

**Department for Work and Pensions**

**Research Report No 416**

# **Persistent employment disadvantage**

**Richard Berthoud and Morten Blekesaune**

A report of research carried out by the Institute for Social and Economic Research, University of Essex, on behalf of the Department for Work and Pensions and the Equalities Review

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Responsibility for the analysis and interpretation remains with the authors, not with any of the other individuals or organisations named here.

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# Summary

Are members of certain social groups more persistently out of employment than other groups? Persistence is here interpreted as 'long lasting' and is studied at two levels:

**At the level of society:** employment disadvantage is seen to be persistent if there has been no improvement in the employment position of the group under consideration (relative to others) over several years and decades.

**At the level of individuals:** employment disadvantage is seen to be persistent if individual members of the group experiencing low employment rates are also less likely to move into employment later on, from one decade to the next.

The society level analysis uses a series of cross-sectional analyses of the General Household Survey (GHS) over a 30-year period from 1973 to 2003. The individual level analysis uses the Office for National Statistics (ONS) Longitudinal Study (LS) which links individual level data from the Censuses of 1971, 1981, 1991 and 2001. The analysis includes all people from 20 to 59 years of age.

The social groups being compared were defined by age, sex and motherhood, disability, ethnicity, and religion. A distinction is made between employment gaps and employment penalties. Gaps refer to crude differences between the social groups being compared. Penalties refer to differences that can not be accounted for by observed characteristics such as age composition, education level, family composition and local unemployment rates. Penalties include unmeasured characteristics such as discrimination, aspiration and constraints (e.g. child care). We are not able to distinguish between these factors. A separate analysis distinguishes between three forms of non-employment: unemployment, permanent sickness and other reasons.

Employment was defined as any hours of work (the ONS LS) and 16 hours or more per week (the GHS). The difference (analysed separately) largely affects estimates of employment penalties of women and mothers. Some differences between the two parts of the research also arose from other data characteristics such as sample size (i.e. investigating small groups), available variables (e.g. religion), definitions of

social groups (e.g. disability), and consistency in question forms (e.g. employment). Thus, the two parts of the research were complementary and all major conclusions are (as far as the data allow) supported by both parts of the research.

## Women and mothers

The biggest change in employment rates has occurred among women and among mothers of young children in particular. This group is much less disadvantaged now than it was three decades ago, even though they still have very low employment rates compared with other social groups. Fewer women leave employment for several years when having children today, compared with the 1970s.

## Older workers

Older workers, defined as people between 50 and 60 years, are more likely to leave employment and remain out of employment than younger workers. This form of exit and disadvantage emerged in the 1970s and increased through the 1980s. It has not changed much since the late 1980s, however, and has even improved slightly since the late 1990s.

## Disabled people

Disabled people face one of the largest employment penalties of all social groups being compared. Exactly how big, and how it compares with other groups, varies by type of disability and how disability is measured. The employment penalty faced by the disabled population has increased substantially since the 1970s. Disabled people are also much less likely to enter employment once out than other non-employed people. This is particularly true for those with long-lasting disabilities.

## Ethnic minorities

Employment penalties vary considerably between ethnic minorities. Some minority groups, particularly people of Bangladeshi and Pakistani origin, have very low employment rates. This is especially true for Bangladeshi and Pakistani women. Observed characteristics such as education level and family composition can explain only a small part of the difference.

The huge employment penalty faced by Pakistani and Bangladeshi women has not changed much during the last 30 years. Further, non-employed Pakistani and Bangladeshi women are also much less likely to enter employment once out than other non-employed women. Even if Pakistani and Bangladeshi men also face employment penalties, their disadvantage is less persistent (compared with other men) than the employment penalty faced by Pakistani and Bangladeshi women (compared with other women).

Among ethnic minorities, black men, but not black women, also face considerable employment penalties. In fact, Caribbean women have had higher employment rates than white women.

## Religious minorities

Ethnic and religious minorities tend to be made up of the same people. It is thus, not easy to say if people experience employment penalties because of their ethnic group or because of their religion. Nearly all Pakistani and Bangladeshi people are Muslims, and their employment penalties are only slightly larger than other Muslim groups, including Indian and white Muslims. Thus, it appears that religion is an important factor explaining the low employment rates in this group.

Among religious minorities, Buddhists, Sikhs and Hindu women also have relatively low employment rates, but not nearly as low as otherwise similar Muslim groups.

When comparing combinations of ethnic and religious groups it appears that religion is more important than ethnic group in explaining employment penalties among women. Among men, on the other hand, both religion and ethnic group can predict employment penalties.

## Comparing social groups

So, which social groups face the largest employment penalties? Three groups stand out with particularly large employment penalties: mothers, disabled people and Muslim women. The situation of mothers has improved substantially, however, during the last decades and most mothers move into employment as their children grow older. So, even if mothers still are in a disadvantaged employment position, this disadvantage is not so persistent at the level of society or at the level of individual mothers.

Pakistani and Bangladeshi women, the largest group of Muslim women, have remained in a constant disadvantaged position as compared with white women for a 30-year period. White women have, however, improved their position in this period. Hence, the employment position of Pakistani and Bangladeshi women has also improved relative to that of men. At the individual level, very few non-employed Pakistani and Bangladeshi women, or Muslim women more generally, move into employment once out. In fact, of all social groups it is only disabled people who are equally as unlikely to move into employment as Muslim women.

The employment position of disabled people has deteriorated over the last 30 years, and individual disabled people are as unlikely to enter employment once out as Muslim women. Thus, it appears that disabled people and Muslim women are the two most **persistently** non-employed social groups, in part because their disadvantaged positions have worsened (disabled people) or failed to improve (Muslim women) in relation to relevant comparison groups, and both are very unlikely to enter employment once out.



# 1 Introduction: the persistence of employment disadvantage

## 1.1 Background

*Despite 40 years of legislation to protect people from discrimination, evidence suggests that there are still social, economic, cultural or other factors that individually or in combination may limit or deny individuals the opportunity to make the best of their abilities and to contribute to society fully.<sup>1</sup>*

The government has set up an Equalities Review, which will:

- 1** *Provide an understanding of the long term and underlying causes of disadvantage that need to be addressed by public policy.*
- 2** *Make practical recommendations on key policy priorities for: the Government and public sector; employers and trade unions; civic society and the voluntary sector.*
- 3** *Inform both the modernisation of equality legislation, towards a Single Equality Act; and the development of the new Commission for Equality and Human Rights.*

There is a variety of existing policies addressing discrimination and disadvantage experienced by different social groups. There are separate laws, and separate Commissions, covering race relations, gender inequalities and disability rights. The Government plans to introduce a unified body of legislation, and a new overarching Commission, to address all of these specific disadvantages, as well as a broader

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<sup>1</sup> Text in italics on this page is quoted from the terms of reference for the Equalities Review.

promotion of human rights. This perspective switches the focus from the individual issues of ethnic disadvantage, women's rights, disability discrimination and so on, to an overview of all group-based disadvantages.

There has been a parallel tradition of research into the extent of disadvantage among specific social groups – ethnic minorities, women, disabled people and so on.<sup>2</sup> Sometimes (especially in the case of race relations), such research has directly influenced the introduction of new policies. But, again, there has been little research providing an integrated view of the experience of all such groups.

This report presents the results of an analysis, requested by the Equalities Review panel, of **persistent employment disadvantage**, covering as many social groups as possible, using the same sources of data, so that direct comparisons can be made. It compares the employment positions of British adults by ethnic and religious group, gender and family structure, disability and age, so that we can show which groups have been, and are, the most disadvantaged.

## 1.2 Persistent employment penalties

We have interpreted the word 'persistent' to mean 'long-lasting'. The issue can be thought of in two ways:

**At the level of society:** employment disadvantage is seen to be persistent if there has been no improvement in the employment position of the group under consideration (relative to others) over several years and decades.

**At the level of individuals:** employment disadvantage is seen to be persistent if individual members of the group experiencing low employment rates are also less likely to move into employment later on, from one decade to the next.

Analysis of these two levels of 'persistence' requires different types of data: the first, a series of 'cross-sectional' studies describing society at different time periods, the second, a 'longitudinal' study providing information about the same individuals at different time periods.

Chapter 2 of this report addresses persistence at the society level. It uses the General Household Survey (GHS) which provides an almost-continuous series of data going back to 1974. This analysis shows how much worse members of the four social groups under consideration have fared in the labour market, and whether their situation has improved or deteriorated.

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<sup>2</sup> The longest research sequence covers ethnic disadvantage. See Daniel (1967) *Racial Discrimination in England*, Smith (1976) *Racial Disadvantage in Britain*, Brown (1984) *Black and White Britain* and Modood and others (1997) *Ethnic Minorities in Britain*.



Chapter 3 addresses persistence at the individual level. It uses the Office for National Statistics (ONS) Longitudinal Study (LS) which provides data about the same individuals, recorded every ten years from 1971 to 2001. This analysis shows how far members of each social group tend to be found in a similar labour market position at distinct points across their lives.

All analysis in this report is based on adults aged 20 to 59. Young adults, aged 16 to 19, have not been included because such a high proportion of them are still in full-time education. Men aged 60 to 64 have been omitted because, although still below pensionable age, a high proportion of them have in fact retired – and in this age group, ‘early retirement’ is sometimes a marker of privilege and sometimes a marker of disadvantage.

In emphasising the new contribution made by this report, it is also important to recognise some of the limitations inherent in a large-scale, broad-grain analysis of this kind:

- The research focuses on disadvantages in employment and does not consider other potential social problems that may be faced by the same social groups.
- This quantitative analysis makes statistical comparisons between large groups of people and makes no attempt to show the personal variations in lived experiences such as could be derived from qualitative research. And the broad-brush analytical model designed to make comparisons between groups is not as detailed or as sophisticated as would be appropriate for a study focused on any one group.
- The research shows that certain groups are less likely to have a job than others; and also shows how this probability compares with other people with otherwise similar characteristics (such as family position, education, regional labour market). The research does not reveal the social or economic processes which explain these differences.

The GHS provides data for England, Scotland and Wales. The ONS LS has data only for England and Wales. The main text records findings jointly for Great Britain (GHS) or England and Wales (ONS LS). Appendix F provides estimates of some recent employment penalties within England, Scotland and Wales, but without time series.

### 1.3 Interpreting employment penalties

The term ‘ethnic penalty’ has been defined by Heath and McMahon (1997) as:

*‘...all the sources of disadvantage that might lead an ethnic group to fare less well in the labour market than do similarly qualified whites.’<sup>3</sup>*

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<sup>3</sup> A new report on *Ethnic Penalties in the Labour Market* by Heath and Cheung (2006), has been published recently by the DWP. An internal intelligence brief by the DWP (2003), ‘Ethnic Penalties in Employment, a literature review’ usefully summarises six sources.

This report applies the same concept to the disadvantages experienced by older people, by disabled people and by women, as well as by ethnic minorities, under the generic heading of 'employment penalties'.

There are at least four ways of measuring how well individuals 'fare in the labour market':

- 1 whether they have a job, or not;
- 2 whether they have found a job, assuming that they have been looking for one;
- 3 what occupational level they have been able to achieve, if they are employed;
- 4 how much they earn, if they are employed.

Each of these is a legitimate measure which has been used to estimate ethnic penalties, and could, in principle, be applied to other disadvantaging characteristics. The analysis of employment in this report (option 1) does not necessarily provide an indication of the quality or earnings of the jobs that members of a group might have.

The distinction between the first two options requires some discussion. Labour market analysts often distinguish between the unemployed (defined as out of work but looking for work) and economically inactive (defined as out of work but not looking for work). In some contexts, inactivity can be discounted – if people choose not to work, probably for some specific reason, their lack of a job is not a problem. In that perspective, only strictly-defined unemployment should be used as a measure of disadvantaged outcomes. Several analyses of ethnic penalties have been based on this assumption.

This approach would not capture the sources of employment disadvantage faced by women (especially mothers) and disabled people. High proportions of both groups are economically inactive. We cannot discount these situations as 'choice', because there is a strong possibility that the apparent choice of role may have been constrained by the very disadvantage that we are trying to measure. Women do not have a free choice whether they or their partners (or ex-partners) should be the main carer for their children; nor a free choice whether good child care services are available, or employment opportunities with flexible hours. Disabled people do not have a free choice whether they should be regarded as 'incapable of work', either by themselves or by employers. In each case, choice is exercised within restricted options structured by their social position. The analysis cannot assume that economic inactivity is not a signal of disadvantage.

The primary measure of outcomes is whether people are employed or not (as defined above). We have though, undertaken a parallel analyses using employed versus unemployed as the criterion. A separate analysis (presented in Section 3.11) of the ONSLS distinguishes between three forms of non-employment: unemployment, permanent sickness and other reasons. Appendix B presents a similar analysis of the GHS concerning non-employment versus unemployment.

Employment penalties should **not** be interpreted as an estimate of the extent of discrimination faced by members of the group under consideration. Discrimination (as defined in legislation) occurs when members of a group are passed over by employers in the competition for jobs, promotions or salary, in favour of other candidates who are less suitable for the positions on offer. Our analysis of disadvantage, as measured by employment penalties, covers **all** the possible reasons why one group of people should be less likely to have a job than another. These reasons could include factors on the supply side (personal attitudes, job histories, family commitments, impairment) and on the demand side (discrimination, inflexible employment conditions, industrial/occupational structures, the health of local labour markets) and in the market place between them (social attitudes, transportation systems, child-care services, tax and benefit incentives). It is the overall package of these factors that make up the disadvantage measured by this analysis. Discrimination may be an important component, but other research methods are required to establish the process in action.<sup>4</sup>

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<sup>4</sup> It can be argued that narrowly defined discrimination can be measured only in the rare circumstance when the researcher has all the information also available to the recruiter, for a large sample of candidates. See, for example, Brown and Gay (1985) and Shiner and Modood (2002).



## 2 Society level persistence: analysis of the General Household Survey

### 2.1 The General Household Survey

The General Household Survey (GHS) is a continuous multipurpose survey of large random samples of households across Great Britain. The survey has been conducted, using a new sample each time, every year since 1974, with the exception of 1997 and 1999. The latest data available for this analysis relate to 2003.<sup>5</sup>

Each of the 28 annual GHSs included in the analysis covers between 10,000 and 17,000 men and women within this age range, with an overall total of 368,321.<sup>6</sup> Where results are shown for a series of years combined, each annual survey has been given equal weight, without regard to the number of respondents in the sample, or to the number of adults in the population in the years in question.<sup>7</sup>

All the annual surveys asked questions about respondents' economic activity, and (with some exceptions) about the set of personal characteristics that are known to be associated with people's job prospects. Some of these questions (notably age and sex) were asked and coded identically in every survey, and could easily be compared across the sequence. Others, notably educational qualifications and

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<sup>5</sup> Since 2000 the annual sample has based on financial years, e.g. April 2003 to March 2004, but we have labelled these according to the first-named year, e.g. 2003, for convenience.

<sup>6</sup> The GHS did not ask questions about limiting long-standing illness in 1977 and 1978. Analysis taking account of disability, including all estimates of employment penalties, is based on 26 years of data, with a total sample of 337,103.

<sup>7</sup> Calculations of standard errors have taken account both of weighting across years, and of clustering of observations within households.

ethnic group, were asked and/or coded in different ways across the sequence, and a major preparatory task was to ensure that these data were recoded to be as comparable as possible from year to year.

In this analysis of the GHS (Chapter 2) people are defined as employed if they had a job for 16 hours or more per week at the time they took part in the survey. Less than 16 hours was not counted, on the grounds that very short hours cannot be considered a primary means of earning a living. The 16 hour cut-off is enshrined in current social security and tax-credit legislation, although the formal boundary was at 30 hours at the beginning of the period under review. Those in full-time education have also been classified as employed, because it is widely considered to be both hard work and a long-term economic investment.

Notice that the analysis of the Office for National Statistics (ONS) Longitudinal Study (LS) (Chapter 3) defines people as employed if they are working any hours, largely because the number of hours worked was not recorded in the 1981 Census. The difference between the two definitions of employment (16 hours and any hours) is investigated in Chapter 3 (eg Section 3.4).

This analysis compares employment rates across four dimensions of potential disadvantage: age, disability, gender (and family structure) and ethnicity. Table 2.1 summarises these four dimensions across the most recent four years (2000 to 2003), showing the proportion of all adults aged 20-59 in that group and the average employment rate of that group among men and women separately.

The analysis will also take account of two other factors which are known to have a major influence on employment rates: educational qualifications and regional unemployment:

- The GHS coding frame for qualifications changed quite frequently, but it was possible to regroup the codes to the consistent framework shown in Appendix A. The level of qualifications increased hugely over the period; the analysis takes account of the range of qualifications reported each year and does not make assumptions about the relative value of educational achievements at different periods.
- The GHS recorded the region where each household was interviewed. We have calculated the unemployment rate from the survey data in the standard way, dividing the number of people reported to be 'unemployed and looking for work', by the total of employed plus unemployed. The overall rate varied from year to year, but it is the variation between regions within any year that is taken into account in the analysis.

As with all research of this kind, the findings should be treated just as 'estimates', with a margin of error either way associated with sampling considerations, measurement uncertainties and analytical simplifications. It is the broad differences and trends that matter.

**Table 2.1 Summary of social groups and their employment rates, 2000-2003**

	Proportion of sample %	Employment rate Men %	Women %
<b>Age</b>			
20-49	75	89	68
50-59	25	78	57
<b>Disability</b>			
None	84	91	70
Has a limiting long-standing condition	16	57	41
<b>Family</b>			
Partnered man	34	89	
Single man	14	78	
Single woman, no children	10		76
Partnered woman, no children	18		70
Partnered woman with children 11 plus	5		70
Lone parent with children 11 plus	2		65
Partnered with children 0-10	13		54
Lone parent with children 0-10	4		45
<b>Ethnic group</b>			
White	92	86	66
Caribbean	1.3	83	74
Indian	1.7	87	59
Pakistani/Bangladeshi	1.5	75	27
Other	3.4	78	58

Note: All analysis based on adults aged 20-59. Men are classified as partnered or single, without regard to whether they have children or not. See Appendix C for details of the classification by ethnic group. Results for the 'other' ethnic group will not be presented further, because it contains such a wide variety of ethnicities.

## 2.2 Estimating gaps and penalties

This analysis single-mindedly pursues one objective: to show how the probability of having a job differs between the social groups under consideration and how those probabilities have varied over the 30-year period for which we have data.

For each of the social groups the analysis is in two stages. Take older potential workers, for example – the simplest (and therefore, the first) of the groups to be discussed. We define 'older' as people over 50 (and still under 60). It can very easily be shown what proportion of 50-59 year olds had a job, in each year. And what proportion of 20-49 year olds had a job. It will always be found that the rate was lower for the older group, and the **employment gap** is simply the difference between the two. Table 2.1 showed an age-employment gap of 11 percentage points for both men and women over the recent period. The size of the gap can be

traced from 1974 to 2003, to show whether it was widening, narrowing or fluctuating over the period (see Figure 2.3 for the first example, dealing with age).

The employment gap has real meaning – older people of working age are actually worse off than younger ones. But it might not necessarily be age as such that is making the difference. Older people have lower levels of educational qualifications, and higher rates of disability, than younger ones, and these characteristics might reduce their job chances, independently of age. On the other hand, older women are less likely to have young children, and this might be an influence to increase their employment rate. So the second, and computationally more complex, stage of the analysis is to calculate how much worse the employment prospects of older people are than those of younger people who are the same in all the other respects under consideration. We will call this corrected difference, after taking account of other characteristics, the **employment penalty** associated with the social group under consideration.

The technique used to estimate these net effects is a logistic regression equation. This calculates an equation which predicts the probability of any individual being employed, based on a set of information about their characteristics. Job prospects are found to be higher than average if the individual has good qualifications, lower than average if they have poor qualifications; higher if young, lower if old; and so on. The headline results of an equation covering the recent period are shown in Table 2.2, with a more detailed and more technical version available in Appendix A. The results will be narrated group by group.

The figures in the column headed 'log-odds statistics' (Table 2.2) are the direct output from the statistical model. A straightforward interpretation is that a plus sign means a higher probability of employment associated with the characteristic in question, a minus sign a lower probability. The larger the coefficient (of either sign) the greater the estimated difference.

Log-odds statistics (coefficients) are not easy to interpret in terms of a percentage variation in employment rates. The reason is that the log-odds statistics applies a curvilinear relation between employment and the various explanatory variables, as indicated by Figure 2.1 and explained in more detail in Chapter 3 (Section 3.3). This section recalculates the log-odds statistics to a percentage form as indicated by the column headed 'employment penalty'. This shows how much higher or lower the employment rate is for a particular group of people (eg over 50) compared with what their chances of employment would be if the same people had been, for example, under 50.<sup>8</sup> These calculations (known as 'marginal effects') are reported as

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<sup>8</sup> The method of calculating marginal effects based on the characteristics of the groups under consideration differs from the method used in a preliminary version of this paper (Berthoud and Blekesaune 2006). The previous version compared a standard individual with just one disadvantage with a similar person with no disadvantages. The new method is closer to the actual experience of members of each group under consideration, and also provides a better indication of the relative scale of 'gaps' and 'penalties'.



the **employment penalties** associated with each characteristic in the remainder of this section.

**Table 2.2 Summary of logistic regression equation predicting the probability of being employed using log-odds statistics (coefficients): 2000-2003**

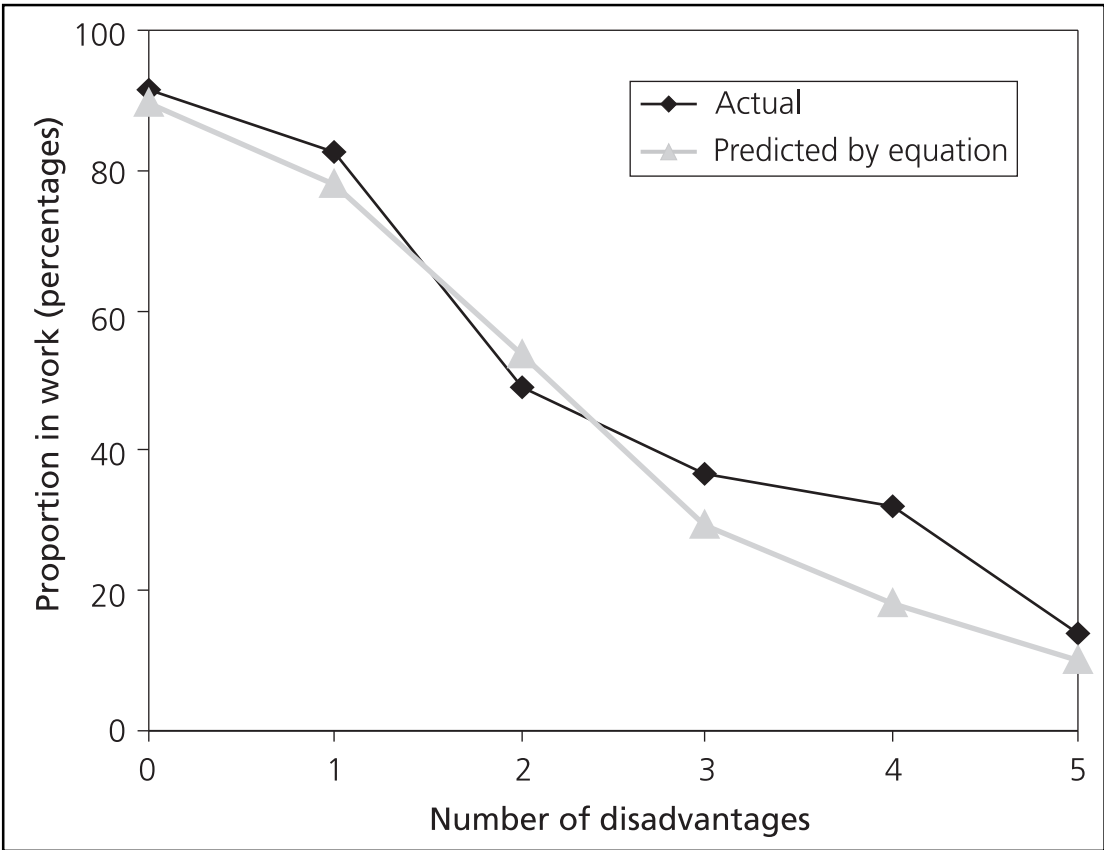
	Log-odds statistics	Employment penalty
<b>Age</b>		
50-59	-0.78	13.7%
<b>Disability</b>		
Has a limiting long-standing condition	-1.53	29.4%
<b>Family</b>		
Partnered man	Base case	0
Single man	-1.00	12.9%
Single woman, no children	-0.99	13.7%
Partnered woman, no children	-1.11	17.9%
Partnered woman with children 11 plus	-1.56	25.4%
Lone parent with older children 11 plus	-1.70	28.7%
Partnered with young children 0-10	-2.57	44.7%
Lone parent with young children 0-10	-2.71	49.3%
<b>Ethnic group</b>		
White	Base case	0
Caribbean	0.26	-4.2%
Indian	-0.38	6.0%
Pakistani/Bangladeshi	-1.17	20.4%

Note: negative coefficients appear as positive penalties, for ease of presentation. Analysis also controls for educational qualifications and regional unemployment rate. A more detailed presentation of the equation is provided in Appendix A.

Individuals may be disadvantaged in more than one way. Some combinations are especially common, while others are rather rare – many older people are disabled, for example, but few of them are mothers of young children. Regression coefficients (log-odds statistics) are additive, meaning that people facing two or three penalties are worse off than those facing only one of them. Figure 2.1 demonstrates that this is also the case in the data when plotting the actual employment rate of people with between none and five<sup>9</sup> disadvantaging characteristics (black line) together with the predicted rate of employment as estimated from the equation in Table 2.2 (grey line). The more disadvantages, the lower the probability of having a job, down to only about one-tenth of the people (only 88 of them in the entire 26-survey data base) with all five.

<sup>9</sup> The five disadvantaging characteristics are: over 50; disabled; a woman; has children (if a woman); any ethnic minority.

**Figure 2.1    Employment rates, by number of disadvantages: whole period**



The main point of the analysis is to isolate the effect – the employment penalty – of each separate disadvantage, rather than the cumulative effect of all of them.<sup>10</sup> Equations like that in Table 2.2 have been calculated for every single year in the survey period and the employment penalties are plotted in the graphs which follow. All the graphs are smoothed, taking a moving three-period average to enable the reader to identify longer term trends rather than shorter term fluctuations (which are often associated with sampling error).<sup>11</sup>

2.3    Personal employment gaps and penalties

Just over 70 per cent of adults aged 20-59 were employed, on average over the period analysed (Figure 2.2). The total ranged between a low of 68 per cent in the early 1980s and a high of 75 per cent in the most recent years.<sup>12</sup> Figure 2.2 shows

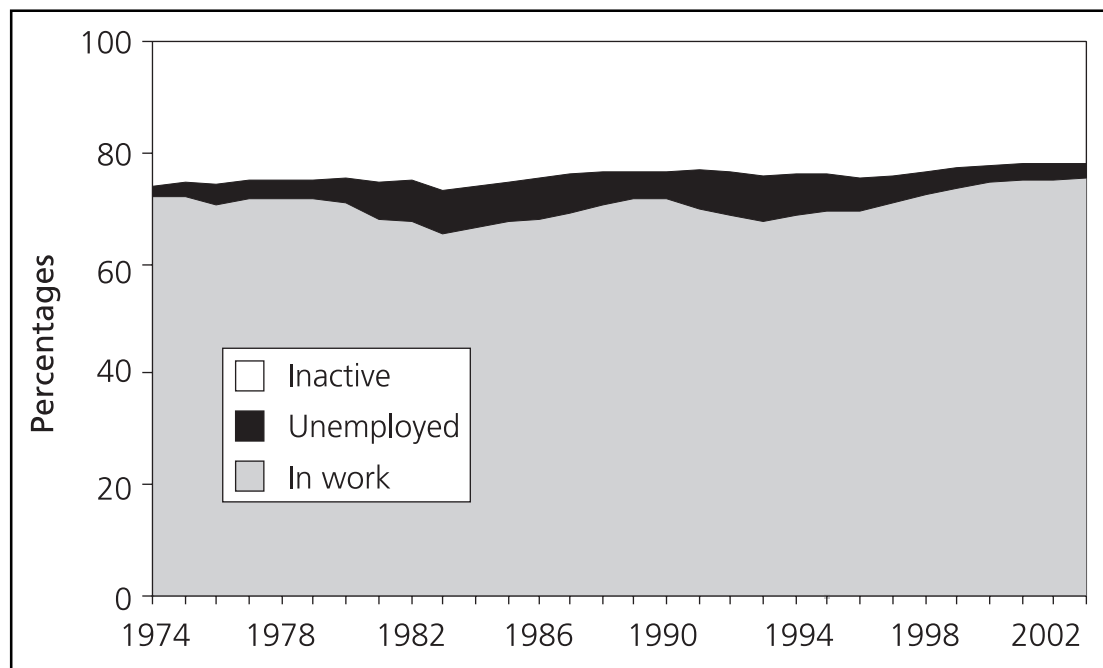
<sup>10</sup> See Berthoud (2003) for a more detailed analysis of what happens when individuals have combinations of disadvantaging characteristics.

