4 | 2.3 | 0.7 | 2.2 | 10.9 | **32.1** | 66.0 | 34.0 |
| **Total** | **10.5** | **9.0** | **10.8** | **20.6** | **1.0** | **13.8** | **6.5** | **2.4** | **5.2** | **20.2** | **100.0** | | |
| % vertical moves | 7.2 | 4.2 | 5.3 | 10.4 | 0.7 | 9.4 | 4.9 | 1.7 | 4.2 | 9.3 | | | |
| % vert. moves over all moves | 12.5 | 7.4 | 9.2 | 18.1 | 1.1 | 16.5 | 8.6 | 2.9 | 7.4 | 16.2 | | | |
| % of 'stayers' (diagonal) | 42.9 | | | | | | | | | | | | |
| % movers (off diagonal) | 57.1 | | | | | | | | | | | | |

*Source*: National Child Development Study

**Table 15: Transition table of LS50s women in and out of work and between the 9 SOC90 major occupational groups (cell percentages)**

| | 2001 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1991** | Managers | Professionals | Assoc. Professionals | Clerical | Crafts | Personal/ Protective | Sales | Plant operatives | Other | Out of work | **Total** | Horizontal moves | Degree of stability |
| Managers | 3.6 | 0.4 | 0.6 | 1.1 | 0.1 | 0.5 | 0.4 | 0.1 | 0.1 | 1.0 | **7.9** | 54.4 | 45.6 |
| Professionals | 0.5 | 3.6 | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.5 | **5.1** | 30.0 | 70.0 |
| Assoc. Professionals | 0.9 | 0.5 | 4.4 | 0.5 | 0.0 | 0.4 | 0.2 | 0.0 | 0.0 | 0.9 | **7.8** | 44.0 | 56.0 |
| Clerical | 2.4 | 0.5 | 1.0 | 9.2 | 0.1 | 1.0 | 0.8 | 0.2 | 0.2 | 2.0 | **17.4** | 47.4 | 52.6 |
| Crafts | 0.1 | 0.0 | 0.1 | 0.1 | 0.5 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | **1.7** | 68.8 | 31.3 |
| Persona/Protective | 0.6 | 0.4 | 0.7 | 0.8 | 0.1 | 3.2 | 0.6 | 0.2 | 0.5 | 1.6 | **8.6** | 62.1 | 37.9 |
| Sales | 0.9 | 0.1 | 0.2 | 1.2 | 0.1 | 0.6 | 1.9 | 0.1 | 0.2 | 1.0 | **6.2** | 71.0 | 29.0 |
| Plant operatives | 0.2 | 0.0 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.8 | 0.2 | 0.6 | **2.8** | 71.4 | 28.6 |
| Other | 0.3 | 0.0 | 0.2 | 0.5 | 0.1 | 0.9 | 0.6 | 0.2 | 1.1 | 0.8 | **4.9** | 77.6 | 22.4 |
| Out of work | 2.2 | 1.9 | 2.2 | 4.8 | 0.4 | 5.7 | 2.5 | 0.7 | 2.5 | 14.7 | **37.7** | 59.6 | 40.4 |
| **Total** | **11.7** | **7.4** | **9.7** | **18.7** | **1.5** | **12.7** | **7.3** | **2.5** | **5.1** | **23.4** | **100.0** | | |
| % vertical moves | 8.1 | 3.8 | 5.3 | 9.4 | 1.0 | 9.6 | 5.4 | 1.7 | 3.9 | 8.7 | | | |
| % vert. moves over all moves | 14.2 | 6.7 | 9.4 | 16.6 | 1.8 | 16.8 | 9.5 | 3.0 | 6.9 | 15.2 | | | |
| % of 'stayers' (diagonal) | 43.0 | | | | | | | | | | | | |
| % movers (off diagonal) | 57.0 | | | | | | | | | | | | |

*Source*: ONS Longitudinal Analysis

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