<sup>11</sup> The smoothing is over three ‘periods’ rather than strictly over three ‘years’, to take account of some gaps in the annual series of observations. Graphs referring to ethnic minority groups are smoothed over five periods.

<sup>12</sup> Note that these figures are not exactly the same as official counts of employment rates, because the age range analysed is different, the definition of in-work is different and the data source is the GHS, not the Labour Force Survey.

that most of the variation in employment rates between years was accounted for by the ups and downs of the unemployment rate, and especially the recessions of 1982 and 1992. Aside from that effect, the proportion of people employed has been remarkably constant.

**Figure 2.2 Proportion of all adults employed and unemployed, 1974-2003**



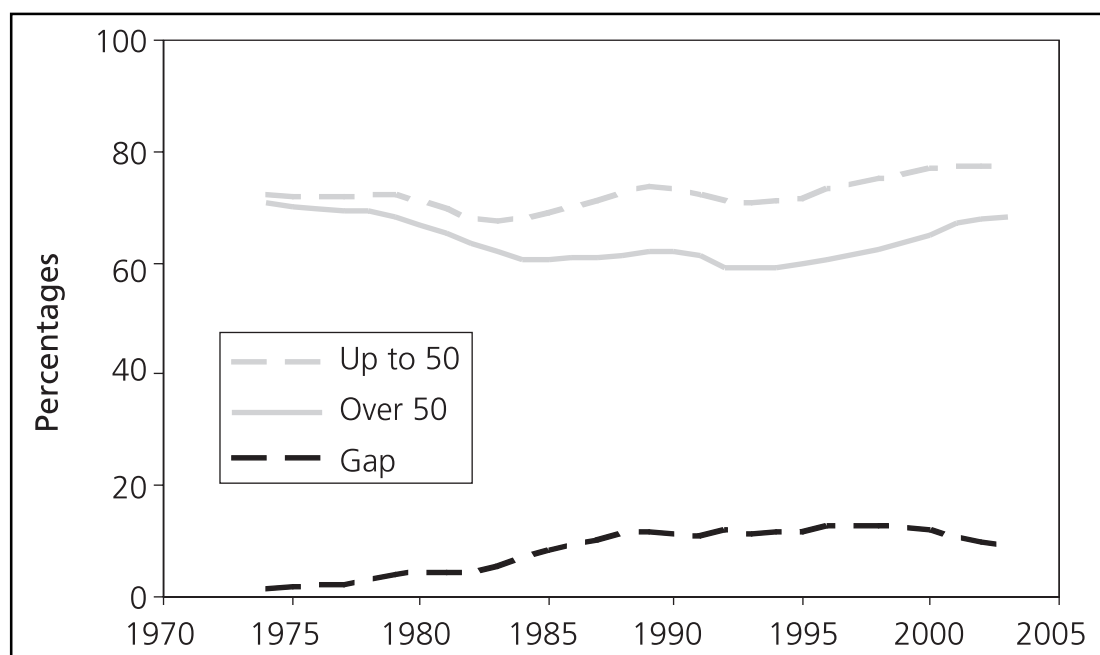
This report will chiefly investigate personal employment, whether each individual adult did or did not have a job, regardless of whether anyone else in the family (i.e. their partner) was employed. A comparison between personal and family employment rates is presented in Section 2.4 (using the GHS) and Section 3.10 (using the ONS LS).

### 2.3.1 Age

Age variations are presented first, not because they are especially important, but because they are very straightforward. This makes age a good example with which to explain the analytical process.

Employment rates are reasonably steady by age until 45, after which they drop year on year. The analysis does not look beyond the age of 60, and 'older workers' have been defined here as those between 50 and 60 years.

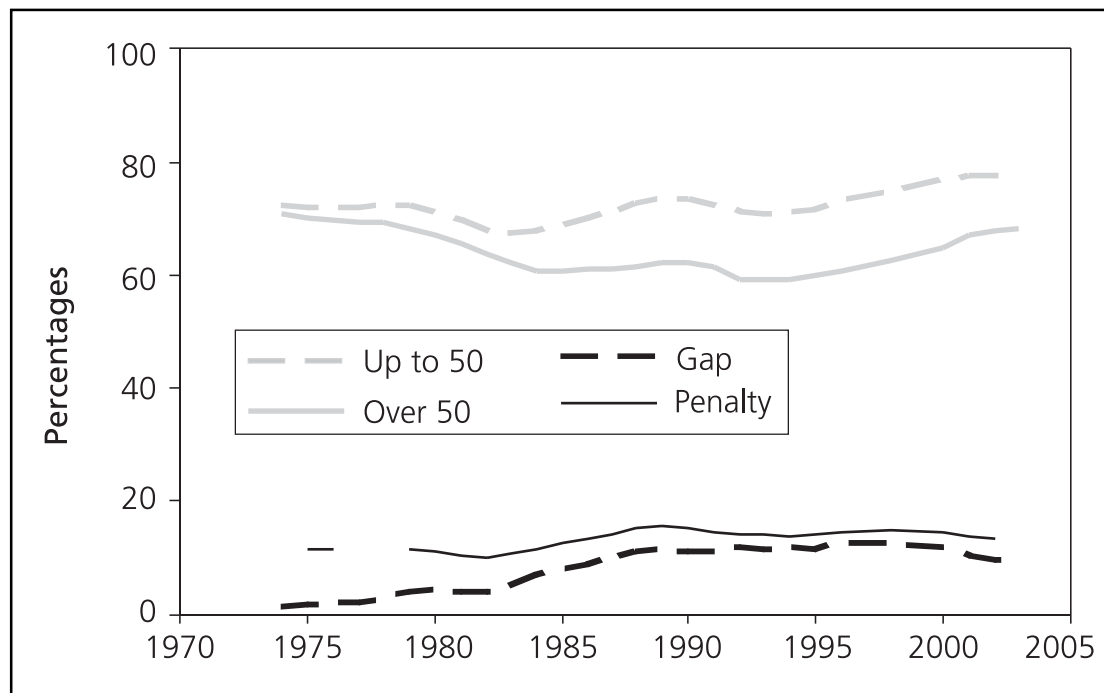
Figure 2.3 plots the employment rate of 50-59 year olds (solid grey line) across the 30 years of observations. As always, the trends are smoothed to make them easier to read. As many as 71 per cent of older workers were employed in 1974, but the proportion drifted down to 59 per cent in 1992 – there is a clear downwards trend, in addition to the cyclical effect associated with unemployment. Over the last ten years or so, the proportion of older workers with a job has increased again, with the latest observation up to 68 per cent.

**Figure 2.3 Employment gap, by age**

The broken grey line in Figure 2.3 shows the employment rates of adults aged less than 50. The trend is much flatter, and if anything the drift is slightly upwards once short term cycles have been taken into account. The top two lines in Figure 2.3 show that older workers were only slightly less likely to have a job than younger ones 30 years ago, but the difference widened substantially through the 1970s and 1980s. This trend is even more visible in the broken black line towards the foot of the graph, which shows the age employment gap simply as the difference between the under 50s' and over 50s' rates.

As explained, the age employment **gap** shows the gross difference between older and younger workers, without taking account of some of the other characteristics of older people which might help to explain their employment rates. So the age employment **penalty** has been calculated from year by year equations similar to that in Table 2.2. The trend in age penalties is plotted as the solid black line in Figure 2.4, superimposed on the age employment gap still shown as the broken black line. The new presentation suggests that older workers are indeed disadvantaged relative to younger ones, by a factor of between 10 and 16 percentage points. In fact the 'penalty' (correcting for the composition of the group) has been slightly wider than the raw 'gap', especially in the early part of the period.

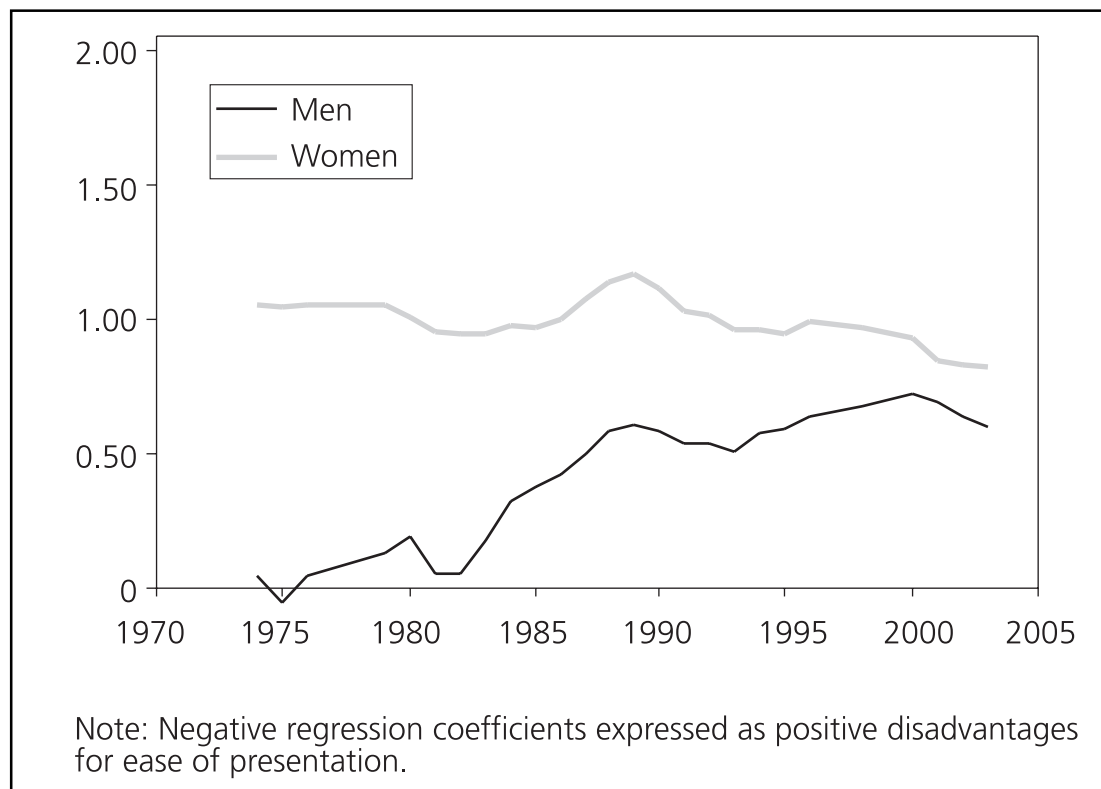
The analysis illustrated in Figure 2.4 does not distinguish between men and women. The overall differences between men and women are shown later. But it is also interesting to see whether older men are more or less disadvantaged (compared with younger men) than older women are (compared with younger women), and how those relationships have changed over the years. Figure 2.5 shows the results if the calculations are undertaken separately for men and for women. The figure plots the regression coefficients (equivalent to the left-hand column of Table 2.2). The graph clearly illustrates the relative scale of disadvantage, between men and women, and over time.

**Figure 2.4 Employment gap and penalty, by age**

It shows, strikingly, that older women have been more disadvantaged by their age than older men have been, throughout the period. (This is in addition to any overall disadvantage of all women compared with all men, to be discussed later.) The pattern may be associated with the fact that the age range defined as 'older' (50-59) reaches almost to the State Pension age for women, but falls well short of the equivalent target for men – so perhaps women in their 50s see themselves, or are seen by employers, as approaching retirement. But this disadvantage for older women, having peaked in the late 1980s, has been falling since then. In contrast it is older men, hardly disadvantaged at all in the mid-1970s, who have become worse off with respect to other men over the years, to the point of almost catching up with older women by the turn of the century.

The case of age has been explained more fully than will be necessary for the remainder of the analysis, much of which follows the same logic. The following graphs are presented in exactly the same way as Figures 2.3 and 2.4 whenever possible.

**Figure 2.5 Employment disadvantage of over 50s (expressed as regression coefficients), by gender**



### 2.3.2 Disability

The huge rise in the number of people claiming incapacity and related benefits between the 1970s and the mid-1990s is well-known and it remains an important subject of policy debate.<sup>13</sup> Unfortunately, the GHS does not have a direct question on impairments. The standard question on 'limiting long-standing illness' has had to be used as a proxy. This represents a much broader definition than the normal idea of 'disabled people'. As a result, the employment penalty as estimated here is likely to be smaller than would apply for more severely disabled people.

It is also known that disabled people's job prospects vary widely according to their condition and the type and severity of their impairments (Berthoud 2006). But these factors are not covered by this non-specialist data source.

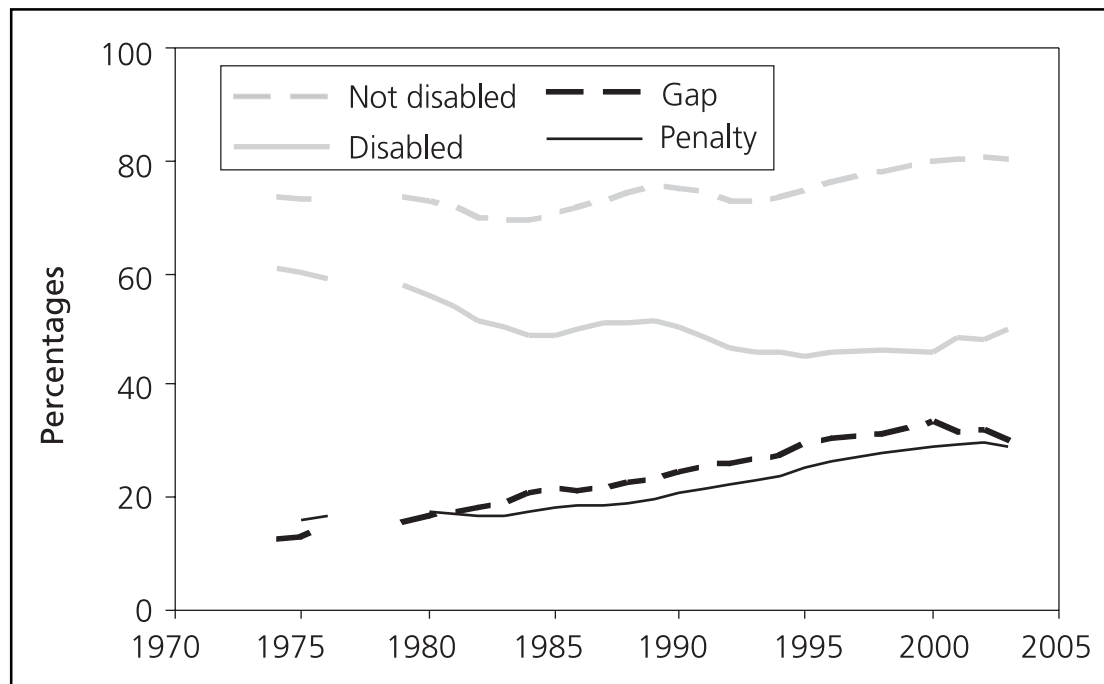
The survey is, nevertheless, invaluable as the only source that can show trends over three decades in the employment rate of disabled people, as distinct from the number of benefit claims.<sup>14</sup>

<sup>13</sup> See Chapter 2 of the DWP's (2006) policy paper *A New Deal for Welfare: empowering people to work*.

<sup>14</sup> There was no question on limiting long-standing illness in 1977 or 1978. These years are therefore absent not only from the analysis of disability but also from the multivariate analysis in which disability was one of the variables covered.

Figure 2.6 illustrates the employment rates of disabled people (as defined by the GHS) in exactly the same format as Figure 2.3 did for older people. The proportion of disabled people who worked at least 16 hours per week declined from just over 60 per cent in 1974 to only 45 per cent in 1995, with only a brief intervening rise during the economic recovery of the late 1980s. The drop in the disability employment rate seems to have bottomed out and there are some signs of a rise in recent years.

**Figure 2.6 Employment gap and penalty by disability**



But the employment rate among non-disabled people, mainly flat in the first half of the period, has been rising too recently. The gap between disabled and non-disabled people rose very steadily from 12 percentage points to 33 percentage points.

A small part of the raw disability employment gap could be explained by other characteristics of disabled people (their age and poor qualifications), so the disability employment penalty has been slightly less than the gap. The penalty, nevertheless, grew from 16 percentage points to about 30 percentage points.

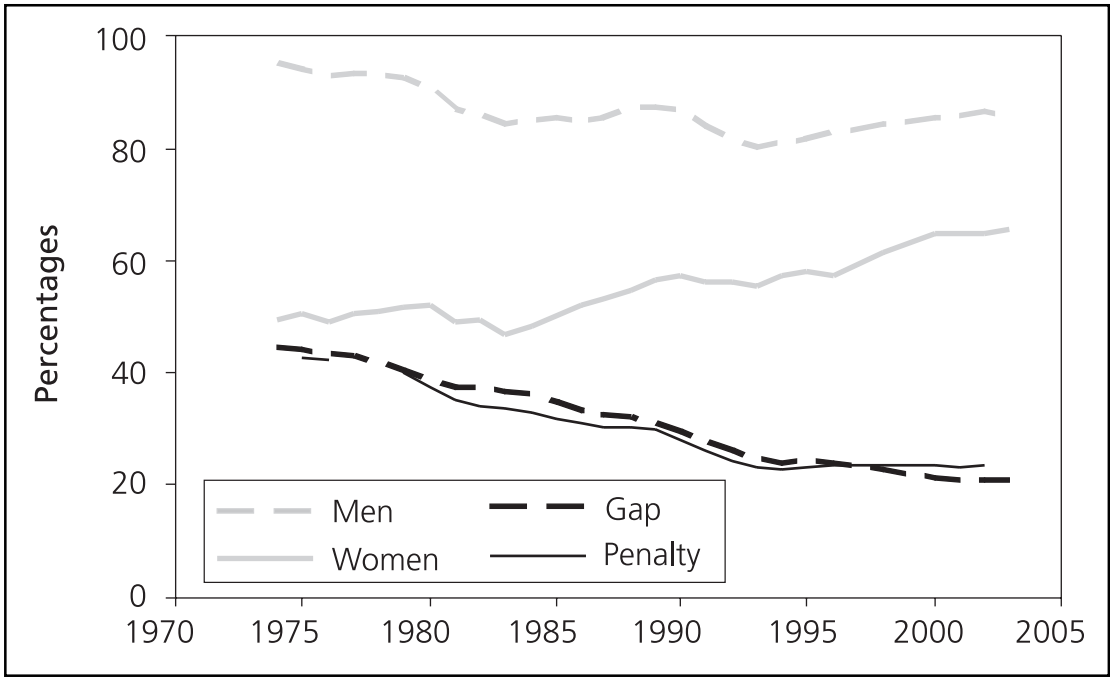
A much more detailed analysis of a specialised survey of disabled people (Berthoud 2006) puts the overall disability employment penalty at 47 percentage points, and worse still when severely disabled people are considered. The current analysis has failed to capture the full extent of employment disadvantage experienced by this group but provides useful context for the analysis of other disadvantages.

2.3.3 Gender and family structure

Increased employment opportunities for women have been a major feature of social and economic life over the past generation. The plot in Figure 2.7 shows that only about half of all women in the age range had a job in the 1970s, but this figure held steady while men’s employment rates were falling. From the mid-1980s onwards there has been an increase in female employment, while men’s rates fell further and then steadied. The wide gap between men and women, 44 percentage points to start with, fell year on year, to 21 percentage points at the latest observation.

The gender employment penalty in Figure 2.7 has been calculated by comparing all women with all men, without taking account of variations in employment rates by family structure. It suggests that the gap between women and men is confirmed as a penalty, only slightly affected by other observed differences in characteristics. The gender penalty fell steadily from 43 percentage points at the start of the period to 23 points in the early 1990s. But there has been no change over the past ten years.

Figure 2.7 Employment gap and penalty analysed by gender (without taking account of family structure)



When family structures are introduced into the analysis, though, the picture is more complicated than the straight comparison between men and women revealed.<sup>15</sup> Figure 2.8 shows the employment penalties experienced by women without

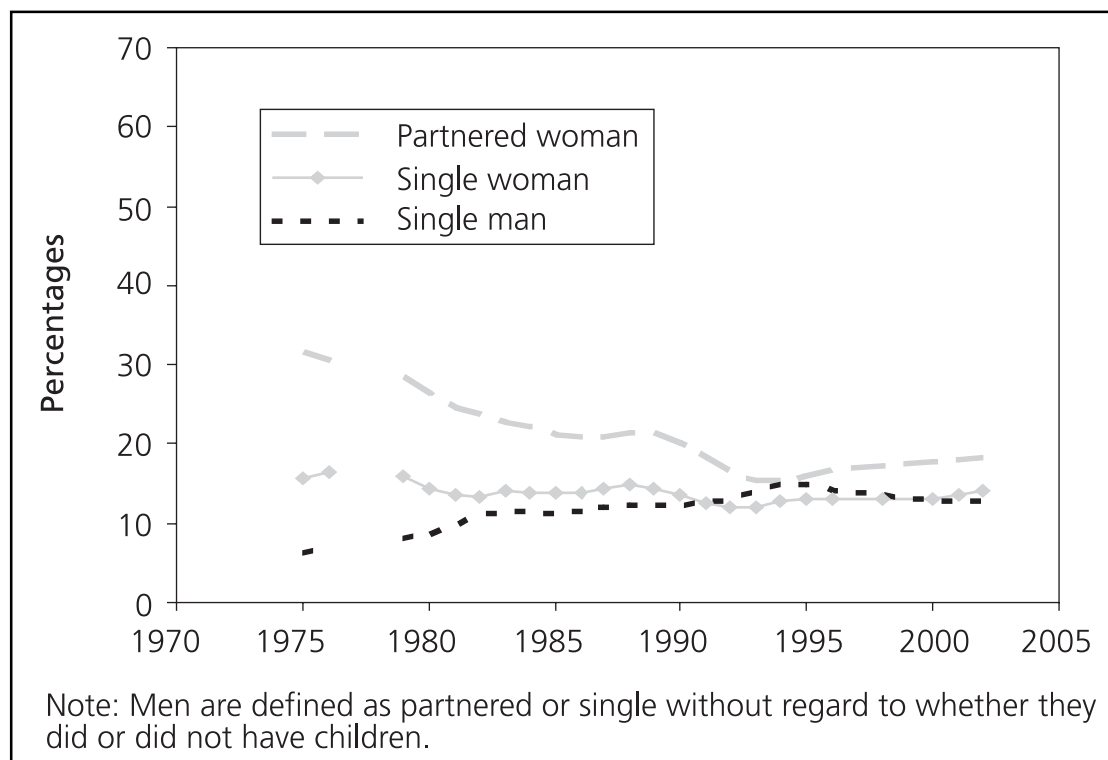
<sup>15</sup> Families were defined in accordance with the standard ‘benefit unit’. Couples are men and women living together, whether married or not; single people are those not living with a partner, whether legally married or not; children are aged less than 16 or between 16 and 18 in full-time education. Special thanks to Howard Redway of the Department for Work and Pensions (DWP) for the identification of family groups in the early sequence of GHS datasets, which he supplied.



children and single men, each compared with partnered men (who have the highest employment rate of all the gender/family combinations). Partnered and single men are defined without regard to whether they had children, because their employment rates were not much affected by fatherhood, whereas the partnered and single women in Figure 2.8 are confined to those who do not (currently) have dependent children. This comparison shows that:

- single men (dotted black line) are consistently worse off than partnered men, with an employment penalty rising from 8 percentage points to 15 points before falling back slightly;
- single women without children (grey diamonds) are also consistently worse off than partnered men, with a steady penalty of about 13 percentage points;
- partnered women without children (broken grey line) were rather worse off than single women without children in the 1970s, but this extra penalty declined across the period, so that both groups of childless women were in a similar position at the end.

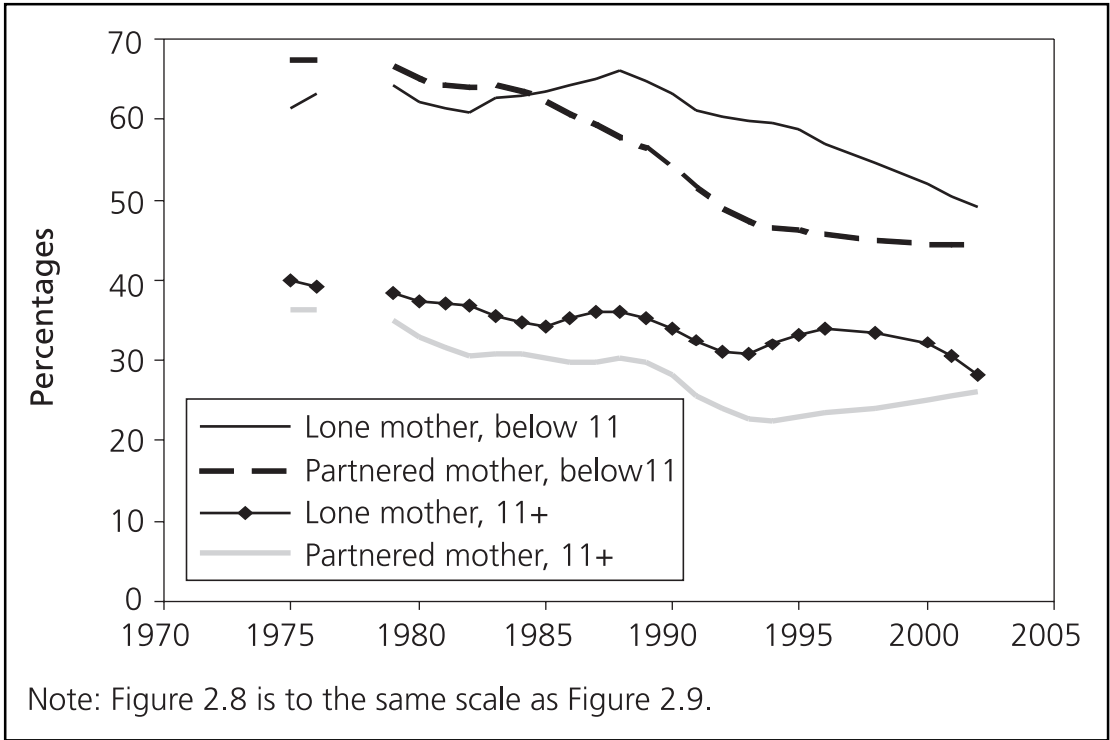
**Figure 2.8 Employment penalties of women without children and single men, compared with partnered men**



This comparison shows that although partnered women were, and remain, somewhat disadvantaged with respect to partnered men, single women are not disadvantaged with respect to single men – as long as children are left out of the equation.

When women with children are introduced to the analysis, the picture changes. Men’s employment rates are not very sensitive to fatherhood, but women’s rates are very sensitive to motherhood. Figure 2.9 is constructed and drawn identically to Figure 2.8 but shows mothers’ employment penalties (still with reference to partnered men). Women whose youngest child is at least 11 are much less likely to have a job than partnered men. Women with a younger child are even less likely to have a job. The analysis shows that the penalty associated with being a mother is much greater than the penalty associated with being a woman (without children). But, whereas the woman penalty has remained fairly steady over the period, the motherhood penalties have declined very steeply. In the case of women with both a partner and young children, the penalty was 67 percentage points in 1974 and 45 points in 2003. This is the biggest change of any observed in this analysis; but the disadvantage associated with being a mother of young children remains greater than any of the other penalties recorded.

**Figure 2.9    Employment penalties of women with children, compared with partnered men**



The wide gap between men and women, and the steady fall in the gender penalty, recorded in Figure 2.7, need reinterpretation in the light of the family effects recorded in Figures 2.8 and 2.9. It is not women so much as mothers who are disadvantaged; it is not women so much as mothers whose position has improved so rapidly over three decades. It is not just a gender issue; nor is it just a family issue (because men’s employment rates are not affected by fatherhood). It is a gender-and-family issue.

In detail, it is interesting to note the differences in employment penalties between mothers with and without partners. Among mothers with older children, lone

parents have always had a slightly higher penalty (with respect to partnered men) than partnered mothers – the difference widened through to about 1995 but has narrowed since then. Among mothers with younger children, lone parents were less disadvantaged (i.e. were more likely to have a job) in the 1970s and early 1980s; became more disadvantaged by the early 1990s, but had nearly closed the gap again by the early 2000s.

#### 2.3.4 Ethnic minorities

The concept of an employment ‘penalty’ has been discussed by researchers mainly in the context of an analysis of the job prospects of members of minority ethnic groups (Heath and McMahon 1997).

The GHS first asked a direct ethnicity question in 1983. There have been some changes in the coding frame since then, but it is possible to identify the three main groups considered here with reasonable consistency. Prior to 1983, our definition is based on a combination of information about the respondent’s own, and their parents’ country of birth,<sup>16</sup> and the survey interviewer’s opinion as to whether the respondent was ‘coloured’. There is a series of years in which both the directly-reported and the indirectly-inferred ethnic group were available for the same respondents. As discussed in Appendix C, comparison between the two suggests that the indirectly-inferred version was about 90 per cent accurate, except in the case of ‘African-Asians’ – who were classified as Indian ethnicity but African place of birth.

The full sample across all years included about 5,000 Indians, 4,000 Caribbeans and getting on for 3,000 Pakistanis and Bangladeshis (combined). Nearly 6,000 people from ‘other’ ethnic minorities were included in the analysis, but are considered too disparate a group for the results to be worth presenting. These overall sample sizes sound large but they are not very helpful when analysing each of 26 survey years separately – especially when, as discussed below, it was necessary to separate men from women. The analysis by ethnic group is presented by pooling successive rolling sequences of five observations (compared with three in other sections). This means that sample sizes are at least 100 for every cell for which results are shown; in many cases, the samples are in excess of 500.

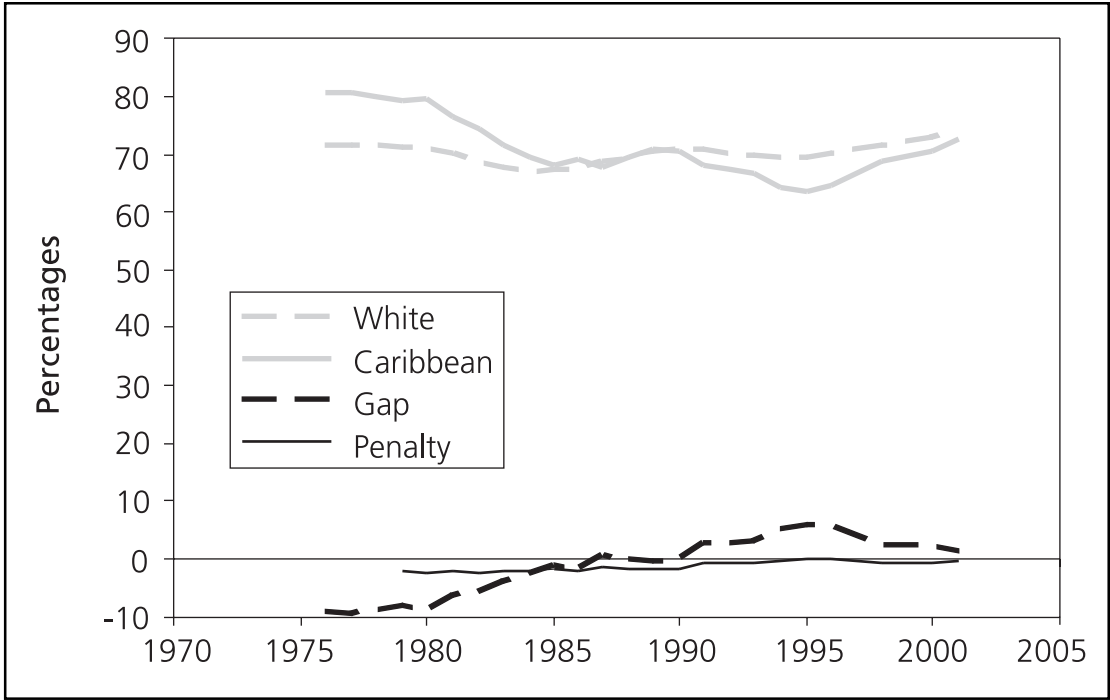
Figure 2.10 presents the comparisons between Caribbeans and white people, in exactly the same format as the previous analyses of age and disability. The overall employment rate of Caribbeans was quite high in the 1970s – higher than that of the white population. The recession of the early 1980s reduced their prospects to no better than those of whites; the recession of the early 1990s reduced their rate to

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<sup>16</sup> The country of birth question did not distinguish between India and Bangladesh in the 1981 and 1982 surveys. This means that only the white and Caribbean groups can be identified consistently for those two years, and there is a gap in the sequence for Indians and Pakistanis/Bangladeshis. Special thanks to Anthony Heath and Jane Roberts of Nuffield College, Oxford, for the classification by country of birth which they supplied.

well below that of whites, though it has recovered since then. The plot of the employment gap (broken black line) shows this shift from apparent advantage to apparent disadvantage quite clearly. But the estimate of the Caribbean employment penalty suggests that Caribbeans’ employment patterns could largely be explained by the composition of the group – they are consistently shown to face no significant penalty at all.

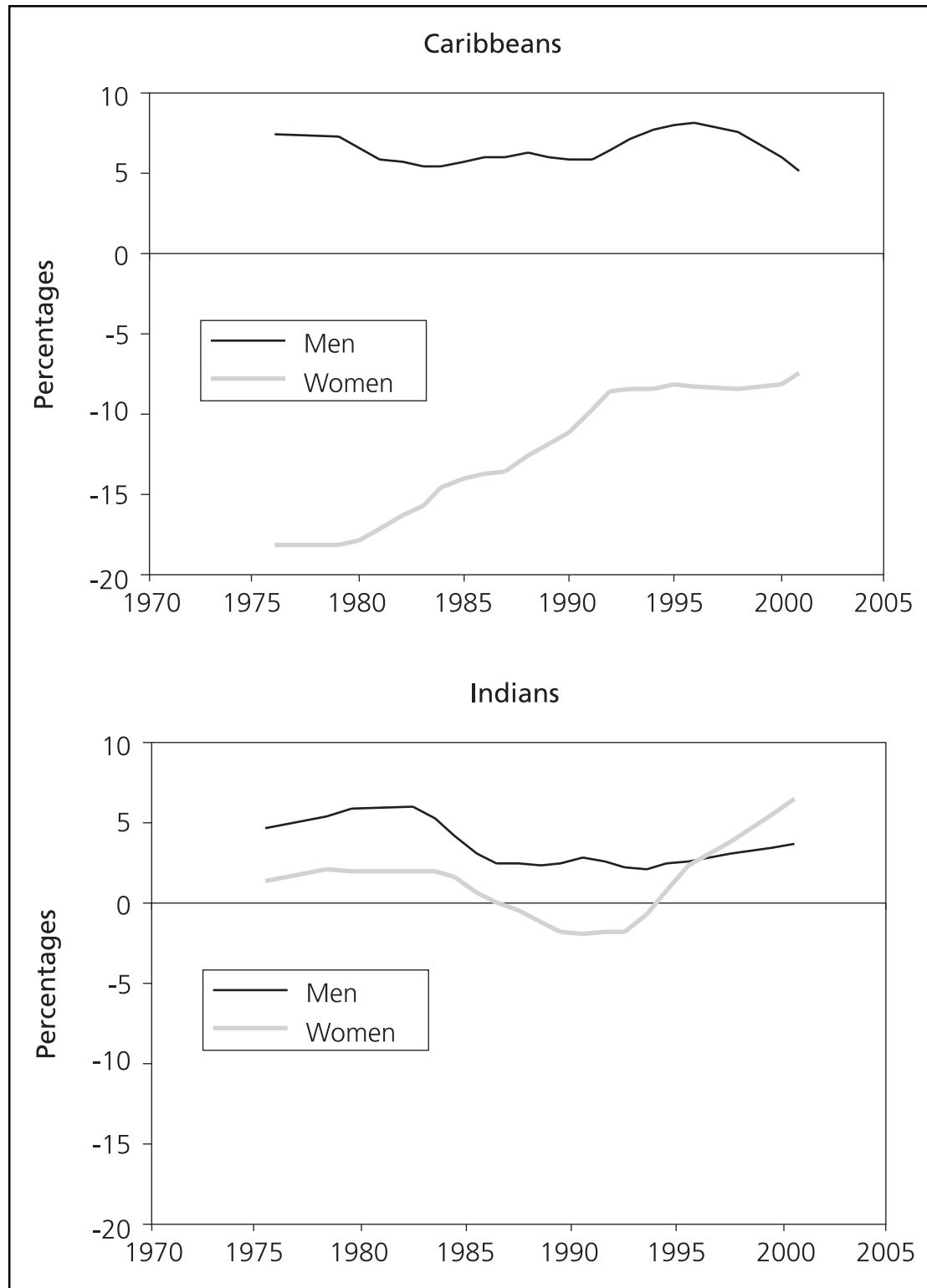
**Figure 2.10      Employment gaps and penalties: Caribbeans (men and women combined)**



This may seem rather a surprising result, given how wellknown it is that Caribbeans are disadvantaged in employment. Actually, previous research on the extent of the Caribbean penalty has mostly been based on an analysis of unemployment among men. If men and women are considered separately (upper panel of Figure 2.11), it turns out that Caribbean men do indeed have lower employment rates than equivalent white men. Over most of the period they faced an employment penalty of between 6 and 8 percentage points, although it seems to have reduced since a high in the mid-1990s. The lack of an overall penalty for Caribbeans-as-a-whole is caused by the fact that women in that ethnic group have **higher** employment rates than similar white women. Caribbean women appear not to face any disadvantage associated with lack of employment – although their ‘bonus’ (i.e. reverse penalty) was steadily declining until the early 1990s.

The alternative analysis based on a comparison of employed versus unemployed, in Appendix B, suggests that Caribbean women do face a penalty, and this is consistent with other research based on that approach (Heath and Cheung 2006). The different outcome reflects the fact that Caribbean women are more likely to have a job than white women; but, if not employed, are more likely to report that they are unemployed, rather than inactive.

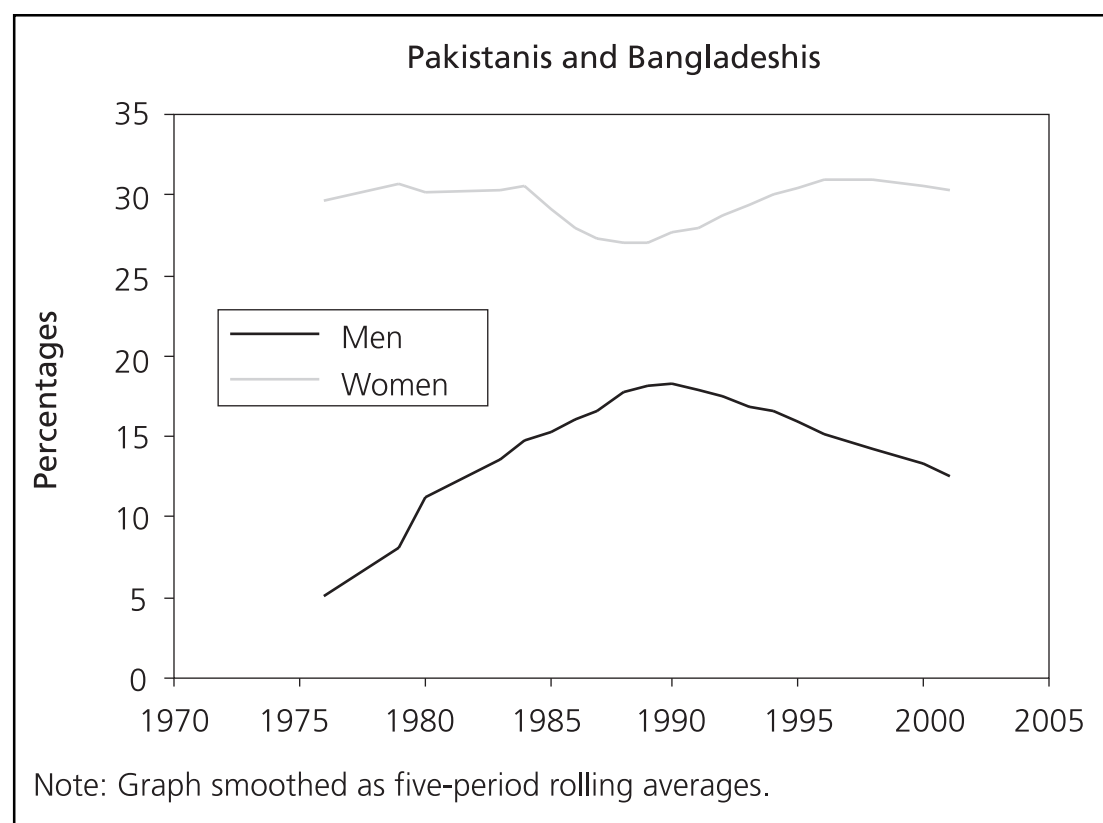
**Figure 2.11** Employment penalties among men and women separately: Caribbeans and Indians



The contrast between men and women is not so strong among Indians (lower panel of Figure 2.11). Indian men have tended to face a small but fluctuating employment penalty over the 30 years, with no clear trend in either direction. Indian women have fluctuated between a small positive and a small negative penalty, and back again. The recent trend seems to have been against Indian women.

The ethnic penalty for Caribbean men has been clear, but not large by comparison with the disability and gender/family penalties. When the focus turns to Pakistanis and Bangladeshis (considered as a combined group) the extent of disadvantage is much greater – the scale of Figure 2.12 has had to be changed, compared with Figure 2.12, to accommodate the wider range of differences.

**Figure 2.12 Employment penalties among men and women separately: Pakistanis and Bangladeshis**



- Pakistani and Bangladeshi men were slightly disadvantaged, compared with white men with similar characteristics, in the 1970s, but their penalty widened through the 1980s to 18 percentage points. There has been an improvement since then.
- Pakistani and Bangladeshi women are much less likely to have a job than white women. The Pakistani and Bangladeshi women's penalty has ranged between 27 and 31 percentage points. Remember that these penalties are calculated after taking account of women's family positions, and the Pakistani and Bangladeshi women's disadvantage is not explained just by the fact that so many of them have young children.

## 2.4 Family employment penalties

The previous section analysed the personal employment position of each member of the GHS sample (aged 20 to 59) – that is, whether they had a job. That provides a full statement of employment inequality between individuals. But many non-employed individuals live with a partner who has a job. They may be perceived as disadvantaged within the partnership but it can be argued that people with working partners are not as disadvantaged as single people without a job, or as couples, neither of whom has a job. It is jobless families, not individuals, who are likely to be entitled to Income Support and income-related Jobcentre Allowance (JSA); it is jobless families, not individuals, who are at greatest risk of poverty. So an alternative way of looking at employment disadvantage is to use a family perspective: people are defined as gaining from earnings either if they themselves are in employment or if they have a partner in employment.<sup>17</sup>

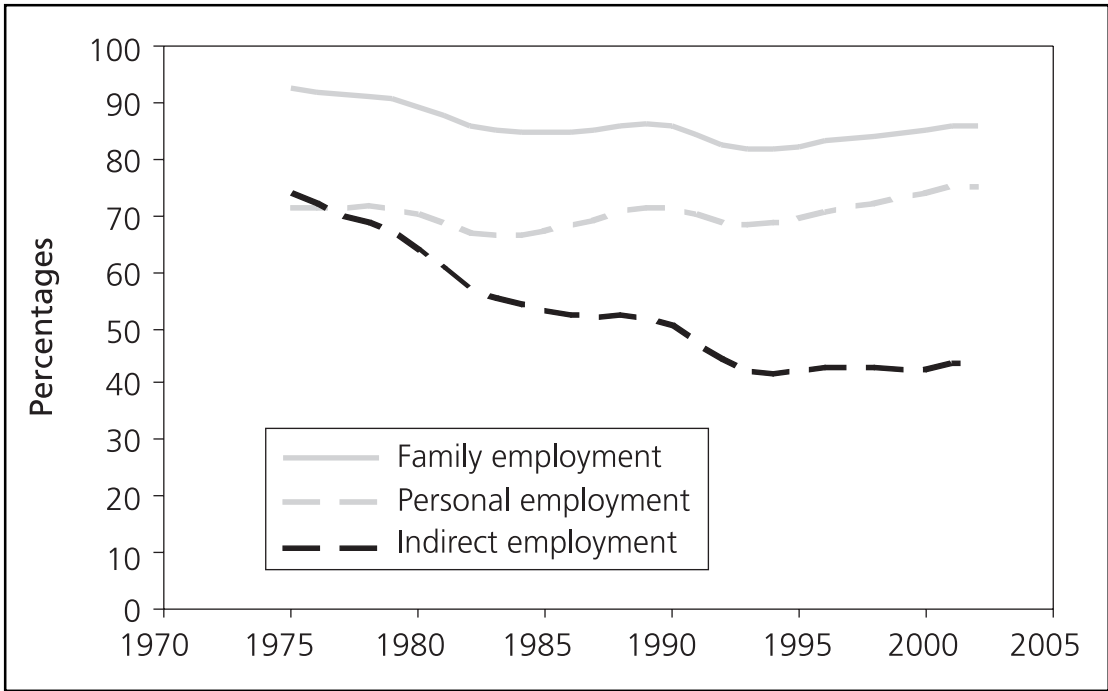
The grey line in Figure 2.13 plots the personal employment rate across the period 1974 to 2003, and is exactly equivalent to the employment total in Figure 2.2. It is effectively flat, with no major change in employment rates other than the cyclical effects of the early 1980s and early 1990s. The black line shows the family employment rate, as just defined. The family rate has to be at or above the personal rate, by definition. In fact, 93 per cent of all adults were connected with the workforce either personally or through a partner in 1974. But whereas the personal employment rate held steady over 30 years, the family rate drifted downwards, to only 81 per cent in 1993. At that stage, nearly one adult of working age in five had neither direct nor indirect access to earnings, and may have been entitled to out-of-work benefits.

This difference between the personal and family employment rates can be summarised by calculating the rate of ‘indirect employment’ (the broken line in Figure 2.13): the proportion of non-employed individuals who have a partner employed. The rate of indirect employment fell continuously from 76 per cent in 1974 to 40 per cent in 1994, and has remained at about that low rate since then. This fall in indirect employment cannot be explained in terms of the overall employment rate (which rose slightly). It occurred as a result of two processes: a reduction in the number of non-working adults who had a partner at all; and an increased tendency for couples to polarise into dual-earner and no-earner families (‘work rich’ and ‘work poor’).

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<sup>17</sup> The ‘family’, defined as either a single person or a couple (with or without children), is a tighter definition than a ‘household’ (which may include other adults, such as non-dependent children). Family employment is similar in concept, but different in detail, from household employment. For an analysis of trends in the number of workless households, see Gregg and Wadsworth (2000).

**Figure 2.13    Personal and family employment rates, 1974-2003**



The analysis of family employment penalties in the current section follows the same logic as that of personal employment penalties in the previous chapter, except that the outcome variable is now defined jointly for the couple if an individual has a partner. The social groups used for the analysis are still defined for individuals, so that we are asking whether, for example, older people are less likely than younger ones to have some access to employment earnings. In general it can be expected that the measured penalties will be rather weaker, because many people who have a disadvantaging characteristic may have a partner who does not face the same disadvantage.

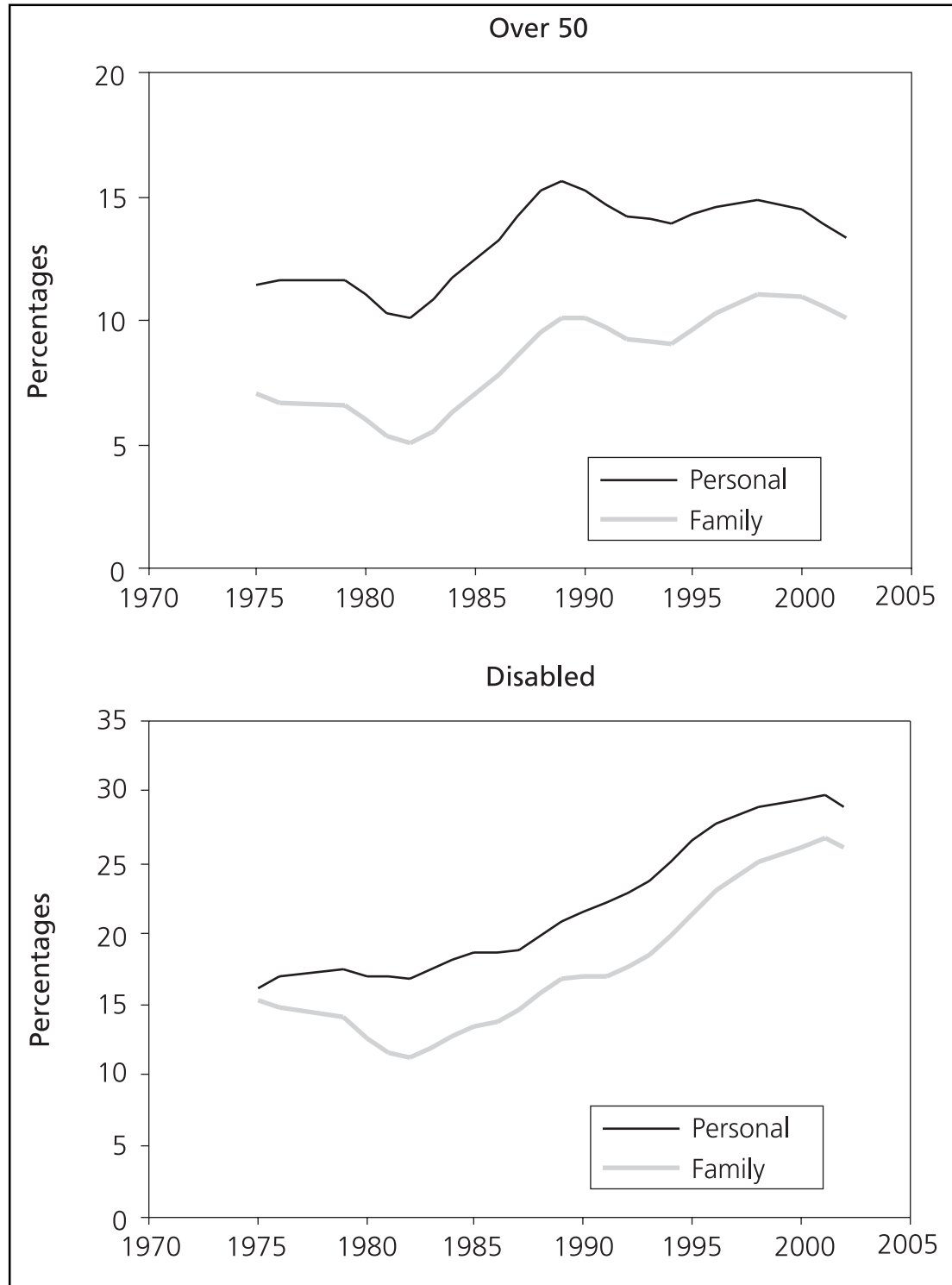
### 2.4.1    Age and disability

Figure 2.14 summarises the findings for the simple cases of age and disability. Both show a similar pattern, though it should be noted that the scales are different for the upper and lower panels of the figure.

- For older people (50 to 59) the personal employment penalty rose from about 4 percentage points to about 8 points in the mid-1990s, before falling back again. The family employment penalty associated with older age was consistently lower throughout the period, ranging from about 2 percentage points to about 5. But the rising and then falling trend was almost exactly in parallel for both measures of disadvantage.
- For disabled people (proxied as before by people with a limiting long-standing illness), the personal employment penalty rose fairly steadily from about 5 to about 18 percentage points, and then levelled off. The family employment penalty was again lower than the personal one, although the difference between the two versions was narrower for disabled people than for over-50s. Again, the time trend was almost exactly the same for both measures.



**Figure 2.14** Personal and family employment penalties, by age and by disability



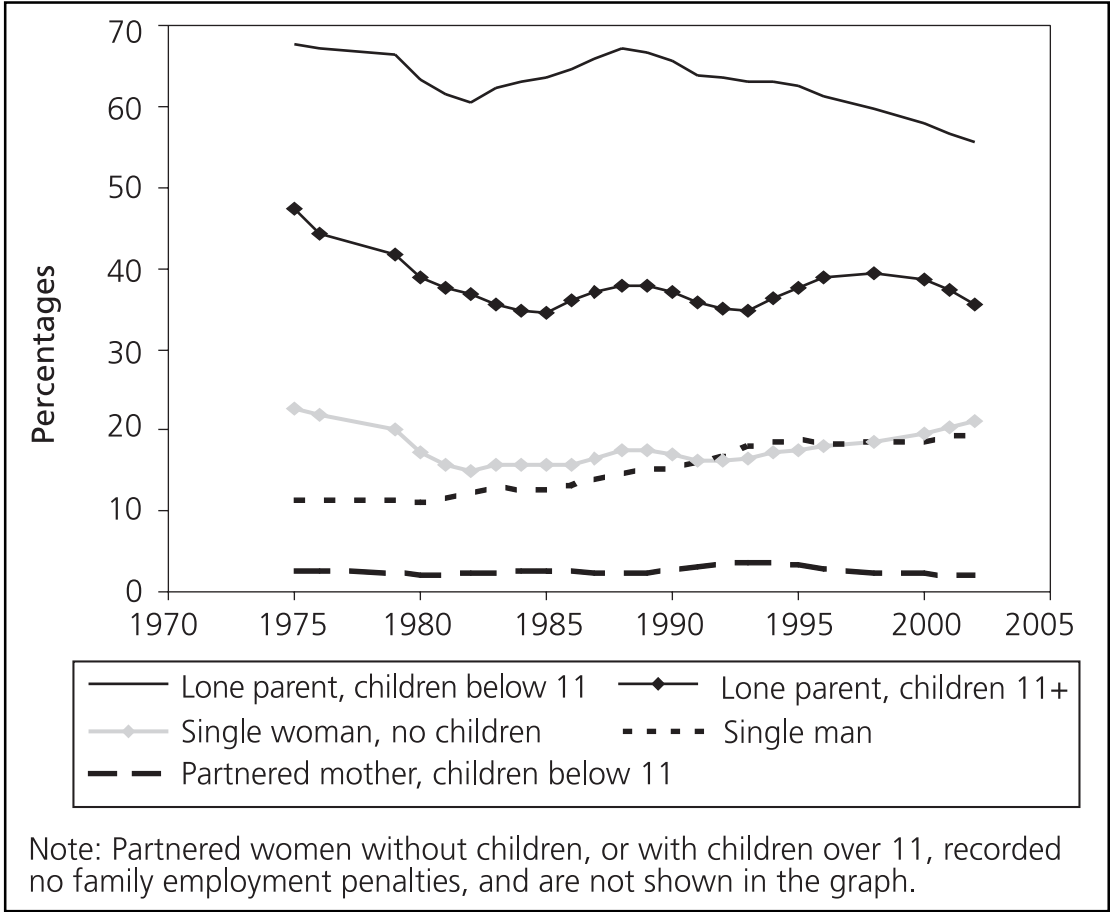
#### 2.4.2 Gender and family structure

When we turn to comparisons between men and women, the results of the new approach are entirely predictable, but nevertheless striking. Remember that the comparison case, against which gender and family disadvantage were measured, is men with partners. Not surprisingly, women with partners, living in couples with the same men, are not disadvantaged when family employment levels are calculated

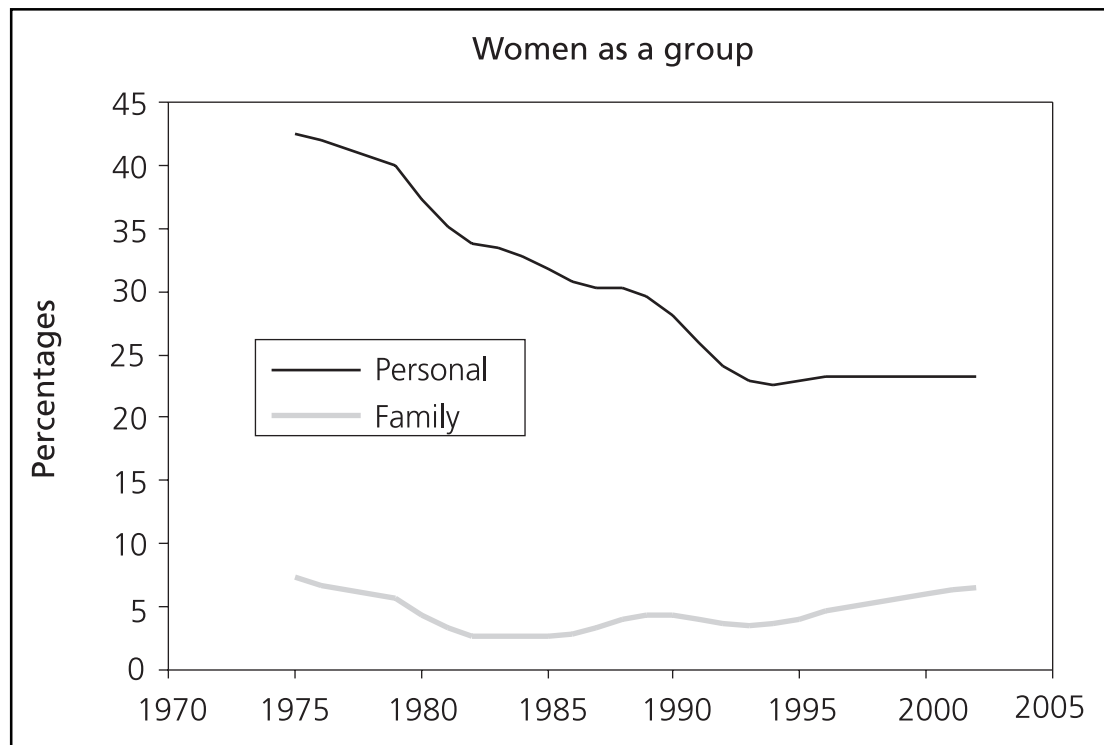
(not shown in Figure 2.15, because the penalties are effectively zero). Meanwhile, single men and women, and especially lone mothers, are just as disadvantaged as they had appeared when the measure of employment had not included other members of the same family.

This ‘family’ view of employment provides a very different perspective on the economic positions of men and women. Women with partners, obviously, no longer appear disadvantaged with respect to men with partners – though if we counted the number of jobs in a family, it is clear that couples with children must be disadvantaged in comparison with childless couples. We have found that single women without children are not disadvantaged in comparison with single men. That leaves only lone mothers as disadvantaged on the family account. But the number of lone mothers, as a proportion of all women, is small enough to reduce the overall disadvantage of women to quite a modest margin. This is shown in Figure 2.16. The line of diamonds is a reminder of the extent of the employment penalty faced by women as individuals, falling from about 40 to less than 20 percentage points over the 30-year period. Women as members of families record a gross employment gap of only about 5 percentage points, and a net penalty of 3 percentage points. Although lone parents recorded a steep drop in their penalty over the decades, the number of lone parents increased, so this left women as a group in roughly the same position overall.

**Figure 2.15    Family employment penalties, by gender and family structure**



**Figure 2.16 Personal and family employment penalties, by gender (without taking account of family structure)**



Comparing the two ways of measuring employment, it can be seen that a large part of the huge growth in women's access to the labour market has countered inequality **within** families (i.e. partnered women are now less disadvantaged with respect to partnered men). Meanwhile, the overall reduction in the number of families with any job (Figure 2.14) has increased inequality **between** families.

### 2.4.3 Ethnic minority groups

The analysis of personal employment patterns showed that it was essential to distinguish men from women when analysing minority ethnic groups, especially Caribbeans. But in the analysis of family employment patterns it is meaningless to distinguish men from women. Rather than plot a complete sequence of ethnic penalties at the family level, Table 2.3 simply records the overall ethnic penalties calculated for men and women combined, in the first three, and the last three, years of the observation period.

The main point to note is that Pakistanis and Bangladeshis have been almost as disadvantaged on the family account as on the personal account in the most recent period, with a penalty of about 20 percentage points.

**Table 2.3 Personal and family employment penalties for ethnic minority groups (men and women combined)**

	Personal employment		Family employment	
	1974-76 %	2001-03 %	1974-76 %	2001-03 %
Caribbean	-11.9	-2.7	-4.3	-2.2
Indian	0.5	6.3	6.3	4.4
Pakistani and Bangladeshi	9.2	20.7	5.7	19.4

Note: figures in grey type are not significantly different from zero.

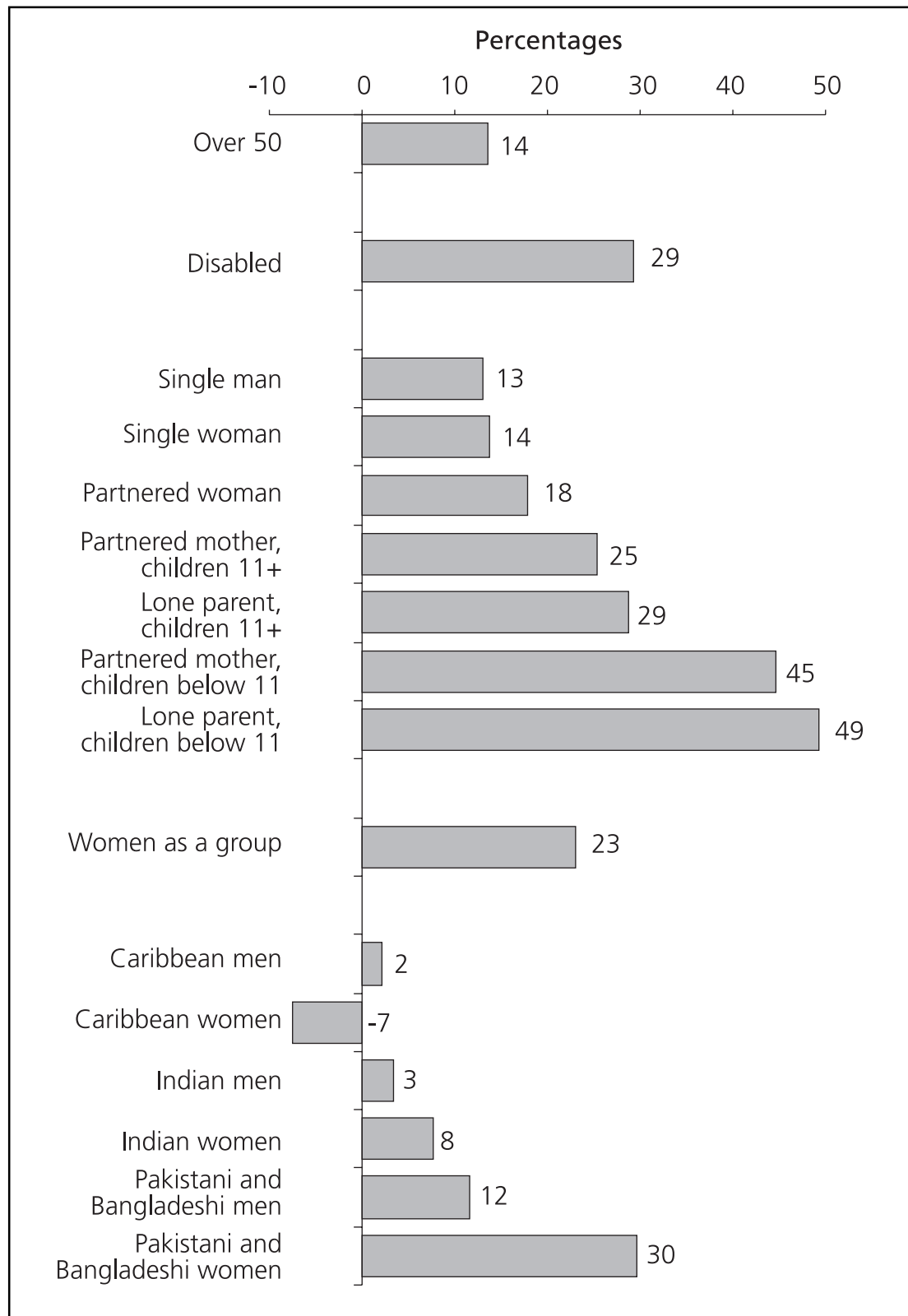
Employment penalties among ethnic minorities will be investigated in more detail in Chapter 3.7 in the following section. Thereafter, also religious minorities and combinations of ethnic and religious minorities will also be investigated.

## 2.5 Comparing employment penalties

A first stage of summarising these results involves a comparison of the relative size the personal employment penalties affecting each group over the most recent period, the final four years analysed, 2000 to 2003. Figure 2.17 gives a picture of different orders of magnitude:

- The largest penalties (i.e. the lowest employment rates) are reported for mothers of young children, with or without a partner. They are 45-49 percentage points less likely to have a job than men with a partner, with otherwise similar characteristics.
- The next set of penalties includes disabled people, Pakistanis and Bangladeshi women, mothers of older children and women seen as a single group, all with penalties of between 23 and 30 points.
- Single men, and women without children, are rather worse off than married men (8 to 10 points).
- Older workers, single men, women without children Indian women and Pakistani and Bangladeshi men all have moderate penalties of between 12 and 18 points.
- The least disadvantaged groups in the most recent period have been Indian men and women, Caribbean men and Caribbean women (the latter, apparently, slightly better off than white women).

**Figure 2.17 Summary: personal employment penalties in the early 2000s (percentage points)**



The second stage of summarising involves reviewing the evidence about the 'persistence' of disadvantage over the 30-year period:

- The employment penalties faced by women as a group have steadily reduced over time. This down-trend did not affect single women, nor did it much affect women with a partner but no children. But the most disadvantaged women – mothers, especially of young children – are much less disadvantaged now than they were three decades ago, even though they still have the lowest employment rates.
- No other group recorded a steady fall in the extent of their employment penalty. On the contrary, many penalties increased over a considerable part of the period – these include disabled people, Caribbean men and Pakistani and Bangladeshi men. The precise timing of these trends varied, though a common finding was that non-gender penalties in the 1990s were higher than in the 1970s.
- Several of the penalties that had been steady or rising up to the 1990s seem to have reduced over the past ten years or so. These include Caribbean men and Pakistanis and Bangladeshis, both men and women. Thus, several forms of disadvantage seem on the decline in the most recent period.
- The only group whose penalty seems to have been increasing in recent years is Indian women.

Some surprise has been expressed that women are shown to be so highly disadvantaged. It is not women as such who have a large employment penalty. For example, single women without children are not worse off than single men. It is mothers whose employment rates are so low and who are disadvantaged with respect to fathers, often within the same family. The analysis of 'family' employment penalties shows it is only lone mothers, particularly those of young children, who are especially unlikely to be employed. In spite of the fact that the employment rates of all mothers have been increasing and their penalties falling, they are still a long way from parity with partnered men.

Other groups meriting individual attention are women of Pakistani and Bangladeshi origin as well as disabled people. Employment penalties of Pakistani and Bangladeshi women have not improved over a 30-year period compared with white women. The employment penalty of disabled people has actually grown over these 30 years; and other sources suggest that the true extent of their disadvantage is much greater than can be revealed by the rather rough and ready health indicator in the GHS.

# 3 Individual level persistence: analysis of the Office for National Statistics Longitudinal Study

## 3.1 The Office for National Statistics Longitudinal Study

The Office for National Statistics (ONS) Longitudinal Study (LS) is a database that links Census and vital events data from 1971 onwards for one per cent of the population of England and Wales – about 500,000 individuals at any one time.<sup>18</sup> We can, thus, investigate the employment status of each individual, known as LS members, in two, three or four Censuses. For LS members, and for people enumerated in their household, the ONS LS contains Census information on variables such as age, sex, marital status, economic activity, occupation and social class (not used in this analysis), ethnic group (1991 and 2001), religion (2001), education and limiting long-term illness (1991 and 2001).

All people 20 to 59 years of age at each Census time point are included in this analysis. This yields samples from 268,000 (1971) to 287,000 people (2001) from each Census. Because of its large sample the LS has been popular for studying groups who tend to be represented in too small numbers in other nationally representative data sets, such as ethnic minorities. At each Census the study also includes information about other members of the then-current household of the LS member.

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<sup>18</sup> The LS data is made available to independent researchers under strictly controlled conditions at a secure site in London, to ensure confidentiality of the information. Thanks to Bola Akinwale, Louisa Blackwell and Daniel Guinea-Martin of ONS for enabling and supervising this work.

At each Census a proportion of LS members expected are not linked: 10.5 per cent of those expected at the 1981 Census were lost to follow-up, 12.0 per cent were lost from 1981 to 1991 and as many as 16.5 per cent were lost from 1991 to 2001. Blackwell et al. (2003) give a breakdown of the causes of linkage failure and the characteristics of those members affected. The proportion of people lost was higher for men who were not employed than for men in employment, but no similar employment effect has been found among women. The proportion lost to follow up between 1991 and 2001 was also higher for ethnic minorities than for white British people, particularly among relatively recent immigrants.

Compared with the previous analysis of the General Household Survey (GHS), this analysis allows the study of religious groups and somewhat smaller ethnic groups (Black African, Chinese). It can distinguish between Pakistanis and Bangladeshis. This analysis will also investigate transitions within individual life histories. It will, on the other hand, pay less attention to historical changes at the level of society, than the GHS analysis did, since the linkage rate and sample sizes between Censuses is considered to be low for some ethnic minorities and because some social groups can only be identified in one or two Censuses.

All four Censuses in the LS ask if the person was working in the previous week, and which other 'employment categories' would apply. Unfortunately, these questions are not identical between the four Censuses. The Censuses from 1981, 1991 and 2001 have at least eight employment categories, as described in Table 3.1. The 1971 Census had six of these categories; retired people and those taking care of home and family were not itemised in 1971 but were expected to be classified as 'Other not employed'.

In this analysis, three groups are classified as employed: those employed full-time, employed part-time<sup>19</sup> and students<sup>20</sup>. All other groups are all classified as non-employed, i.e. unemployed, permanently sick, retired people, taking care of home and family and other not employed. Section 3.11 investigates whether the composition of non-employment between social groups varies as regards unemployment, permanently sick and other reasons for non-employment (i.e. retired, home and family, other reasons).

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<sup>19</sup> The distinction between full- and part-time employment is 30 hours per week. The Census form explains this definition in small type, but it is not certain how many people read these instructions. Some Censuses have information about the number of hours worked per week. But this was not asked in 1981.

<sup>20</sup> Economically active students are not fully comparable between 1981 and later (1991 and 2001) Censuses.



**Table 3.1    Employment categories in the 2001 Census, percentages 20-59 years**

	Men	Women	Total
Employed full-time	76.6	40.7	58.3
Employed part-time	5.1	27.4	16.5
Student	2.5	2.9	2.7
Unemployed	4.5	2.8	3.6
Permanently sick	5.6	5.3	5.5
Retired	1.5	1.6	1.5
Home and family	1.2	15.7	8.6
Other not employed	2.9	3.8	3.3
Sum	100.0	100.0	100.0

Source: ONS Longitudinal Study.

The empirical analysis will investigate how far variations in employment rates between social groups can be explained by characteristics that can be observed for individuals and their families and areas, and how much remains unexplained. Control variables are age, sex, education level, living with a partner, number and age of children, county level unemployment rates and whether the household lived in one of the seven metropolitan counties of England.<sup>21</sup>

Most of these 'control' variables can be found in Census data, and hence in the LS. County-level unemployment rates are estimated from the data. Children (aged less than 16) of the LS member (the person sampled) and/or the partner of LS member (married or cohabiting) living in the household are included in the number of children. The number of children is measured in two age brackets: 0-6 and 7-15 years of age.

Only the 2001 Census provides education data that is useful for our analysis since the previous Censuses merely distinguish between levels of higher (academic) education. For this reason, we will:

- not control for education level when comparing employment between all four Censuses studied (in 1971, 1981, 1991 and 2001);
- control for education level (in 2001) when comparing employment between social groups in the 2001 Census;
- control for education level (in 2001) when comparing employment between social groups in the 1991 Census.

<sup>21</sup> Greater London, West Midlands, Merseyside, Greater Manchester, South Yorkshire, West Yorkshire and Tyneside. The definition (Metropolitan County Councils from the 1970s to 1986) has been applied across all four Censuses.

This analysis classifies people as employed when working any number of hours per week. One reason is that the number of hours worked cannot be identified in all Censuses studied. The previous analysis of the GHS (Chapter 2) used a threshold of 16 hours per week. The two analyses will, thus, provide different results for people working less than 16 hours per week. The two definitions of employment primarily affect gender comparisons. This issue is investigated empirically in Sections 3.4 and 3.8.

Employment disadvantage could also have been studied using other types of data, such as unemployment, occupational status or income. An advantage of studying employment rates is that employment rates include the entire population: all women, all members of an ethnic minority, etc. Studies of unemployment include only those who are economically active (i.e. employed or searching employment). Studies of occupational status and income can be even narrower by only including those with a job. Studies of unemployment and occupational status are, thus, associated with selection problems following from the fact that many members of a group who cannot find employment may not even be actively searching and are, thus, not included in the analysis.

## 3.2 Objectives

The first objective is to describe and compare employment rates and transitions among potentially disadvantaged groups defined by age (50-59 versus 20-49 years), sex (women versus men), disability (people with long term sickness/disability with consequences for daily living or employment versus people without such problems), ethnic group (ethnic minorities versus white people), and religion (religious minorities versus Christians). This descriptive analysis will, in some cases, also show how these employment rates have changed between Censuses.

The second objective is to investigate how far different employment rates and transitions among these groups can be explained by observed characteristics of individuals (age and education level), their families (living with a partner and number of children in the household) or areas (unemployment rates, Metropolitan County). Differences that may remain after adjusting for observed characteristics (unexplained differences) will be described as 'penalties', say gender penalty, age penalty, ethnic penalty and so on.

Technically, we start comparing social groups not controlling for any other variables. Then we add age to the analysis, thereafter education level, and so on. By investigating how the social groups compare before and after introducing new explanatory (control) variables, we show which variables help to explain higher or lower employment in one social group compared with another. We will, however, only present crude employment gaps, and penalties adjusted for all observed characteristics, in tables and graphs, and comment on which variables help to explain the difference in the text.

The third objective is to investigate the persistence of non-employment in the life course of individuals. Again, emphasis is on the comparison between social groups: are members of some groups more persistently non-employed than members of other groups? This is done by comparing transitions into employment from one Census to the next among people who were not employed in the first of the pair. We will also investigate some transitions out of employment.

If one group should have lower probabilities of being employed than others at any point of time, but not necessarily less likely to move into employment given that they were not employed in the first place, we could say they face employment disadvantage but not necessarily persistent employment disadvantage. If they face lower probabilities both of being employed and of becoming employed given they were not employed in the first place, they could be described as being in persistent employment disadvantage.

The fourth objective will be to investigate how far different transition rates between social groups can be explained by observed characteristics of individuals, their families and areas.

The definition of persistent employment disadvantage could include some people who were non-employed only for a short period at the first Census of a pair (e.g. 1991) and also for a short period at the subsequent Census (e.g. 2001) but employed in-between. Similarly, some people may have been employed for a short period at the each of two Censuses but not employed in-between.

Similar to the analysis of the GHS in the previous chapter, our data do not allow us to say why employment penalties (unexplained group differences in employment) arise. From time to time an issue seems to arise if different employment rates arise from choice or constraints including discrimination. Discrimination would arise if someone applying for a job were treated differently for reasons of their age, sex, disability, ethnic and religious group. This issue could be investigated if we had access to the same information as employers screening potential employees. But it cannot be investigated by the data presented here.

We cannot say that someone is not employed because of choice or constraints by merely looking at the reason for non-employment in Census data. The decision to search for employment (being economically active) is influenced by the probability of finding employment, including the probability of not facing job discrimination. Further, people who become unemployed may stop searching for a job if they cannot find one, known as discouraged workers. In the data presented here, there are very few people who become unemployed from one Census to the next, who still classify themselves as unemployed in a third Census, even when still being without employment.<sup>22</sup>

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<sup>22</sup> Of those employed in 1981 but unemployed in 1991, only 8 per cent of the men and 4 per cent of the women were still (or again) unemployed in 2001. Much larger groups (45 per cent of men and 49 per cent of women) had moved from unemployment in 1991 to inactivity (i.e. not looking for work) in 2001.

### 3.3 Employment by gender and age

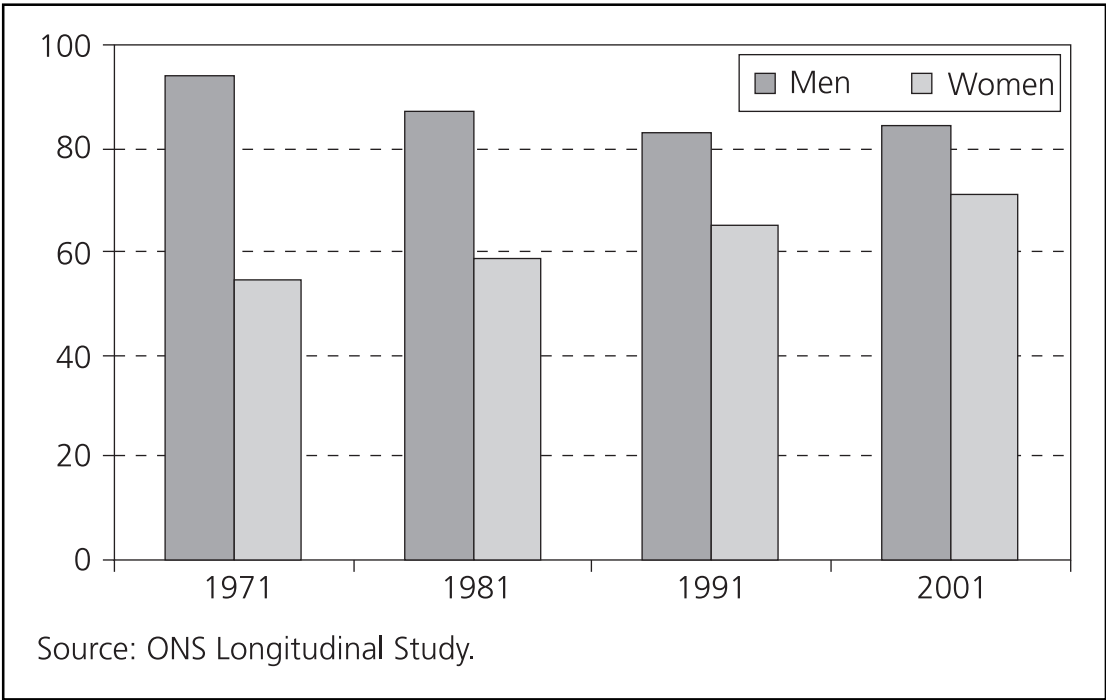
#### 3.3.1 Percentages and log-odds statistics

Employment penalties will be investigated and compared using log-odds statistics (coefficients from logistic regression models). These statistics represent a convenient way of comparing employment gaps and penalties across time and social groups. For descriptive purposes we will start with some percentage distributions by gender and age and then present similar comparisons using log-odds statistics. The main text will compare all social groups (defined by age, gender and motherhood, disability and ethnic and religious groups) using only log-odds statistics. Percentages are presented in Appendix D.

Figure 3.1 describes the proportions of men and women employed in the four Censuses from 1971 to 2001. Employment rates have increased among women, but decreased among men. Figure 3.2 describes the converse development between Censuses in non-employment. The two graphs show the same data and distributions but seen from opposite perspectives.

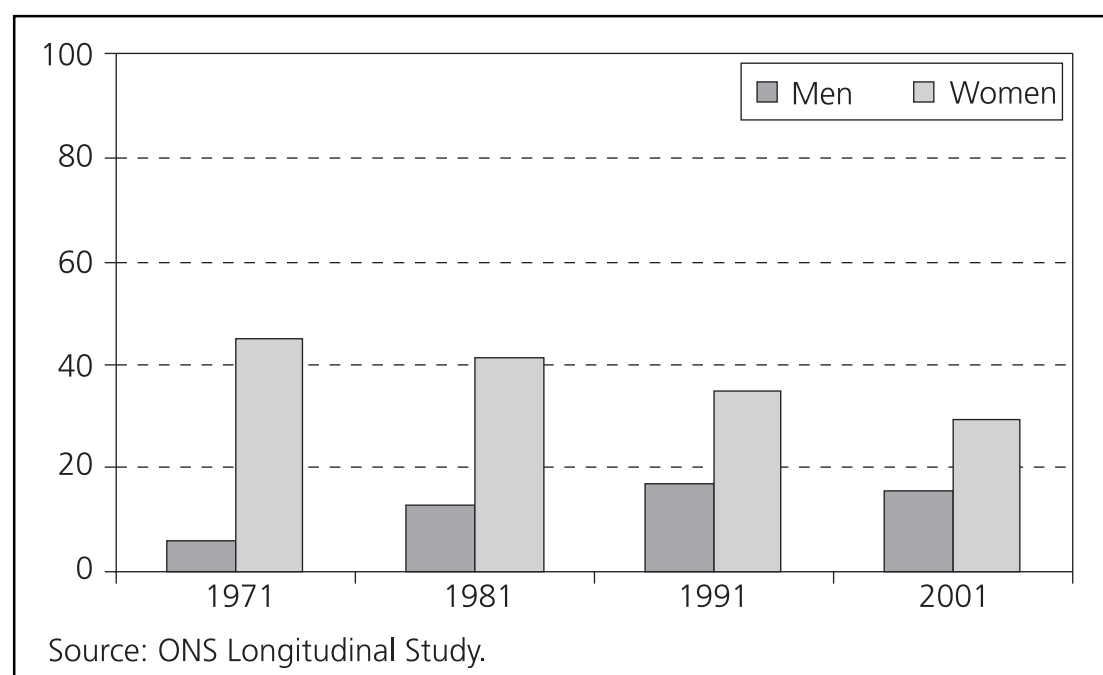
Changes in employment rates (Figure 3.1) could seem smaller than changes in non-employment (Figure 3.2). Since more people are employed than non-employed, the relative change in non-employment has been greater than the relative change in employment. Comparing rates between proportions such as percentages would give different results when comparing employment and non-employment, in spite of the fact that these are the same distributions but viewed from different perspectives (as employment or non-employment).

**Figure 3.1 Percentages employed at four Censuses**



One way to get around this problem is to compare percentage differences. Another approach is to compare ratios between those employed and those not employed using logistic regression and log-odds statistics. The previous analysis of the GHS present results as percentage differences but the calculations were based on logistic regression equations. In this section, we will present the output from these statistical models directly using (additive) coefficients (log-odds statistics) rather than recalculating the results in percentage form.

**Figure 3.2 Percentages not employed at four Censuses**

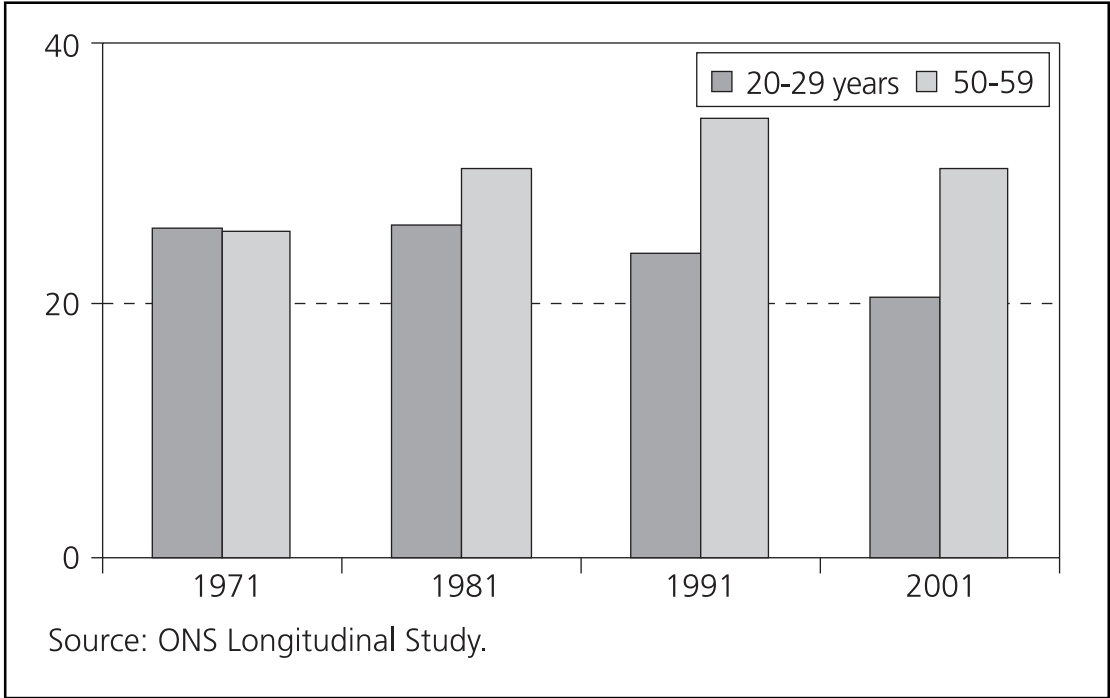


Log-odds statistics (coefficients) indicates a difference between two odds in the same ways as a percentage difference indicates a difference between two percentages. The odds is the ratio between those employed over those not employed. The logarithmic transformation of these odds is a way of making ratios additive or linear. This linearisation facilitates comparisons between different employment penalties and how much of a crude employment gap that can be explained by observed variables (age, education, family composition, etc.).

The crucial difference between percentage differences and log-odds statistics is that while percentage differences assume a linear model (e.g. a change in employment from 50 to 60 per cent is the same as a change from 60 to 70 per cent or from 90 to 100 per cent), the logistic model assumes a non-linear model, meaning that employment rates get harder to change the closer we come to full employment. In effect, a change from 50 to 60 per cent corresponds to a change from 60 to 69.2 per cent or from 90 to 93.1 per cent. We should keep in mind, however, that any comparison of differences is based on rather strong 'distributional' assumptions when comparing male and female penalties. In percentage terms, employment gaps tend to be larger among women than among men. But this could be different when using a non-linear distribution.

Men and women’s employment rates have become more similar, as was also indicated in the previous analysis of the GHS (in Chapter 2). Another significant change in this period is that those over 50 years old have experienced deterioration in employment compared with those below 50, as indicated by Figure 3.3. This graph presents the average employment rates for men and women in two age bands (20-49 and 50-59) in order to indicate how age has become more important for people’s employment prospects. Those in their 50s have lost out compared with younger people.

**Figure 3.3    Non-employment rate by age above/below 50, percentages**

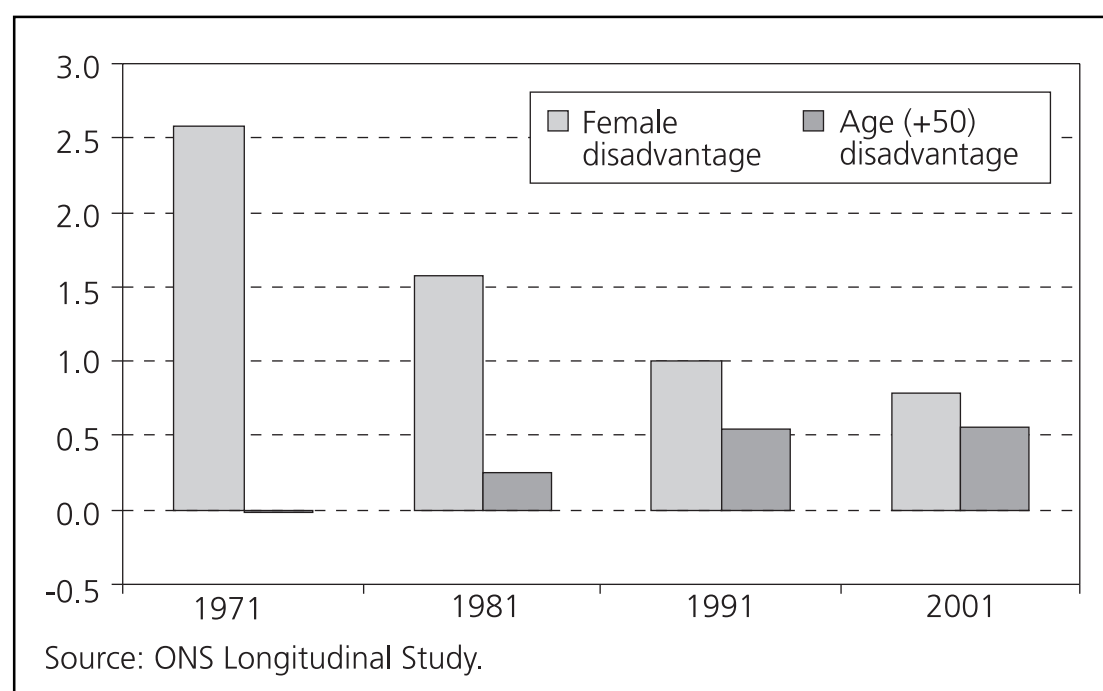


Men and women have become more similar in employment. Those above and below 50 years of age have, on the other hand become more different in employment. But how does the gender (female) employment gap compare with the age (above 50 years) employment gap? This is indicated by Figure 3.4 which presents crude gender and age gaps expressed as log-odds statistics (coefficients). These are the same distributions as those presented in Figures 3.1 and 3.3 but where the below 50 age group and men are respectively set to 0 on the y-axis in order to clarify the two types of employment gaps that follow from being a woman (versus a man) and over 50 (versus below 50).

In 1971 there was a huge gender employment gap between men and women but no crude employment disadvantage associated with being over 50. By 2001, the two crude employment gaps had converged, but still with a larger crude difference between women and men than between over versus under 50. The remaining part of this analysis of the ONS Longitudinal Survey will largely compare employment gaps and penalties using the type of comparison as in Figure 3.4. The sole exception

is the presentation of transition rates in Section 3.4 which will also use percentage rates.

**Figure 3.4 Employment disadvantage by age (above 50) and gender, measured in log-odds statistics**

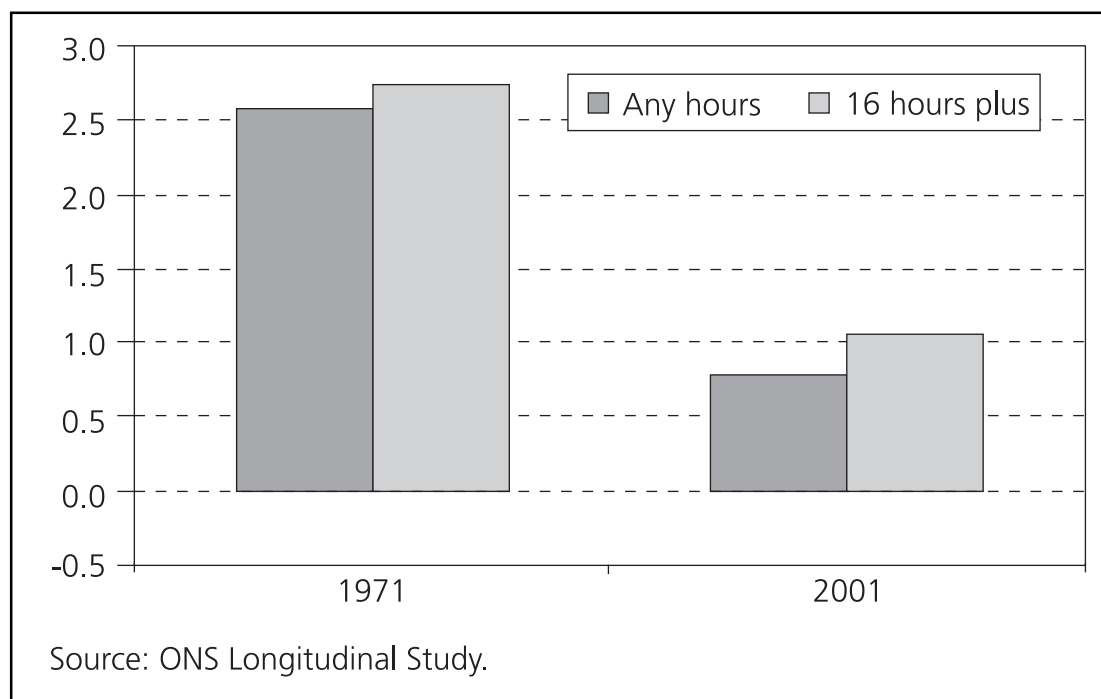


### 3.3.2 Any hours and 16 hours of work

This analysis of the ONS LS classifies people as employed when working any hours during a week. The previous analysis from this project using the General Household Study classified people as employed only if they worked at least 16 hours per week. Since some women, perhaps mothers in particular, work less than 16 hours per week, the difference between these two definitions of employment is likely to make a difference when estimating female employment gaps and female employment penalties.

Figure 3.5 compares female employment disadvantage as compared with male employment when using any hours worked (as elsewhere in this Section) and at least 16 hours as thresholds for being employed (as in the GHS analysis). Female employment disadvantage becomes larger when restricting the analysis to employment of at least 16 hours per week. The reason is that many women, but few men, work less than 16 hours. In relative terms, the female employment disadvantage increases by a third when excluding employment below 16 hours in 2001. If employment is primarily seen as a source of economic support, and if people have to work 16 hours to be self-supporting, the any-hours measure of employment used here underestimates the female employment disadvantage by a quarter.

**Figure 3.5 Female employment disadvantage when using any hours worked and minimum 16 hours per week, log-odd statistics**



The inclusion of employment below 16 hours per week made less difference for the gender comparisons in 1971 than in 2001. This is not only the case in relative terms, but even in absolute terms. Thus, some of the increase in female employment, relative to male employment, has occurred as employment below 16 hours per week. All other parts of this section based on the ONS LS will look at any hours of employment, mainly because hours were not recorded in 1981. In so far as employment is seen as a source of living, this will underestimate female employment penalties and overestimate gender employment equality during the 30 year study period.

The crude differences in employment as presented in Figures 3.4 and 3.5 (or in any of the above analyses) do not control for any characteristics of individuals. As presented in the GHS analysis (Chapter 2) children make a huge difference to employment probabilities for women but not for men. This issue will be studied in Section 3.5. Before that, we will introduce the issue of transitions into and out of employment using age and gender as examples.

In summary this analysis of age and gender shows that:

- 1 Women are less likely to be employed than men.
- 2 This gender effect has become much smaller during a 30-year period.
- 3 People over the age of 50 are less likely to be employed than people below 50.
- 4 This age effect has arisen during the last 30 years.
- 5 The female employment gap is larger than the age employment gap. But it appears that these two forms of employment disadvantage are converging.

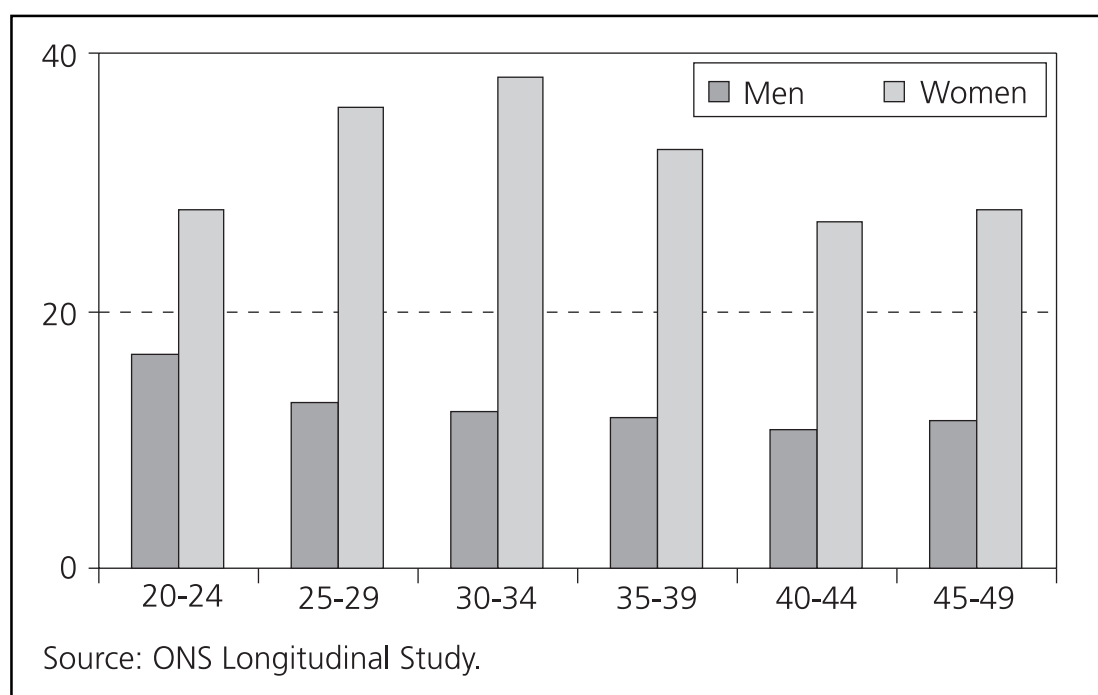


### 3.4 Transitions in and out of employment

In most analyses, transitions into employment refer to the length of time till someone starts working. In this analysis, transitions are merely transitions from one Census (1991) to the next (2001). A person who was non-employed at both Censuses could have been employed several times in-between the two Censuses, and thus experienced multiple transitions in and out of employment.

When talking about the persistence of employment disadvantage, it is not only the frequency of movements in and out of employment that is relevant, but also how long people are employed in each period of employment. The two issues of duration till starting employment and duration of the relevant employment, can be summarised in the probability that someone is employed at any point of time following an initial observation. This is the approach followed in this analysis. Thus, transitions do not mean the number of movements in and out of employment, but the probability that a non-employed person is still or again also non-employed at a later stage here investigated with 10 year intervals.

**Figure 3.6 Non-employed in 1991, percentage of everyone**

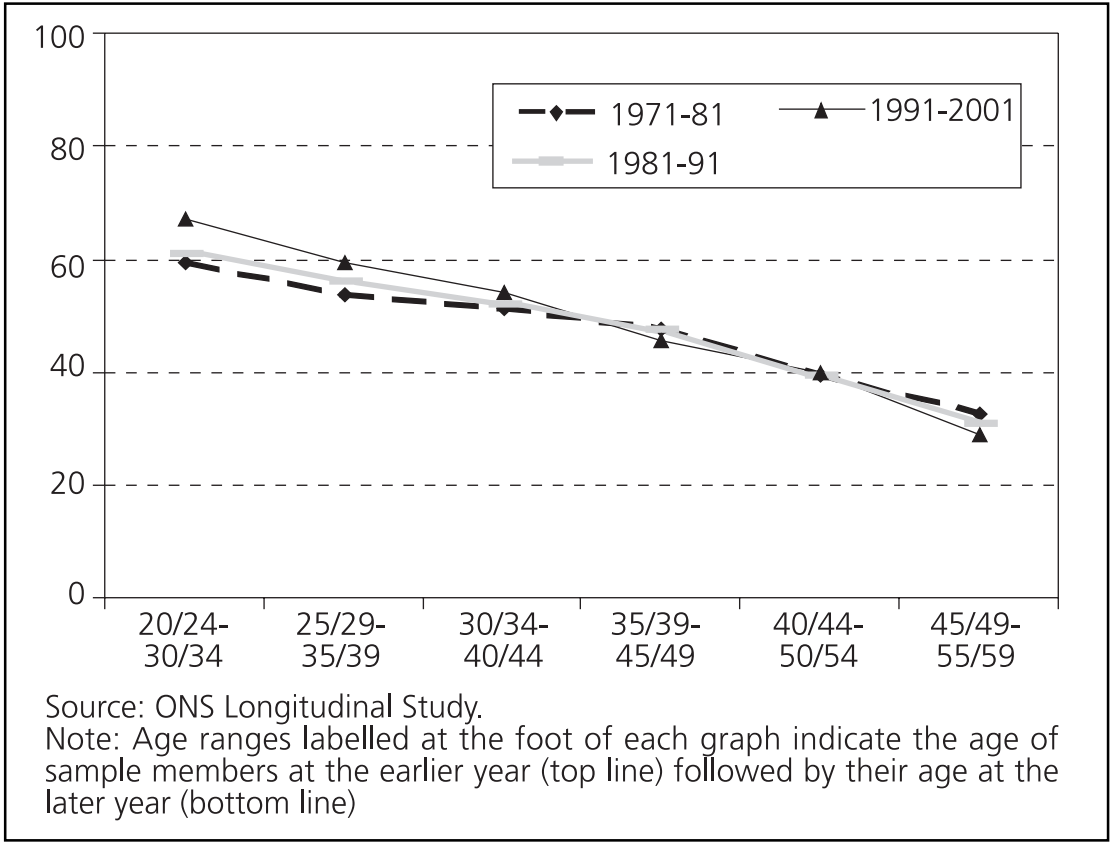


When studying transitions into employment, we first have to know how many people were out of employment in the first place. In 1991, women between 25 and 40 years old were more likely to be non-employed than both younger and older women, as indicated by Figure 3.6. Men below 25 were slightly more likely to be non-employed than men over 25.

Transitions into (or out of) employment are normally calculated relative to the number of people being out of employment (or employed) in the first place (for

example in the 1991 Census if we study transitions from 1991 to 2001). Entry rates are presented in Figure 3.7 (men) and 3.8 (women). For historical comparison, these transition rates are calculated for all three periods studied: 1971-81, 1981-91, and 1991-2001. Transition rates include people being 20-59 years in both of two Censuses. The youngest age group could thus be 20-25 in a first and 30-34 in a second Census; the oldest age group 45-49 in a first and 55-59 in a second Census.

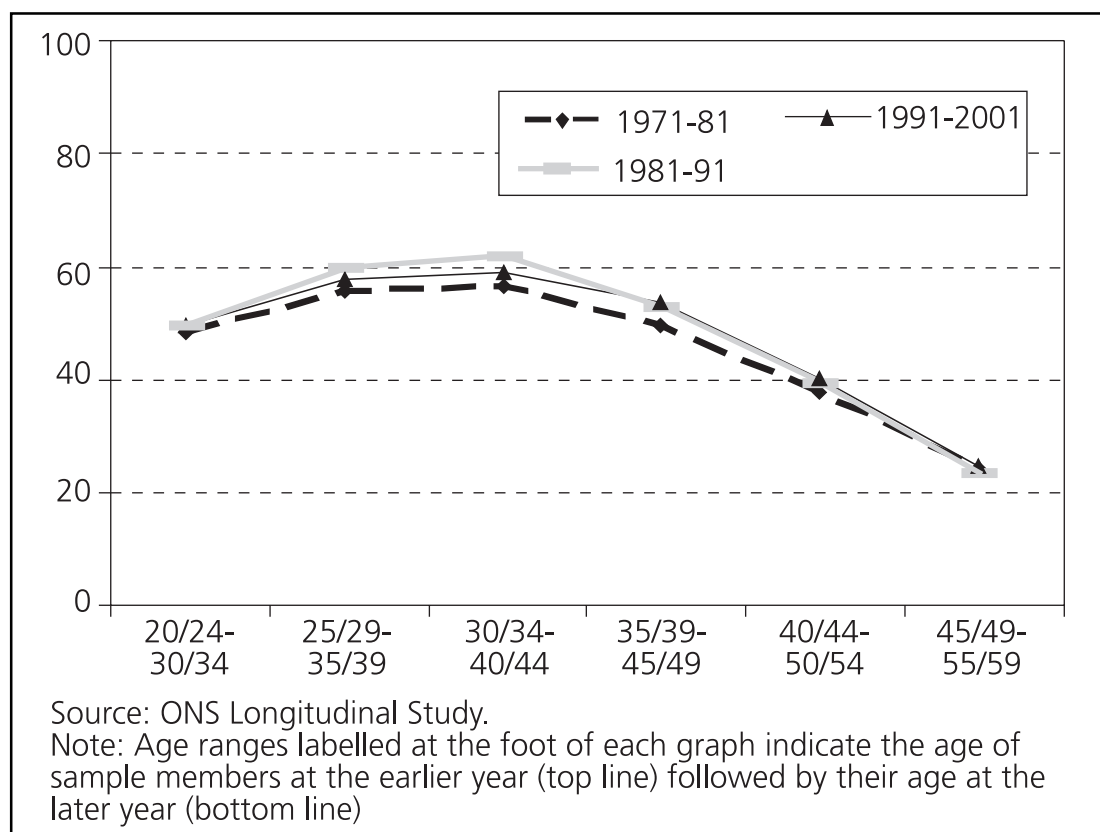
**Figure 3.7    Male transition rates to employment (entries) by age and period (percentages of those initially non-employed)**



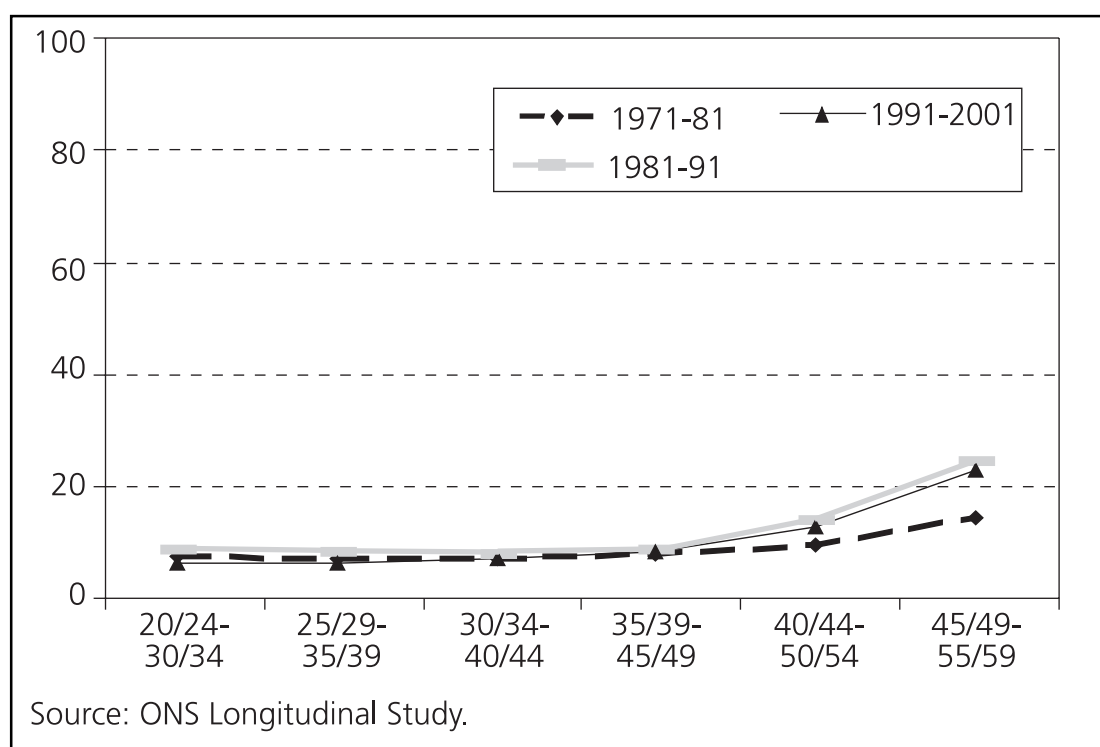
Figures 3.7 and 3.8 indicate that about 50 per cent of those who were not employed in 1991 were employed ten years later, and (conversely) 50 per cent were still (or again) non-employed. The latter can be considered persistently non-employed. These proportions moving into employment are similar for men and women, in spite of the fact that a lot more women than men were out of employment in the first place. This means that more women than men move into and out of employment, even if their transition rates into employment are similar.

For both men and women, transition rates into employment are quite similar when comparing historical periods, i.e. 1971-81, 1981-91, 1991-2001. These similarities in transition rates are surprising given the large changes in employment rates for women (increase) and men (decrease) in this period, as indicated by Figures 3.1 and 3.2. The number of people employed has changed dramatically and differently for men and women but transition rates into employment have largely remained constant.

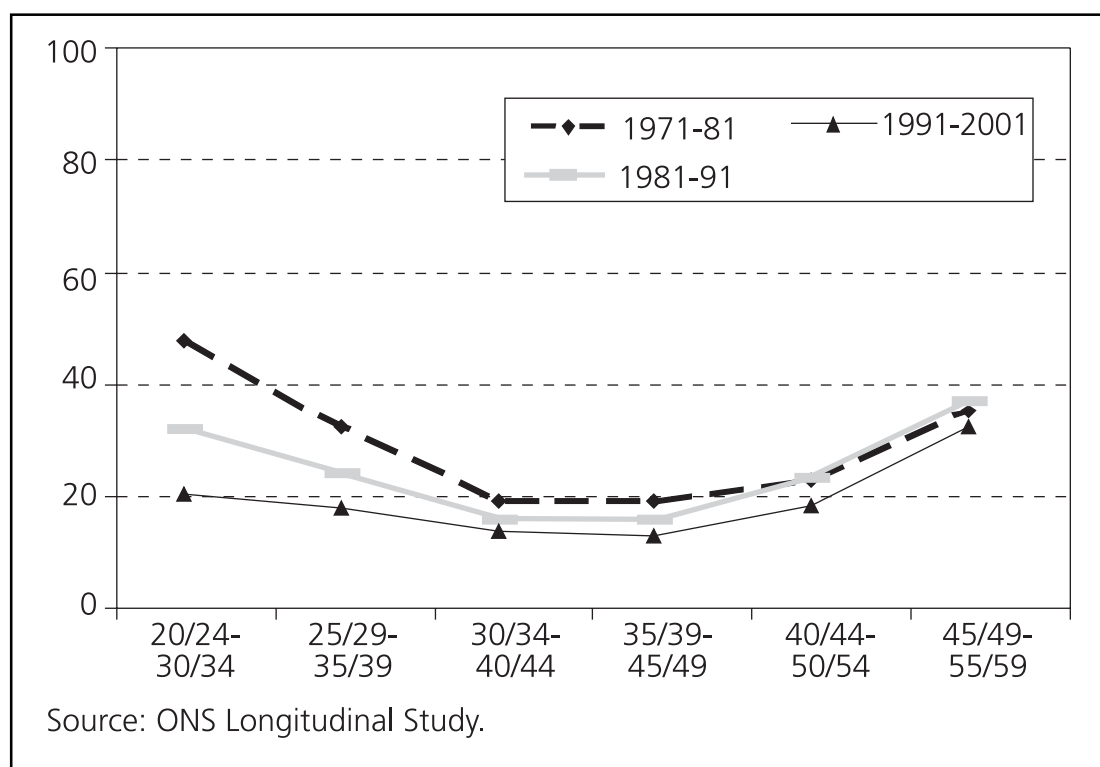
**Figure 3.8 Female transitions rates to employment (entries) by age and period (percentages of those initially non-employed)**



**Figure 3.9 Male transition rates out of employment (exits) by age and period (percentages of those initially employed)**



**Figure 3.10 Female transition rates out of employment (exits) by age and period (percentages of those initially employed)**



The most noticeable difference when comparing men and women's transition rates into employment is the age gradient. Among men, there is a linear decrease in the probability of entering employment (for those being out of employment in the first place). These transition rates were slightly lower among young men in the 1970s and 1980s, probably reflecting that young men were more susceptible to the relatively high unemployment rates of the early 1980s and 1990s than older men. Among women, transition rates into employment peaked in the middle of the age range, and then fell steeply with increasing age. The overall rate rose slightly from the 1970s to the 1980s for women in their 30s and 40s.

Figures 3.9 and 3.10 present transition rates out of employment similar to Figures 3.7 and 3.8. Women (Figure 3.8) have higher exit rates out employment than men (Figure 3.7). But female exit rates have fallen dramatically from the 1970s to the 1990s, the first and the last period studied. This is particularly true for young women or women in the reproductive age-range. Nearly half of all women who had been employed in their early 20s in 1971 were out of employment ten years later. But only 21 per cent of this youngest age group who had been employed in 1991 were out of employment ten years later.

Figure 3.10 also indicates a steady decline in exit rates among young adult women from the 1970s, during the 1980s, to the 1990s. The reason could be that women have shorter periods of non-employment after giving birth today than 30 years ago.<sup>23</sup>

Female exit rates out of employment have also fallen for women above reproductive age, at least when comparing exit rates in the 1970s and the 1990s. But this change is smaller than for younger women.

Male exit rates have changed relatively less in the period. The major change has occurred for older male workers who were much more likely to move out of employment during the 1980s than the 1970s. These rates improved slightly, however, from the 1980s to the 1990s.

When comparing Figures 3.9 and 3.10 it appears that female exit rates are approaching exit rates of males, with relatively higher exit rates only for elderly workers. Women, however, still have higher exit rates for all age groups than men have, and the difference is biggest for young adults.

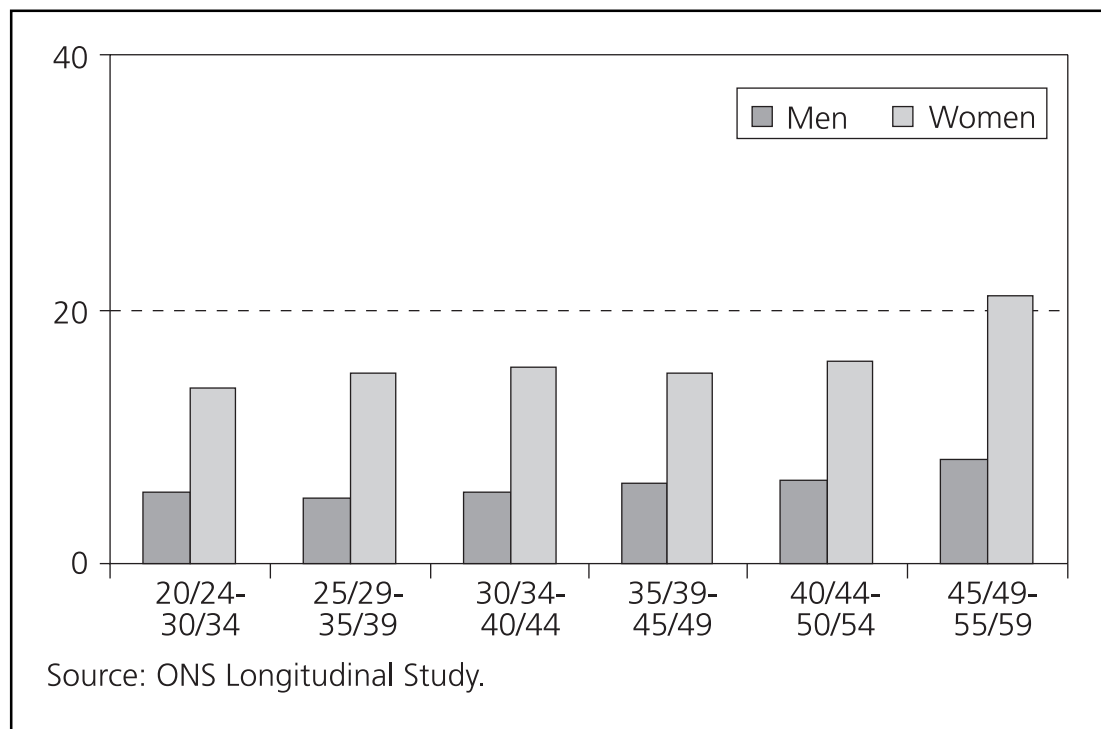
Let us finally consider how many people were out of employment in both 1991 and 2001. This is indicated by Figure 3.11, which is constructed similarly to Figure 3.6 (non-employed in 1991 only). In all age groups women were much more likely to be non-employed at two consecutive Censuses than men were. We have defined a group as persistently non-employed if it is less likely to be employed (at the start of a period) and also less likely to move into employment. According to this definition, women are more likely to be out of employment than men, irrespective of whether we analyse this at one point in time or two well-spaced points in time. But women are not necessarily persistently non-employed because their probability of moving into employment is similar to non-employed men.

It would be possible to argue against this finding, if, for example, non-employed women were likely to have more education than non-employed men. The main reason female and male employment rates differ is, however, that children have different effects on men and women's probability of being employed. This issue was investigated in the previous GHS analysis (Chapter 2), showing the child-related employment penalty for women over a 30-year period and will be investigated further in the following chapter.

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<sup>23</sup> In principle, lower fertility rates could also help explain this finding. But fertility rates dropped to about contemporary levels as early as the mid-1970s (ONS 2005). Thus, it appears that shorter periods of non-employment following birth are more important for explaining lower exit rates as calculated at 10-year intervals.

**Figure 3.11 Non-employed both in 1991 and 2001, percentages of everyone**



In summary, this analysis of employment transitions indicates that:

- more women than men move out of employment, particularly but not solely, at relatively young ages. But once out of employment, men and women have similar probabilities of re-entering employment;
- elderly workers are more likely to leave employment than younger workers, and older people of working age are also less likely to re-enter employment once out than younger people;
- historical changes in employment rates, as regards age and gender, are largely explained by changes in probabilities of leaving employment (exit rates). There are comparatively small changes in probabilities to re-enter once out (entry rates);
- young men are more likely to be non-employed than older men, but they also have higher transition rates into employment than older men;
- among women, it is those between 25 and 40 years of age who are most often out of employment. But these age groups of women have also the highest transition rates into employment.

The main finding so far is that analyses of non-employment and persistent non-employment give different results for gender and age groups. The largest difference in employment is found when comparing women and men, but more persistent non-employment is mostly found among older people of working age. This means that those facing the highest risk of persistent non-employment are women above

50. Later sections will analyse the risk of being persistently non-employed by disability, ethnic group and religion.

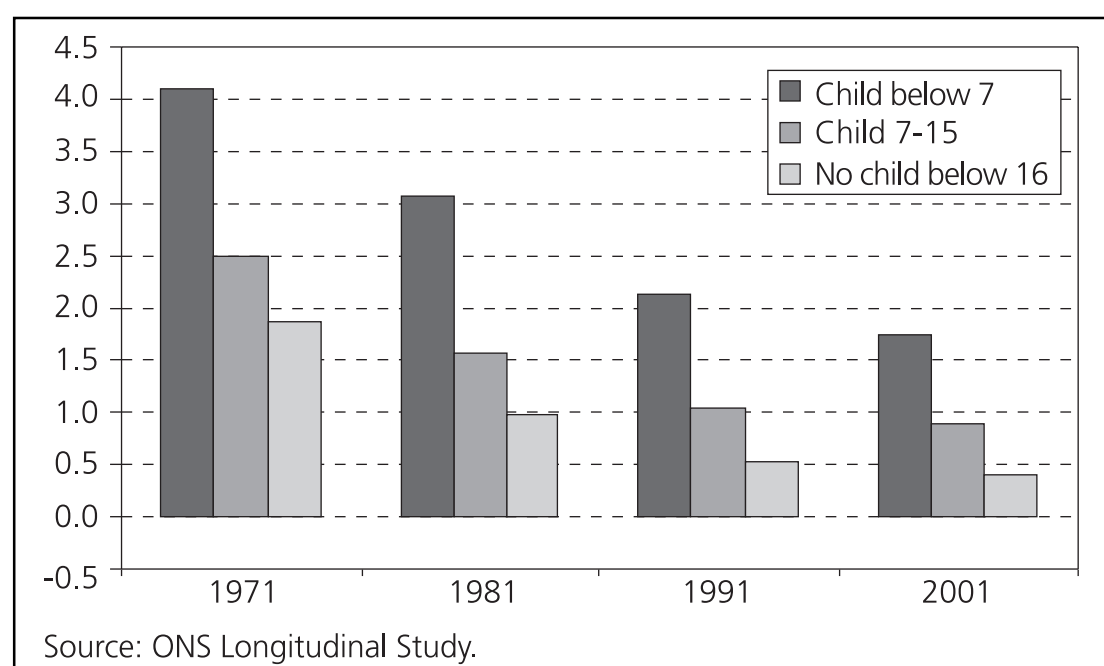
### 3.5 Motherhood and employment

Female employment rates increased strongly from 1971 to 1991. It is well known that female employment is strongly associated with motherhood, as was also described in our analysis of the GHS in Chapter 2. This section will describe the relationship between motherhood and employment in more detail, starting with changes in employment rates at the level of society (somewhat similar to the previous analysis of GHS data) before investigating how employment changes among the same women as they move between motherhood stages as defined by the age of their children.

This first issue (society level changes) is described in Figure 3.12, which distinguishes between three groups of women: those with at least one child below 7 years, those with at least one child or the youngest child between 7 and 15 years of age, and those with no children below 16 years of age. All three groups of women are compared with men, with or without children, since children have small effects on men's employment. The graph uses log-odds statistics and controls for age.

Women with small children (0-6) have the lowest employment rates; women with no children (below 16) have the highest employment rates, whereas women with older children (7-15 years) are in-between. All three groups of women have increased their employment rates strongly during the 30-year period (and even more strongly when compared with men).

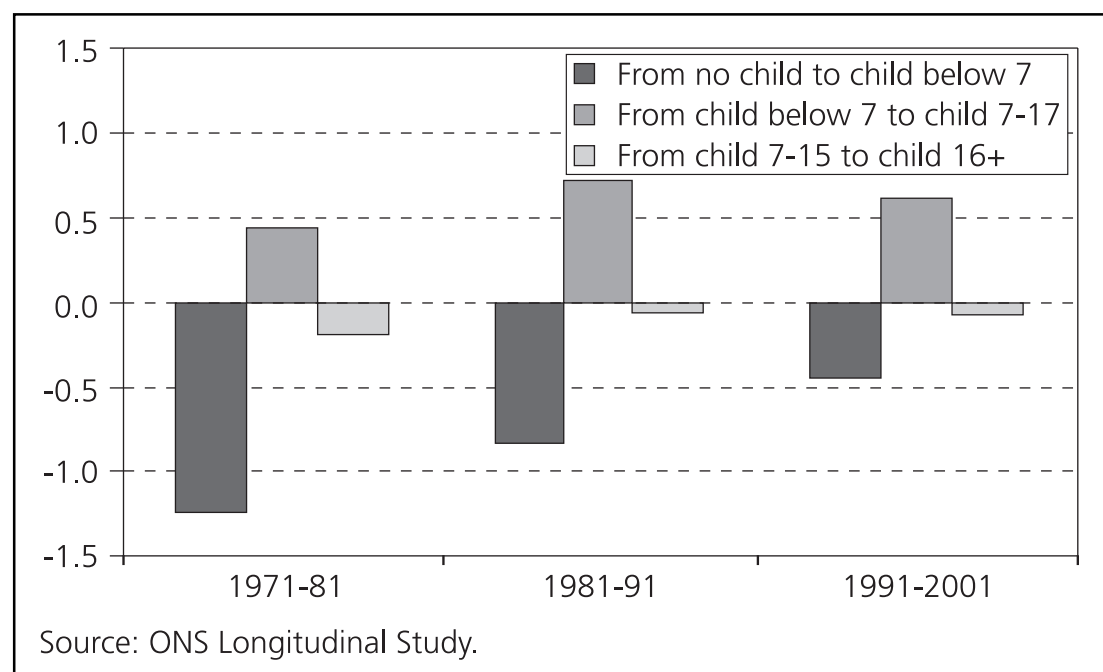
**Figure 3.12 Female employment gaps (compared with all men) by the presence of children in the household (log-odds statistics)**



The striking finding is the similarity in all three groups of women regarding the rate of increase in employment, i.e. the reduction in their employment gap. In absolute terms the strongest increase has been among women with small children. But this is because this group of women had the lowest employment rates to begin with. In relative terms the strongest increase has been among women with no children. But this is because this group also had the highest employment rates to begin with. Again, women with older children are in-between.

Female transition rates into employment are not very different from male transition rates, as described in the previous chapter. There are some, but not very large differences between women becoming mothers and ending being mothers of small children (0-6 years), as indicated by Figure 3.13. Notice that motherhood is, here, defined differently from the cross-sectional analysis of Figure 3.12. The first group (from no child to child below 7) were mothers in only the second of a pair of Censuses (but no older children). (They were also above 20 in the first Census.) The second group (from child below 7 to child 7-15) had children below 7 in the first and only between 7 and 16 years in the second pair of Censuses. The third group (from child 7-15 to no child below 16) had children between 7 and 16 in the first but not in the second Census. Note that these categories are selected to illustrate a typical family life-course, and do not represent all possible combinations of experiences.

**Figure 3.13 Transition rates into employment among mothers compared with all men, log-odds statistics**



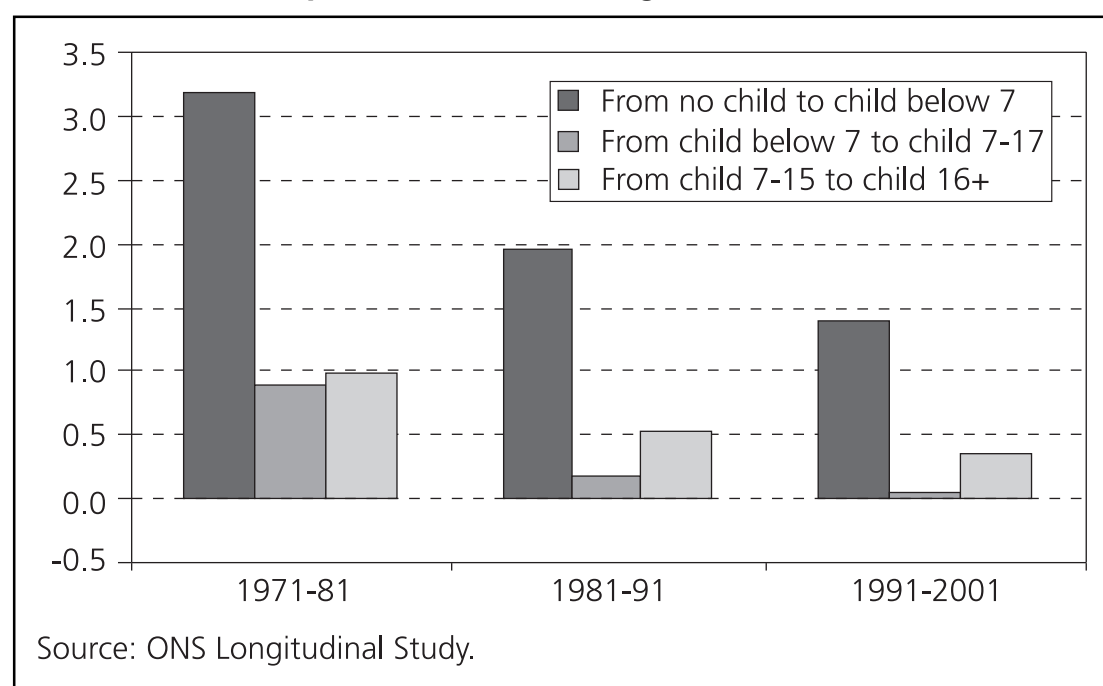
Those becoming mothers of small children were least likely to enter employment; mothers of children growing from small to older children were most likely to move into employment, whereas those ending being a mother of children below 16 year were in-between. The most noticeable trend in the study period is for those



becoming mothers as they had much higher transition rates into employment in the 1990s than in the 1970s, compared with men. From the 1970s to the 1980s there was also a noticeable increase in entry rates for mothers associated with children growing older (from 0-6 to 7-15 years).

Transitions out of employment (Figure 3.14) vary somewhat more with motherhood status. These transition rates also changed more in the observation period (from the 1970s to the 1990s) than transitions into employment. All three groups of mothers have lower probabilities of leaving employment today than they did 30 years ago. The strongest absolute reduction in moving out of employment has occurred for those becoming mothers of small children, who also had the highest transition out of employment to begin with. The larger relative reduction in moving out of employment occurred for those being mothers at both points of time who now have transition rates out of employment comparable to men. This comparison does not adjust for the fact that a much smaller, and more selected, proportion of mothers of small children was employed in the first place when their children were below 7 years.

**Figure 3.14 Transition rates out of employment among mothers compared with all men, log-odds statistics**



In summary, this analysis of motherhood and employment reveals that:

- motherhood is strongly associated with non-employment, particularly being a mother of small children;
- employment rates have increased for all groups of women defined by motherhood status;
- exit rates associated with motherhood have changed more in the study period than entry rates into employment.

### 3.6 Disability

Disability indicates a mismatch between reduced individual capabilities, resulting from disease or impairment, and various requirements people face in everyday life. Disability can be operationalised by considering types of disease or impairment or types of activities people cannot do or are excluded from doing, including living independently at home or take part in employment. The Census operationalisation of disability includes various types of activities. The 1991 Census asked whether the person had any long-term illness, health problem or handicap which limits their daily activities or the work they can do. In 2001 a very similar question was asked, but 'handicap' was now changed to 'disability'. Unfortunately, since 'limits the work he/she can do' is part of the Census definition of disability, there is an element of circularity in studying how far this definition of disability leads to non-employment.

A much higher proportion reported disability in 2001 than in 1991. The proportion reporting disability was 8.2 per cent in 1991 and 13.6 per cent in 2001. Other data sources such as Health Survey for England (NHS National Statistics 2005) and the GHS (analysed in Chapter 2) also indicate there could have been an increase in the number of people reporting a long-standing illness, but not nearly at the rate found here. It is possible that the change of wording from 'handicap' (in 1991) to 'disability' (in 2001) led to more people reporting disability in 2001 than in 1991.

The proportions being disabled were similar for men and women. Men are, however, more disadvantaged by disability than women, as indicated by Figure 3.15. One reason is that a much higher proportion of non-disabled women than non-disabled men are non-employed in any case.<sup>24</sup>

The employment disadvantage following disability is larger in this analysis of Census data than in the previous analysis of the GHS (Chapter 2). There are two possible explanations:

- One likely reason is that the Census asks if people have a health problem that limit their daily activity or the work they can do. People who are non-employed are, thus, more likely to report that they have a health problem which limits 'the work they can do' than employed people with similar health problems and/or similar limitation in everyday activities. Such congruence between what is being explained (employment) and what should explain it (health problems and 'disability') will overestimate the disability effect on employment.

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<sup>24</sup> Notice that the percentage difference, as indicated in Appendix D, is seemingly smaller than the log-odds difference, as indicated by Figure L, when comparing employment disadvantage following disability between men and women. The reason is that the log-odds statistics assumes that percentages became harder to change when approaching 0 or 100 per cent. Ninety-one per cent of non-disabled men are employed compared with 78 per cent of non-disabled women.

- The other possible reason for the stronger penalty in this analysis than in the GHS analysis is that the proportion reporting disability in the 2001 Census is smaller than in the GHS. When a smaller proportion (of the same population) report disability, this smaller proportion is likely to experience more severe impairments.

**Figure 3.15** Age adjusted employment disadvantage by disability and gender (log-odds statistics)



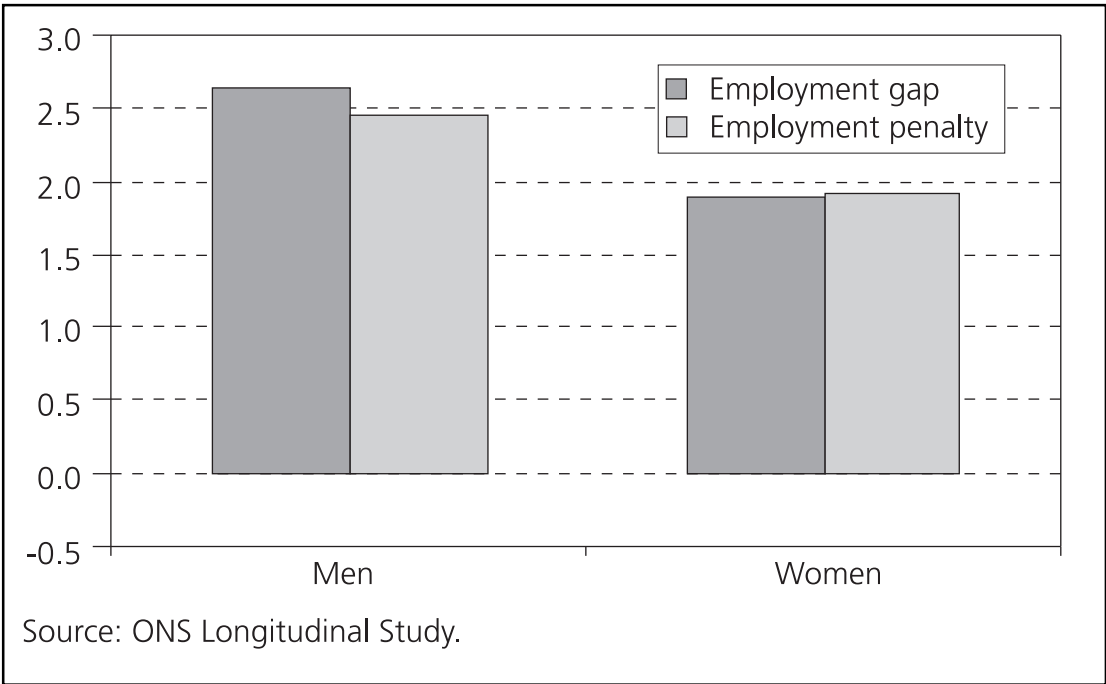
How far can we explain the lower employment rates among disabled people compared with non-disabled people? Figure 3.16 compares employment rates among disabled and non-disabled people, first by not controlling for anything (not even age which is controlled for in Figure 3.15), and then when controlling for a standard set of variables to be used in all further analyses: age and education, living with a partner and number of children, ethnic and religious groups, as county-level unemployment rates and living in a Metropolitan County. The regression equation from this analysis is presented in Appendix E. This is a standard model which will be used in all further analyses of employment penalties in this chapter.<sup>25</sup>

Taken together, these control variables can explain only a very small part of the lower employment rates among disabled men compared with non-disabled men. They cannot explain any of the lower employment rates among disabled women compared with non-disabled women. In this analysis, employment penalty indicates

<sup>25</sup> The main exception is that disability is not controlled for in most of these analyses since the Census measure of disability is not independent from employment status. Ethnic and religious groups are analysed both separately (Sections 3.7 and 3.8) and jointly (Section 3.9).

no other apparent reason for non-employment than disability. Among men, educational level and family composition make a small contribution to explaining why disabled people have lower employment rates than non-disabled people.

**Figure 3.16    Non-adjusted (gaps) and adjusted employment rates (penalties) by disability and gender in 2001 (log-odds statistics)**



Among women, education level can also help explain lower employment rates among disabled people, but family composition works in the opposite direction. A (logistic) regression analysis assumes that people are similar on all observed characteristics (education, number of children, etc.) that enter the analysis. Disabled women have fewer children than non-disabled women. Children reduce women’s probability of being employed. Thus, controlling for children does not help explain the employment gap between disabled and non-disabled women, but suggests that it should have been even larger.

This analysis includes everyone working any number of hours. If more disabled than non-disabled people were working part-time, this analysis could underestimate the employment disadvantage associated with disability. But this is not the case. In fact, more non-disabled than disabled people work less than 16 hours per week. Thus, confining this analysis of employment to those working at least 16 hours would give a slightly smaller employment disadvantage for disabled people than indicated above.

**3.6.1      Longitudinal perspectives**

How stable is the Census measure of disability for the same individuals from one Census to the next? Seventy-one per cent of those who had been disabled in 1991 were also disabled ten years later, but only 25 per cent of those who were disabled in 2001 had been disabled ten years before. The difference reflects the facts that the

risk of disability increases with growing age (i.e. people grow ten years older from one Census to the next), and also that more people reported disability in 2001 than in 1991 (probably because of a wider definition of disability).

How far are changes in disability status associated with similar changes in employment status? One way to investigate this issue is to split the disabled population into three groups: those who were disabled only in 1991, those disabled only in 2001 and those disabled in both 1991 and 2001. Figure 3.17 displays employment penalties for these three groups of disabled people in 1991 and 2001, when controlling for our standard variables: age, sex, education level, ethnic and religious groups, county-level unemployment rates and Metropolitan County, using those not disabled in both Censuses for comparison.<sup>26</sup>

**Figure 3.17    Employment penalties in 1991 and 2001 by disability status in the two Censuses, log-odds statistics**

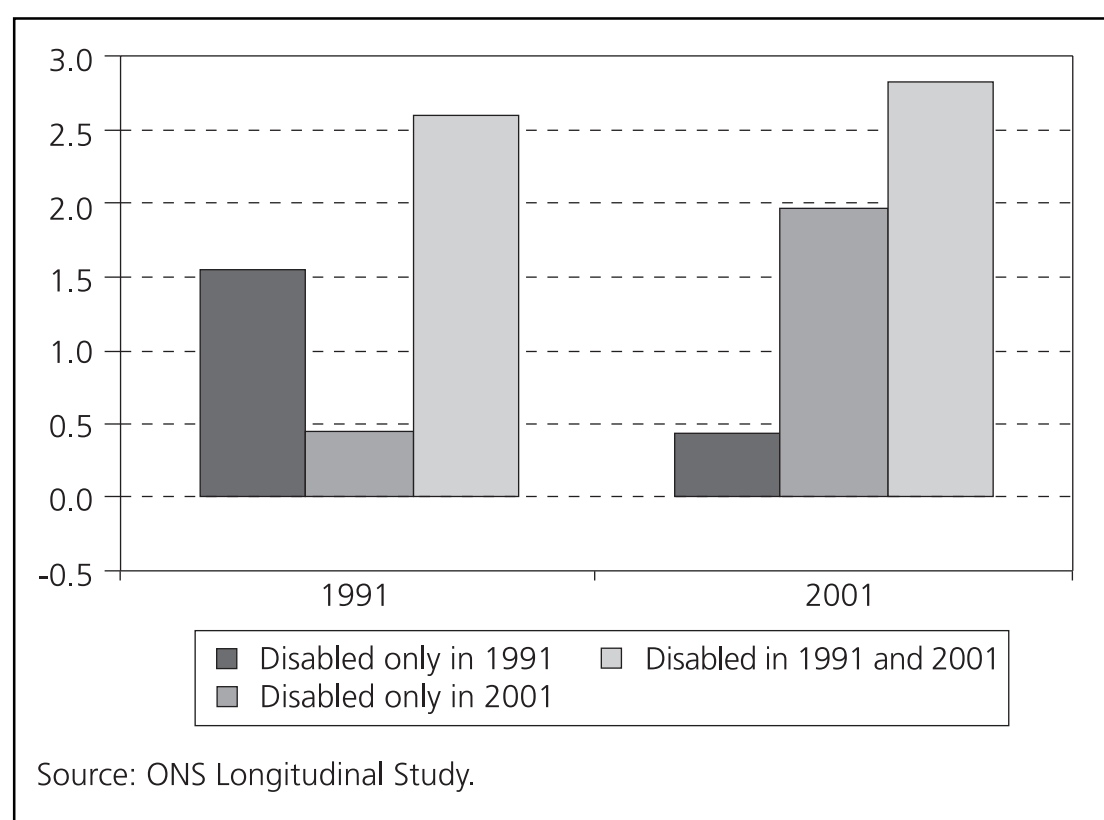


Figure 3.17 reveals very strong associations between changes in disability and employment status. Those becoming disabled in this period (i.e. disabled in 2001 but not in 1991) were slightly more likely to experience employment penalty already in 1991 than non-disabled people, but the disadvantage was much greater in 2001, after becoming disabled. In fact, this group was four times more likely to experience an employment penalty in 2001 than in 1991. Those who stopped being disabled in this period (i.e. disabled in 1991 but not in 2001) were at 3½ times greater risk of an employment penalty in 1991 than in 2001.

<sup>26</sup> Family composition was not controlled for since it did not help explain lower employment rates among disabled people.

Figure 3.17 also indicates that people who were disabled at both points of time were at higher risk of employment penalty than those disabled at only one of the two points of time. This suggests that long term disability represents a greater risk of employment penalty than more temporary disability. Further, those who **stopped** being disabled were at slightly lower risk of employment penalty than those **becoming** disabled, even when the comparison is based on the period when each group was disabled. It appears that moving out of disability and into employment is associated with resources this analysis does not control for. This could be related to type of health problem, type of disability or job-related resources individuals may possess, which could also be affected by the duration of non-employment. It is also possible that becoming employed reduces the probability of saying that a health problem limits the work they can do (i.e. the Census definition of disability being applied here).

Figure 3.17 indicates that those becoming disabled in 2001 were less likely to be employed even in 1991, and those who stopped being disabled in 2001 were less likely to be employed even that year. A likely explanation is that a measure that distinguishes simply between disabled and non-disabled does not properly reflect the variations in health or severity within each group. Some of those who were disabled in one Census but not in the other, could still have experienced worse health than people who were not disabled at either Census. Further, people with a constant health problem could be more likely to say that their health problem limits the work they can do after than before losing their job. It is also possible that non-employment itself is a risk factor for poor health and associated disability.

**Figure 3.18 Transition penalties into employment from 1991 to 2001 by disability status in the two Censuses, log-odds statistics**

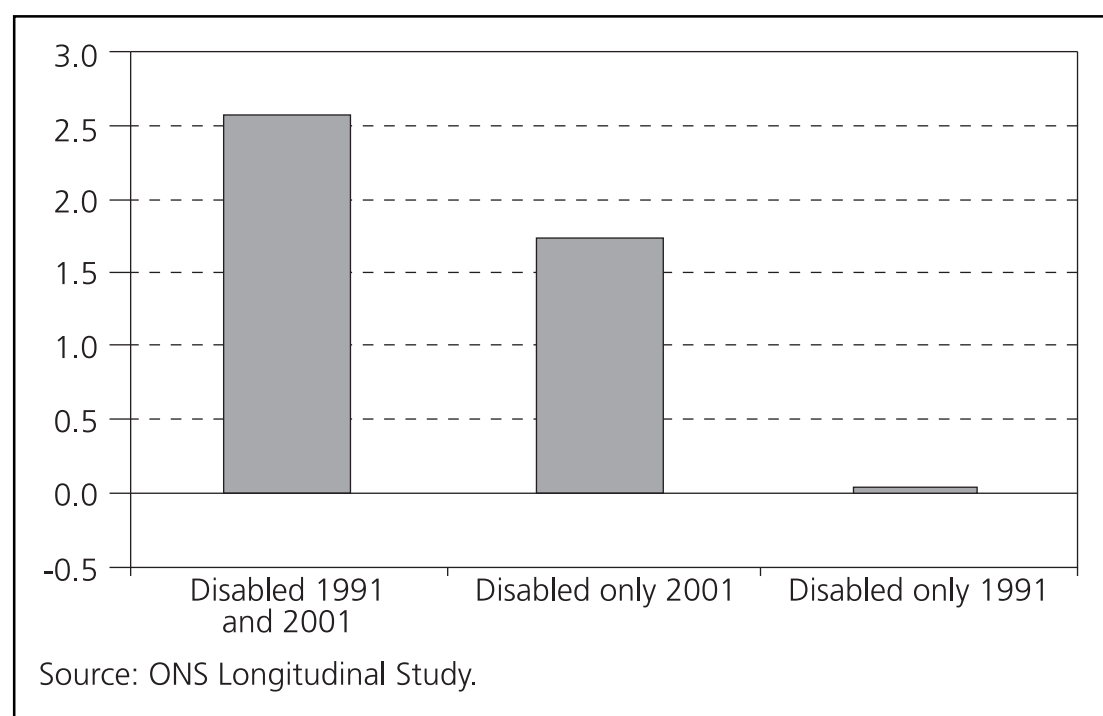


Figure 3.18 presents a similar analysis to Figure 3.17 but is now estimated as transition rates into employment. Those **becoming** disabled in this period (i.e. disabled in 2001 but not in 1991) had low entry rates into employment, as could be expected. Those who **stopped** being disabled were, on the other hand, no more likely to enter employment than people who had never been disabled (i.e. the reference group indicated by the 0-line). Those disabled at both points of time had even lower entry rates than those becoming disabled in the period. Thus, long term disability is associated with very low probabilities of entering employment, in fact, even lower entry rates than those associated with becoming disabled.

A similar analysis of exit rates out of employment was undertaken and showed similar high exit rates (log-odds above 2) for those becoming as for those being disabled at points of time. Those who stopped being disabled have similar exit rates at those had never been disabled, similar to the entry rates in Figure 3.18.

The strong associations between changes in disability and employment status could be overestimated in this analysis by the fact that work limitation is part of the disability measure (i.e. health problem which limits their daily activities or the work they can do). There could, on the other hand, be relatively small changes in people's ability to cope in everyday life that make them report disability in only one of two Censuses. Such marginal classification problems following a binary measure of disability, would probably lead to an underestimation of the employment penalty following changes in disability compared with a more fine graded measure of disability. Taken together, this analysis does indicate that changes in disability and changes in employment are strongly associated as people move in and out of disability from one Census to the next, even if we cannot say exactly how strong these associations are.

The previous analysis of employment by age (Section 3.3) revealed that people above 50 have lower employment rates than people below 50. How far can disability explain the lower employment rates among people above 50? This can be investigated by introducing disability into this analysis. It appears that disability can explain almost half the employment gap experienced by older potential workers (not shown in any tables or figures). This estimate is also likely to be higher than what would have occurred from a measure of disability which did not explicitly ask about consequences for work. In contrast, if we had been able to utilise finer-graded information about health and disability, we might have been able to explain more of the over-50 employment gap than was done with the binary question about disability studied here. Taken together, it appears that health and disability are important in explaining lower employment rates among people above 50 years. But we are not able to disentangle how far the health effect estimated here is merely a socially acceptable justification for non-employment among people over 50 and how far poor health actually push older workers out of employment or obstruct them re-entering employment after leaving employment for reasons other than poor health.

This analyses of disability and employment has revealed that:

- 1 disabled people are much less likely to be employed than the non-disabled population;
- 2 this is the case when comparing disabled and non-disabled people, and for the same individuals as they move in and out of disability;
- 3 still, long term disability is associated with a stronger employment penalty than temporary disability;
- 4 these differences between disabled and non-disabled people cannot be explained by their age composition, educational level or local unemployment rates;
- 5 disabled men experience relatively more disadvantage than disabled women;
- 6 disability can help explain the employment disadvantage for people over 50, but how much cannot be established with the data presented here.

### 3.7 Ethnic groups

Employment among ethnic minorities has been investigated in a number of specialised studies in the UK (e.g. Berthoud 2000; Blackwell 2000; DWP 2003). Two recent studies have some similarities with the present study. Heath and Cheung (2006) investigated employment disadvantage among minority ethnic groups using multiple employment indicators (i.e. employment, unemployment, occupational attainment, earnings and prejudice) and several data sources. Observed characteristics can typically explain only a minor part of the crude differences found between ethnic groups. Simpson and colleagues (2006) investigated ethnic group variation in employment and reasons for non-employment also using the 1991 and 2001 Census, similar to the present study. Compared with these specialised studies, the present study provides limited new information regarding each ethnic group but allows for comparing ethnic group variation in employment with other strands of disadvantage, such as religion, disability and so on. Reasons for non-employment will be investigated in Section 3.11.

Ethnic group was introduced in the 1991 Census and repeated in 2001. The way this question was asked varied between the two Censuses. Whereas the 1991 Census asked about 'ethnic or racial' group, the 2001 Census asked about 'ethnic group' and 'to indicate your cultural background'. Some people moved between seemingly similar ethnic groups between 1991 and 2001, particularly between black, mixed black/white and white, among people of Caribbean origin in particular (Platt, Simpson and Akinwale 2006).



**Table 3.2 Ethnic groups in the 1991 Census (20-59 years)**

<b>Ethnic group in 1991</b>	<b>Number</b>	<b>%</b>
White	264,142	92.19
Black Caribbean/black other	3,857	1.35
Black African	1,654	0.58
Indian	7,494	2.62
Pakistani	3,644	1.27
Bangladeshi	1,288	0.45
Chinese	1,144	0.40
Other Asian	1,587	0.55
Other ethnic group	1,698	0.59
Sum	286,508	100.00

Source: ONS Longitudinal Study.

This analysis largely uses the 1991 classification, and assumes that ethnic group is constant from 1991 to 2001. The ethnic categories used correspond largely to previous analyses of ONS LS data (e.g. Blackwell 2000) with one exception: 'black other' not reporting descent from more than one ethnic or racial group (typically labelled 'Non-mixed') are merged with black Caribbean, largely because many 'black other' appear to be second generation children of black Caribbean origin. Black other also includes mixed groups, who are classified to other ethnic groups.

The analysis will compare employment rates and transitions into employment among all ethnic minorities relative to the white majority. In 1991, the largest ethnic minority were Indians (2.6 per cent), followed by black Caribbean/black other and Pakistani (1.3 per cent each) as indicated by Table 3.2. Black African, Bangladeshi, Chinese, other Asian, and other ethnic group were fewer in numbers (approximately 0.5 per cent each). Ninety-two per cent were white.

Figures 3.19 (men) and 3.20 (women) compare employment rates among ethnic groups in the 1991 Census. The difference between each of the eight ethnic minorities and whites (reference group set to zero) is calculated using log-odds statistics (logistic regression coefficients). Percentages are presented in Appendix D. Both non-adjusted and adjusted differences are presented, the latter controlling for other characteristics of individuals (age, education), their families (partner, children) and the county where they live (unemployment rates, Metropolitan County). Regression equations are presented in Appendix E.

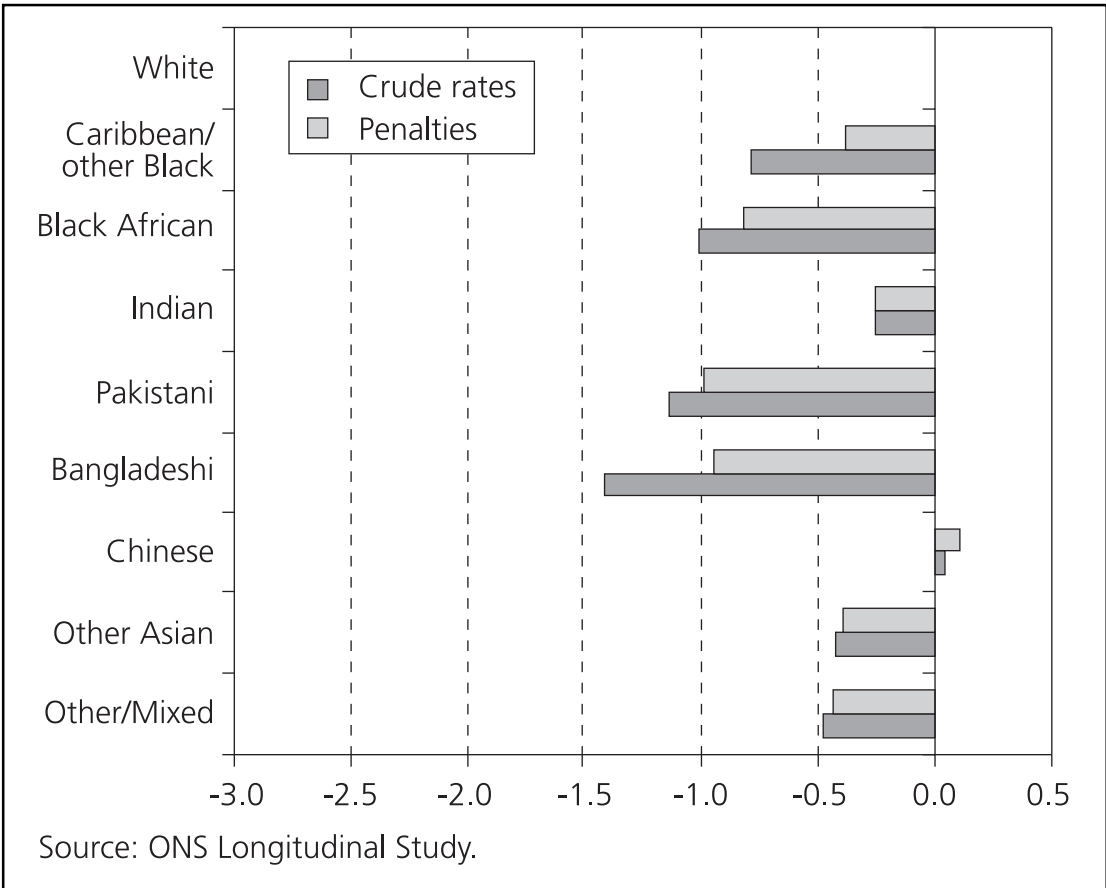
Notice that religion and disability are not controlled for in this analysis when studying employment penalties. Ethnic and religious minorities tend to be made up of the same people. Religious minorities are investigated in the Section 3.8, whereas combinations of ethnic and religious groups are investigated in Section 3.9. Disability is not controlled for because the Census definition of disability ('limits the work he/she can do') is likely to reflect employment status (being employed or not). Poor health, as one of several reasons for non-employment, is investigated in Section 3.11; this section also looks at ethnic and religious group.

Among men (Figure 3.19) all ethnic minorities, except the Chinese, had lower employment rates than those of white men (84 per cent). The largest differences were found among Bangladeshi (56 per cent), Pakistani (63 per cent) and black African men (66 per cent). Only a minor part of these differences can be explained by observed characteristics. Education and family characteristics can help explain some of the low crude (unadjusted) rates among Bangladeshi men and the employment penalty (adjusted rate) makes them similar to Pakistani and black African men.

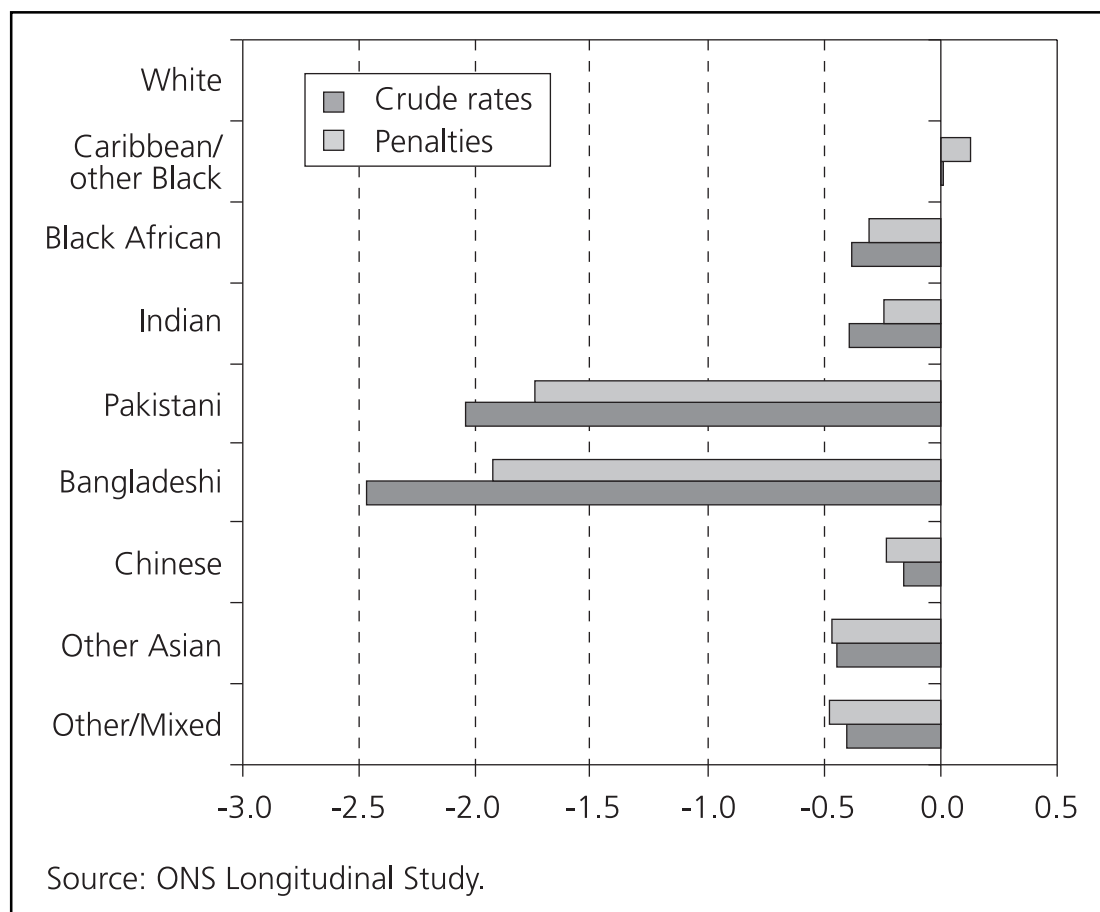
Also Caribbean/other black men had much lower employment rates than white men and men of Chinese or Indian ethnic origin. About half the difference compared with white men, and the entire difference compared with some other ethnic minorities (other Asian, other Mixed, largely also Indians) can be explained by observed characteristics (i.e. age, education, family composition and local unemployment rates). Indian men had somewhat smaller employment rates than white men.

Among women (Figure 3.20), two groups stand out with very low employment rates: Bangladeshi and Pakistani women, with crude employment rates of a mere 14 per cent and 20 per cent, respectively, compared with 66 per cent of white women (Appendix D). Only a minor part of the difference can be explained by observed characteristics, notably by family characteristics.

**Figure 3.19** Male employment gap between white and other ethnic groups in 1991, crude and adjusted rates (penalties), log-odds statistics



**Figure 3.20 Female employment gap between white and other ethnic groups in 1991, crude and adjusted rates (penalties), log-odds statistics**

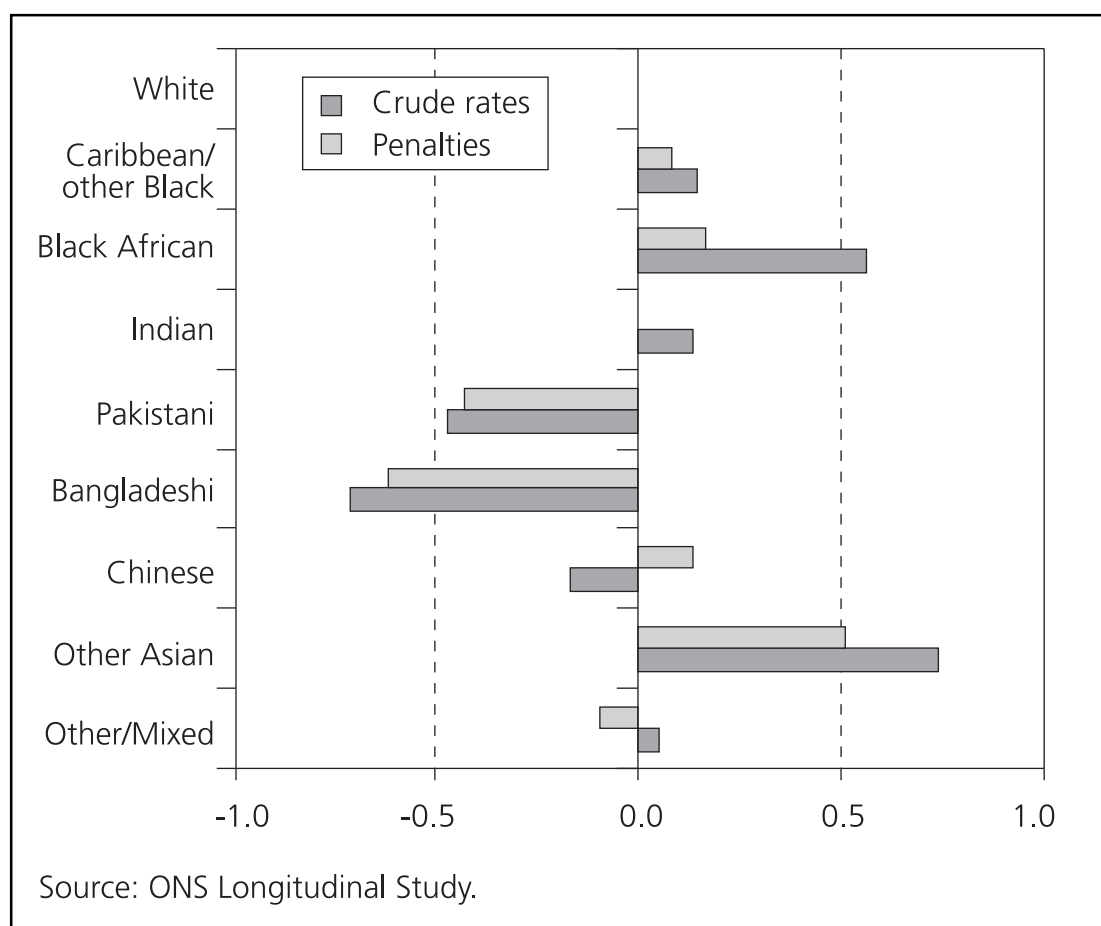


Caribbean/other black women had the same employment rate as white women. In fact, when controlling for other characteristics, the employment rate was slightly higher for Caribbean/other black woman than for white women. Black African women had a somewhat lower employment rate than white women, but were not nearly as disadvantaged as African men were when compared with white men.

Also, women from other ethnic minorities had somewhat lower employment rates than white women when excluding Chinese women (difference not significant) and Caribbean/other black women (rather higher employment rates when other characteristics are controlled for).

This analysis largely reproduces the same results as those of the GHS analysis, in particular as regards people of Pakistani/Bangladeshi origin. For the early 1990s, this analysis gives slightly lower employment rates for women of Caribbean and Indian origin than those using GHS data. It appears that the difference is due to the fact that relatively many white women work less than 16 hours per week. When using 16 hours as the threshold for being employed, all female ethnic minority groups are comparatively more employed and experience less employment penalty, than indicated by Figure 3.20. In fact, both Indian and Chinese women, as well as black African women, would experience less employment penalty than white women when using 16 hours worked as the threshold for being employed.

**Figure 3.21 Male transitions from non-employment (1991) to employment (2001) comparing white and other ethnic groups, crude and adjusted rates (penalties), log-odds statistics**

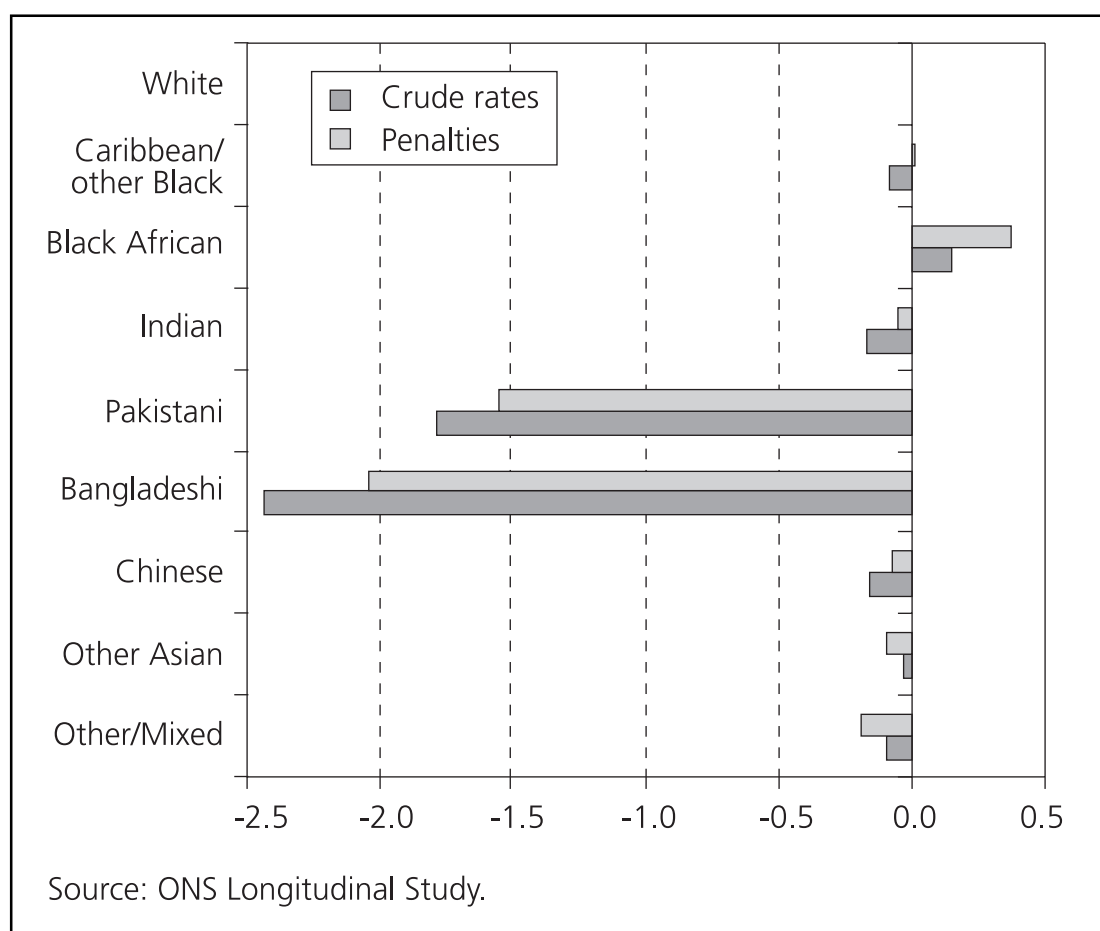


Figures 3.21 and 3.22 compare transitions into employment from 1991 to 2001 for those being out of employment in 1991. This analysis includes fewer people than the above analysis of employment in 1991. One reason is that the analysis is confined to the small number of men not employed in 1991. Further, as many as 31 per cent of non-employed men from 1991 (and less than 50 years old in 1991) cannot be identified in the 2001 Census. (Among non-employed women, only 16 per cent were lost.) Attrition rates also appear to be high among some ethnic minorities. Finally, ethnic minorities tend to be more similar to white people in transition rates than in current employment rates. As a result of all these factors, only a few differences between ethnic groups are statistically significant in this analysis.

Among men (Figure 3.21) it is only Pakistanis and Bangladeshis who have significantly lower transition rates into employment than white men. Black African and other Asian men have higher crude transition rates into employment than white men but when controlling for other characteristics, these differences are no longer significant. Among black Africans it appears that relatively high educational level among initially non-employed members of this group in 1991 can explain their relatively high transitions into employment by 2001. Among other Asian men it appears that family

characteristics, in particular, can help explain their relatively high entry into employment. But taken together, observed characteristics can only explain a minor part of the relatively high entry rate into employment among other Asian men.

**Figure 3.22 Female transitions from non-employment (1991) to employment (2001) comparing white and other ethnic groups, crude and adjusted rates (penalties), log-odds statistics**



Among women (Figure 3.22) it is again Bangladeshi and Pakistani women who stand out with exceptionally low transition rates into employment. These two groups of women had exceptionally low employment rates in the first place (in 1991), as indicated by Figure 3.20. Among the majority of Bangladeshi and Pakistani women who were not working in 1991, only 8 per cent and 15 per cent, respectively, were employed ten years later (see Appendix D).

Also, Indian women were slightly less likely to move into employment than white women but were still much more similar to white women than to Bangladeshi and Pakistani women. The relatively small difference between Indian and white women can largely be explained by comparatively low educational levels and high county-level unemployment rates affecting non-employed Indian women.

Finally, black African women were more likely to move into employment by 2001 than white women when controlling for their family composition and high county-level unemployment rates affecting them.

We have investigated whether these transition rates changed between the 1991-2001 period studied here and the previous 1981-91 Census period<sup>27</sup>, but no significant differences between the two decades were found for any ethnic minority when compared with white people.

The main finding from this analysis of employment and transitions into employment among ethnic groups is that:

- all ethnic minorities but Chinese men and women and Caribbean/other black women have some employment penalties compared with the white majority;
- still, people of Bangladeshi and Pakistani origin stand out with very low employment rates;
- people of Bangladeshi and Pakistani origin also stand out with very low transitions into employment even among the large groups of Bangladeshi and Pakistani origin who were not employed to begin with;
- this is, to an exceptional degree, the case for women but also the case for men of Bangladeshi and Pakistani origin;
- all other ethnic differences are comparatively small;
- still, black men, have lower employment rates than white men.

### 3.8 Religion

A question about religion was introduced in the 2001 Census. We use an eight category standard classified by ONS as indicated by Table 3.3. The largest groups are 'Christians' (69 per cent) followed by people with no religion (23 per cent). The largest religious minority was Muslims (3.6 per cent) followed by Hindus (1.3 per cent) and Sikhs (1.0 per cent), whereas Jews, Buddhists and other religions are smaller groups (approximately 0.4 per cent each). This analysis will proceed the same as the previous analysis of ethnic groups but employment rates will be based on the 2001 Census since data about religion was not recorded before this Census.

Religious minorities tend to be represented among ethnic minorities. Thus, it is not clear if people are in a disadvantageous position because they belong to an ethnic or religious minority. This issue will be investigated in the next section, which tries to distinguish between ethnicity and religion by studying combinations of religious and ethnic groups. The section will merely describe the employment gaps and penalties by religious groups similarly to the previous section about ethnic groups.

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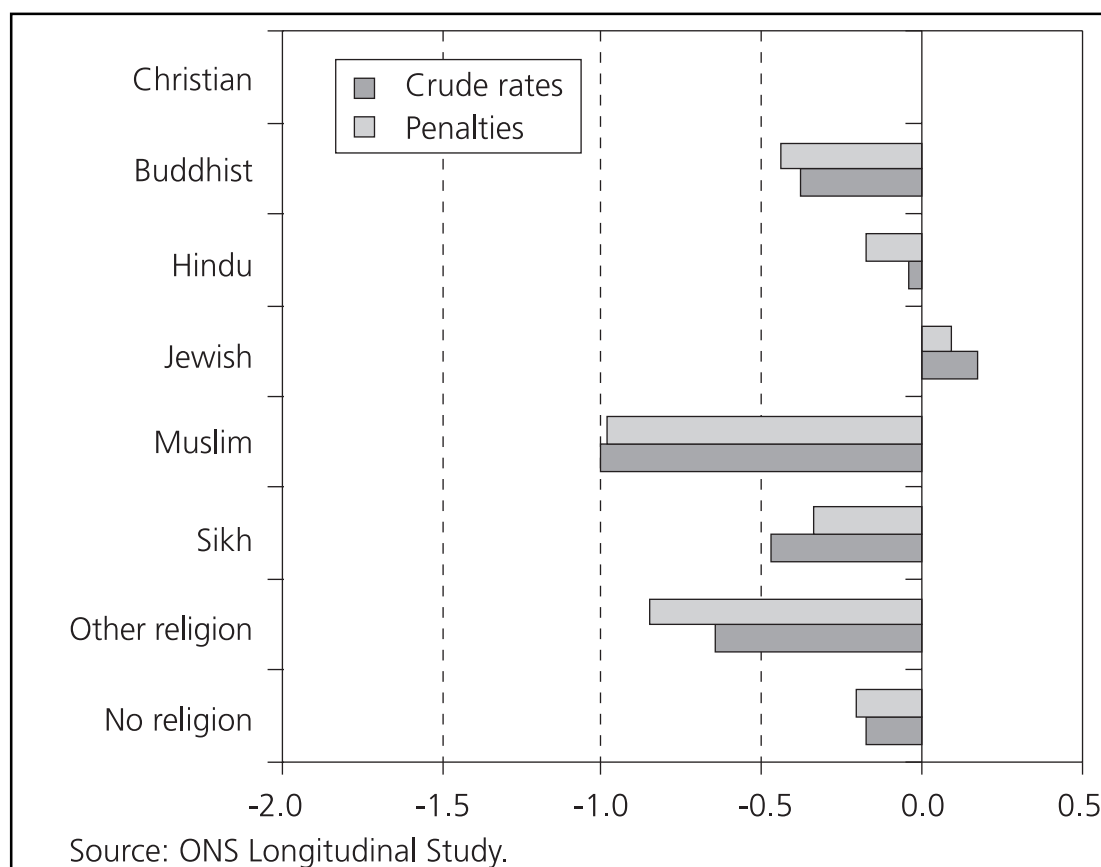
<sup>27</sup> In both cases, using the 1991 classification to define ethnic groups.

**Table 3.3 Religion in the 2001 Census (20-59 years)**

Religion 2001	Number	%
Christian	199,777	69.32
Buddhist	1,123	0.39
Hindu	3,873	1.34
Jewish	1,339	0.46
Muslim	10,296	3.57
Sikh	3,010	1.04
Other religion	1,105	0.38
No religion	67,692	23.49

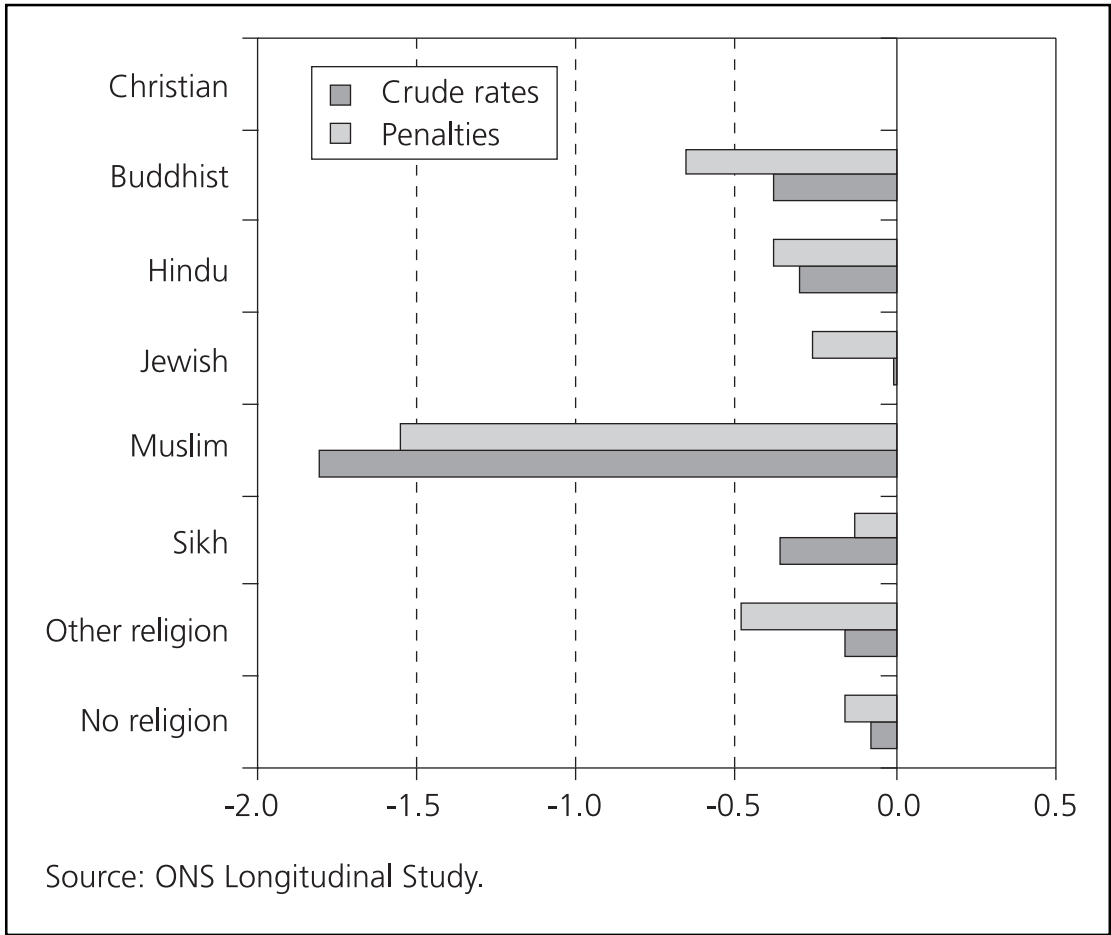
Source: ONS Longitudinal Study.

Figures 3.23 (men) and 3.24 (women) compare employment among religious groups. Christians are used as the reference group (set to zero) and the difference in employment between Christians and other religious groups is calculated as log-odds statistics. Both crude rates and adjusted rates are presented, the latter controlling for other characteristics of individuals (age, education), their families (partner, children) and county where they live (unemployment rates, Metropolitan County). Notice that controlling for these characteristics does not necessarily make the differences in employment rates smaller.

**Figure 3.23 Male employment gap between Christians and other religious groups in 2001, crude and adjusted rates (penalties), log-odds statistics**

The most striking finding is the low employment rates among Muslims. Thirty-two per cent of Muslim men are not employed compared with less than 14 per cent among Christian men. Muslim women have particularly low employment rates. Almost 70 per cent of Muslim women are out of employment, compared with 27 per cent among Christian women. Muslim women also experience much larger employment penalties than their male counterparts relative to other religious groups. Family characteristics can help explain a minor part of the low employment rates among Muslim women.

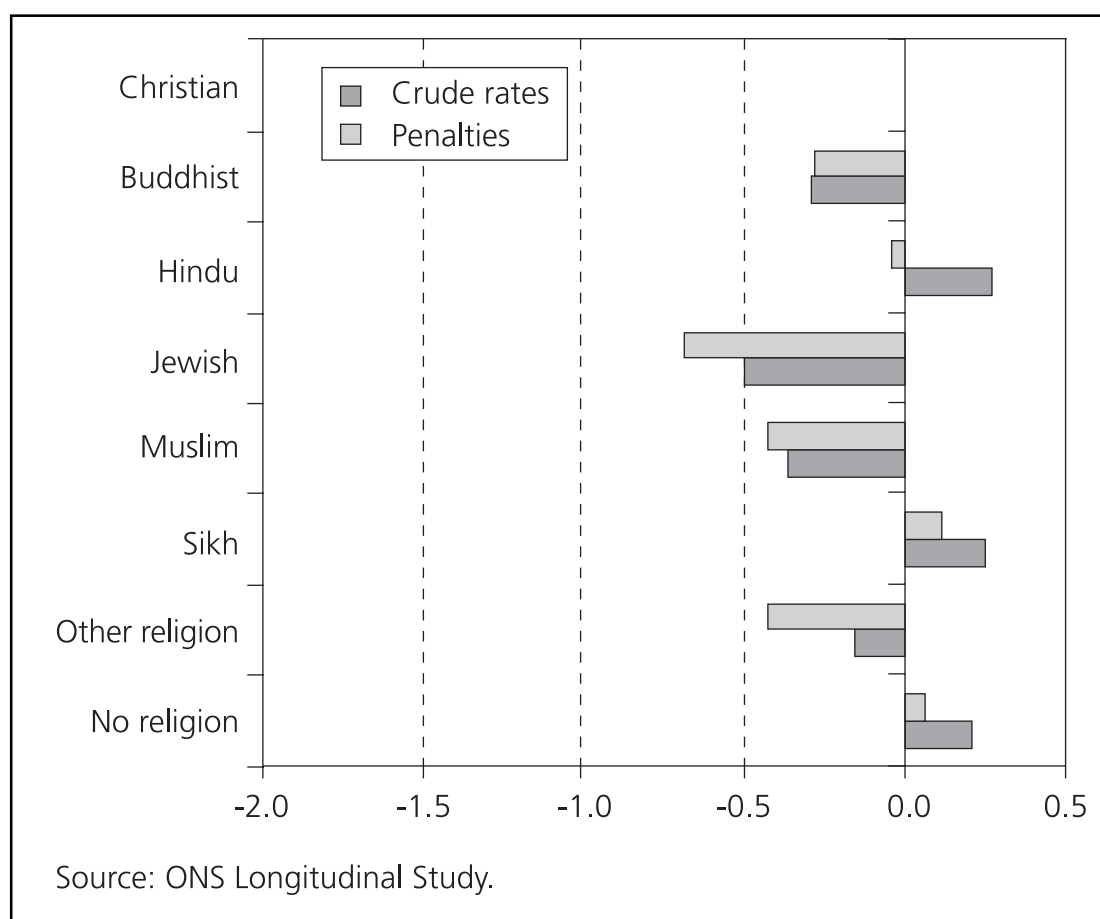
**Figure 3.24** Female employment gap between Christians and other religious groups in 2001, crude and adjusted rates (penalties), log-odds statistics





Sikhs and Buddhists also experience lower employment penalties compared with Christians and Jews. Family characteristics can help explaining low employment rates among Sikh women. Also, Hindu women have lower employment rates than Christian women. Hindu men have, on the other hand, employment rates similar to Christian males. But relatively young age and high education level among Hindu men indicate that they still experience some employment penalty compared with white men. Also, people belonging to 'other religions' experience employment penalties when considering their age composition and relatively high educational level. This is particularly true for men of 'other religions'.

**Figure 3.25 Male transitions into employment from 1991 to 2001 comparing Christians and other religious groups, crude and adjusted rates (penalties), log-odds statistics**



Figures 3.25 and 3.26 compare transitions into employment from 1991 to 2001 for those who had been out of employment in 1991. Since relatively few people move into employment and religion effects are generally small, only a few differences in transition rates into employment are statistically significant. In fact, it is only Muslim men and women who have crude transition rates that differ significantly from Christians. Muslim women (Figure 3.26) have exceptionally low transition rates into employment. In fact, Muslim women stand out with both exceptionally low employment rates and low probabilities of moving into employment once out of employment. Muslim men also have very low transition rates into employment (Figure 3.25), but are not nearly as disadvantaged in employment as Muslim women. Family characteristics seem to explain a minor part of the low employment rates among Muslim women.

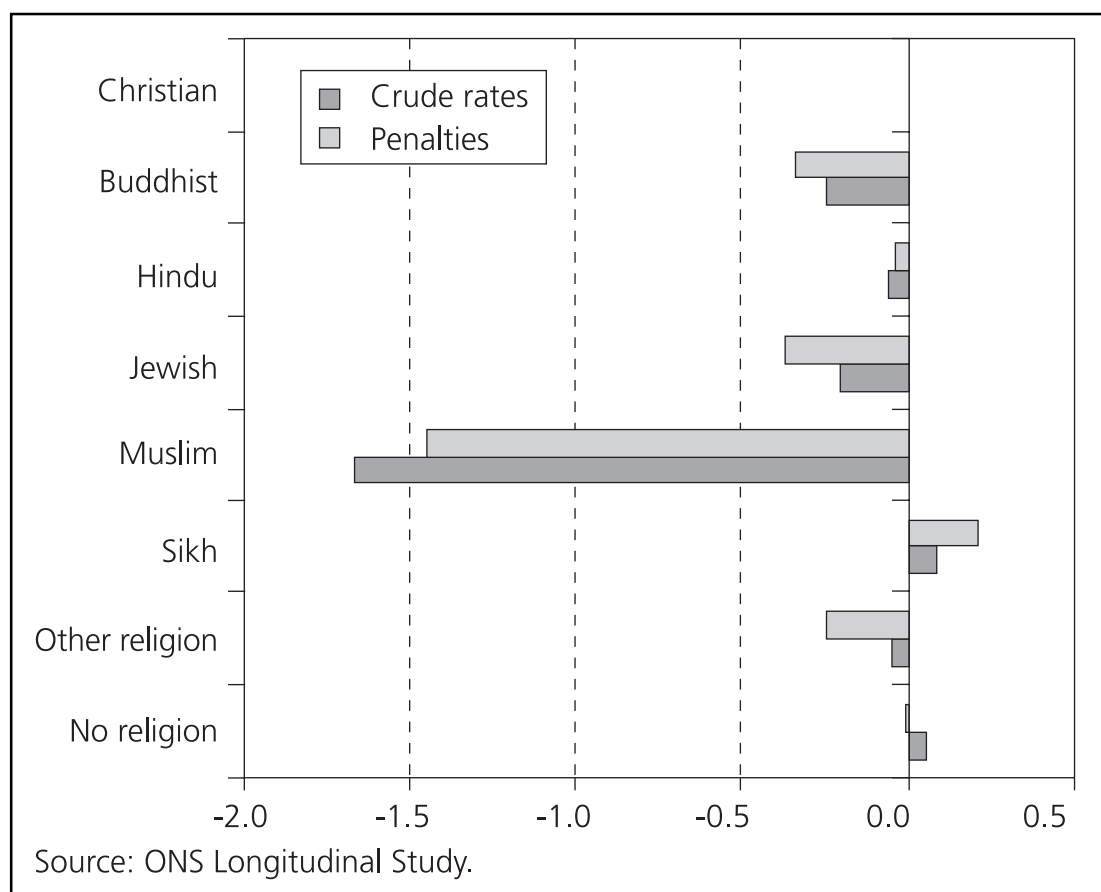
Also, Jews appear to have relatively low transition rates into employment. These results are, however, significant only when considering other characteristics of individuals. Jews have, contrary to Muslims, employment rates similar to Christians. It is, thus, only the relatively small number of Jews who are not employed to begin with who are less likely to move into employment than Christians when individual characteristics are controlled for.

When controlling for other observed characteristics, Buddhist women also have lower transition rates into employment than Christian women. It appears that many educated Buddhist women care for their home and family in place of employment.

The previous analysis of ethnic groups indicated that the strongest employment penalties (adjusted rates) were found among people of Pakistani and Bangladeshi origin. This analysis of religious groups indicates that Muslims are in the most disadvantageous employment position. Nearly all Pakistani and Bangladeshi people are Muslim. Thus, it is not clear if the employment penalty experienced by Pakistanis and Bangladeshis is related to their ethnic group or religion.

If we compare the degree of employment penalties for Muslims (this chapter) and Pakistani/Bangladeshi men and women (using 2001 data), we find that Muslim men and women of any ethnic origin are in a similar position to Pakistani/Bangladeshi men and women. Notice that this comparison is based on the 2001 Census where the difference between men and women of Pakistani and Bangladeshi origin is smaller than indicated in the previous chapter (in Figure 3.23 and 3.24 using data from the 1991 Census). This could mean that religion rather than ethnicity is the characteristic associated with employment disadvantage. The next section will investigate if this rather tentative finding also holds when comparing religious groups within ethnic groups.

**Figure 3.26 Female transitions into employment from 1991 to 2001 comparing Christians and other religious groups, crude and adjusted rates (penalties), log-odds statistics**



The main finding analysing employment rates and transitions into employment among religious groups are:

- Muslims are much less likely to be employed than Christians and most other religious groups;
- Muslims are also less likely to move into employment given that they are non-employed to begin with;
- Muslim women have exceptionally low employment rates and transition rates into employment;
- Muslims of Pakistani and Bangladeshi origin are in a similar position to other groups of Muslims;
- relatively low employment rates are also found among Buddhists, Sikhs and Hindu women;
- Jews and Buddhist women appear to be less likely to move into employment if out of work, when individual characteristics are controlled for.

### 3.9 Combinations of ethnic and religious groups

The two previous chapters indicate that employment rates, employment penalties and employment transitions vary between both ethnic and religious groups. There is, however, a strong overlap between religious and ethnic minority groups as religious minorities are most strongly represented among ethnic minority groups. Hence, it is difficult to say if people belonging to both ethnic and religious minorities experience employment disadvantage associated with their ethnicity or their religion.

One way to get around this ethnic versus religious group puzzle is to investigate all combinations of ethnic and religious groups large enough to be compared. Since the previous analyses compared ethnic and religious minorities with white and Christians respectively, this analysis will compare all combined groups with those who are both white and Christians.

A similar approach has been applied in a few previous studies as well. Lindley (2002) using the Fourth National Survey of Ethnic Minorities from 1994, finds that both religious and ethnic group can affect employment. Simpson and colleagues (2006) using similar Census data as those presented here, find a religious employment penalty, particularly for Muslims, above what can be explained by their ethnic group.

We will investigate all groups which include at least 300 people (in both 1991 and 2001), but make two exceptions by also including Christian Indians and Pakistani with no religion, as indicated by Table 3.4.<sup>28</sup> Indians and whites are the religiously most diverse of all ethnic groups studied, and allow us to make comparisons ‘within’ ethnic groups. There are no religious minorities of Pakistani origin worth mentioning (they sum up to less than 100 people), but there is a small group of Pakistani with no stated religion (N=168) which could be compared with white and Caribbean/other black with no religion.

**Table 3.4 Combinations of ethnic and religious groups in the 2001 census (20-59 years)**

	White	Caribbean/ other black	Black African	Indian	Pakistani	Bangladeshi
Christian	171,062	600	626	234		
Muslim	562			538	2,619	987
Jewish	1,017					
Sikh				2,087		
Hindu				2,344		
Buddhist	356					
Other religion	719					
No religion	53,276	1,762		389	168	

Source: ONS Longitudinal Study.

<sup>28</sup> An exception is also made for ‘other/mixed ethnic groups’ which includes two religious groups of more than 300 people (Christians and ‘other religions’).

Tables 3.5 and 3.6 compare employment penalties (adjusted for age, education, family composition, county-level unemployment and Metropolitan County) among 17 combinations of ethnic and religious groups, using white Christians as reference.

Results vary somewhat for men and women. Among men (Table 3.5), the biggest employment penalties are for white people with 'other religions', closely followed by all four Muslim groups: Pakistani, Bangladeshi, white and Indian Muslims. Only Pakistani with no religion are in-between (white and Indian Muslims). Since there are no ethnic minorities with significant numbers of members of 'other religions', we may conclude that men who are either Muslims or belong to 'other religions' face the highest employment penalties. This is the same result as in the previous cross-sectional analysis of employment penalties among religious groups across ethnic groups. This analysis provides the same result also within ethnic groups.

Black men, either Caribbean, African or 'other black', non-religious or Christian, face considerable employment penalties, but still less than Muslim men. White Buddhist men are also in a similar position as black men. Finally, also Indian men who are Sikhs or Hindus face some employment penalties, but much less than the other groups just mentioned.

It appears that people with no religion are in a similar employment position as the majority religious group/groups of their respective ethnic groups. Pakistani men with no religion are in a similar position as Pakistani Muslims, the dominant group among Pakistanis. Indian men with no religion are close to Sikh and Hindu men of Indian origin, the two major religious groups among Indians. Caribbean and other black men with no religion are in a similar position as the larger group of Caribbean and other black Christian men. Finally, white men with no religion are quite close to the majority of white Christian men. It is possible that these similarities reflect that many people with no religion have a background (e.g. families, communities) in the dominant religion of their ethnic group. If so, this would imply that it is not religion as such which predicts low employment but rather, some cultural characteristics associated with religions.

**Table 3.5 Male employment penalties in 2001 by combinations of ethnic and religious groups compared with white Christians, log-odds statistics**

	White	Caribbean/ other black	Black African	Indian	Pakistani	Bangladeshi
Christian	0.00	-0.73	-0.68	0.15		
Muslim	-0.92			-0.80	-1.05	-1.02
Jewish	0.26					
Sikh				-0.26		
Hindu				-0.25		
Buddhist	-0.60					
Other religion	-1.07					
No religion	-0.20	-0.43		-0.19	-0.90	

Source: ONS Longitudinal Study.

**Table 3.6 Female employment penalties in 2001 by combinations of ethnic and religious groups compared with white Christians, log-odds statistics**

	White	Caribbean/ other black	Black African	Indian	Pakistani	Bangladeshi
Christian	0.00	-0.26	0.20	-0.11		
Muslim	-1.16			-1.13	-1.58	-1.85
Jewish	-0.24					
Sikh				-0.05		
Hindu				-0.20		
Buddhist	-0.48					
Other religion	-0.59					
No religion	-0.14	-0.13		-0.40	-0.84	

Source: ONS Longitudinal Study.

Among women (Table 3.6), by far the biggest employment penalties are found among the four Muslim groups: Bangladeshi; Pakistani, white and Indian Muslims. All these four groups of female Muslims also face higher employment penalties than male Muslims of the same ethnic origins. Pakistani women with no religion are in a somewhat stronger position than other Pakistani women who are Muslims but still face considerable employment penalties. White women belonging to 'other religions' face some employment penalty but not to the same extent as their men, when women are compared with women and men with men. Finally, also white Buddhist women and Indian women with no religion are in a somewhat disadvantaged employment position.

Also, among women the general impression is that those with no religion are close to those belonging to the major religious groups within their ethnic group. Caribbean and other black women with no religion are very similar to the larger group of Caribbean and other black women who are Christians. Non-religious Indian women are seemingly in a slightly worse position than the larger groups of Indian Hindus and Indian Sikhs (differences are not significant) but still in a much stronger position than Indian Muslim women (difference is significant). Non-religious black African women face no employment disadvantage at all, which is contrary to their men.

Which is more important of ethnic and religious group for people's employment position? This issue can be investigated by comparing people belonging to the same religion but to different ethnic groups or by comparing people belonging to different religions but to the same ethnic group.

When investigating religious groups within different ethnic groups, we find that all Muslim groups are in a disadvantageous employment position irrespective of which ethnic group they belong to. This is particularly true for Muslim women. Also, Christian women appear to be in a similar position irrespective of ethnic group: black Christian women of African, Caribbean or other black origin are in a similar employment position to white Christian and Indian Christian women.

We find more discrepancies between ethnic groups within the same religions among men than among women. This is particularly true when comparing black Christian men (African, Caribbean or 'other black') with white Christian men; black Christian men face employment penalties compared with white Christian men.

We also find large differences between religious groups within the same ethnic group. There are only two ethnic groups which allow for such comparisons: Indians and white people. Both white and Indians include some of the groups that are in the weakest employment position, particularly Muslims and 'other religions', as well as some of the groups that are in the strongest employment position, such as Christians, Jews, Sikhs and Hindus.

Thus, when comparing ethnic and religious groups we find that religious group is clearly more important than ethnic group when comparing women. Also among men, it appears that religious group is at least as important as ethnic group.

In summary, this analysis of combination of ethnic and religious groups indicates that:

- the largest employment penalties are found amongst Muslims and 'other religions';
- Muslim women face particularly large employment penalties;
- these results vary comparatively little between Muslims belonging to different ethnic groups;
- white Buddhists and black men, irrespective of their religion, experience considerable employment penalties;
- non-religious groups tend to be in a similar position as the main religion(s) within their ethnic group;
- among women, it appears that religion is far more important than ethnic group as a predictor of employment penalties;
- among men, it appears that both religion and ethnic group are important predictors of employment penalties.

### 3.10 Family level employment

So far, we have considered if individuals themselves are employed or not. If employment is seen as a source of income, rather than a form of social integration, it could be argued that families and households are also important for economic well-being and avoiding poverty. Poverty is normally measured at the level of households, and public benefits such as Income Support and income-related Jobseeker's Allowance (JSA) are based on family income, which includes the income of a partner. A family level approach to poverty and employment assumes that a non-employed single person and non-working partners are at greater risk of poverty than partners where one is working and the other is not.

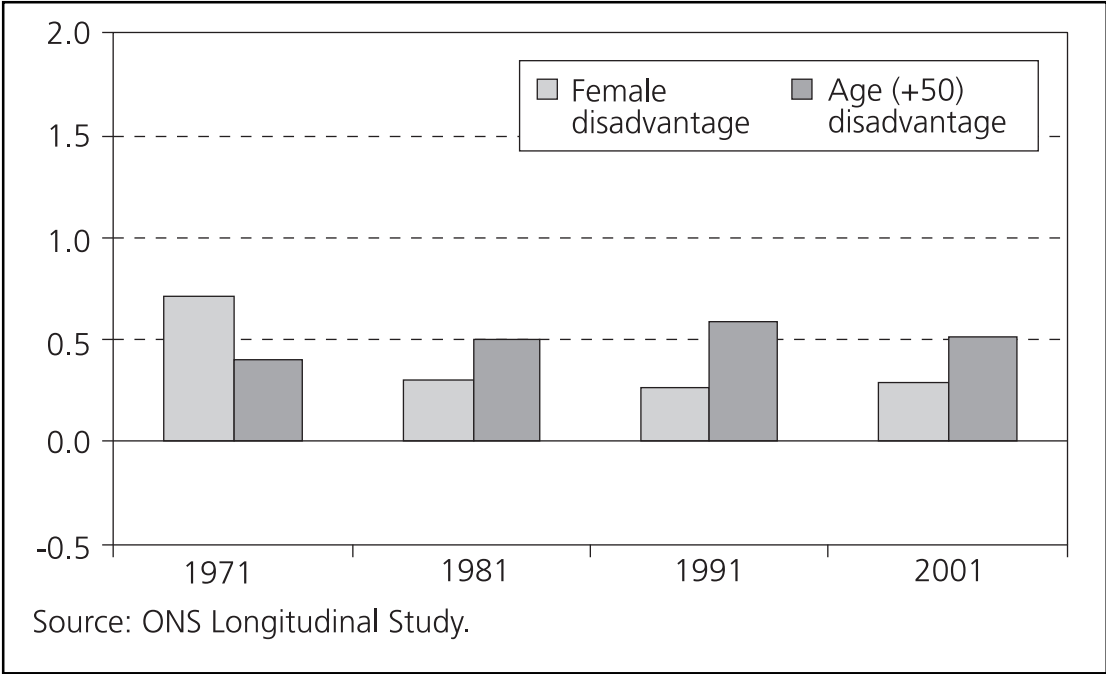
If all people were living in partnerships of opposite sexes, an analysis of family employment penalties would yield similar results for men and women. A difference between individual and family level employment can reflect how far different groups of people are living with a partner and how far people with and without employment tend to form partnerships.

3.10.1 Age and gender

The individual level employment analysed in Section 3.3 exposed a strong reduction in the employment gap between men and women since 1971. This period has, on the other hand, given rise to an employment gap between people above and below 50 years of age.

Figure 3.27 corresponds to Figure 3.4 but is measured at the level of a couple if the individual being studied is living with a partner (married or cohabiting). This change of level, from individuals to families, makes a huge difference for employment gaps defined by gender and age, and how these employment gaps have changed during a 30-year period.

Figure 3.27 Family level employment disadvantage by age (above 50) and gender, log-odds statistics





The initial female employment disadvantage in 1971 at the family level (Figure 3.27) is only a fraction of the female employment disadvantage at the level of individuals (Figure 3.4). The reason is that most non-employed women had a working partner. The female employment disadvantage was reduced after 1971 but apparently only during the 1970s. Between 1981 and 2001 there has been no further reduction or change in female employment disadvantage measured at the level of families. This finding is contrary to the strong rise in female employment and the narrowing of the female employment gap at the level of individuals (Figure 3.4). These opposing findings indicate that higher individual level employment rates among women have been counteracted by changes in family composition and family-based support – this reflects the increasing number of lone parents over the period.

There was no initial employment disadvantage for older workers (above 50) at the level of individuals in 1971. This employment gap came about later on (Figure 3.4). At the level of families, on the other hand, there has been an employment disadvantage for elderly people in the whole period. This family level employment gap increased during the 70s and 80s but was reduced after 1991.

### **3.10.2 Disability, ethnicity and religion**

When analysing family level non-employment by disability, ethnicity and religion, we get very similar results as those reported previously for individuals. For example, men or women reporting long-term illness, health problem or handicap have the same employment gap/penalty compared with non-disabled men and women irrespective of whether the analysis is at the level of individuals or families – because disabled men are being compared with non-disabled men, while disabled women are compared with non-disabled women. Similar results also occur when comparing ethnic minorities with white people or religious minorities with Christians. None of these results are thus presented in tables or graphs.

In summary this analysis has shown that:

- 1** female employment disadvantage is much smaller at the level of families than among individuals;
- 2** family level female employment disadvantage has not changed since 1981, which is contrary to individual level female employment disadvantage;
- 3** people over 50 have had a greater risk of non-employment at the level of families throughout the 30-year period studied, which is also contrary to individual level employment.

### 3.11 Three forms of non-employment

So far, we have treated non-employment as a single category. The ONS LS distinguishes between eight employment categories (Table 3.1), of which we have classified three as being employed (full-time work, part-time work and student) and five as being not employed (unemployed, permanently sick, retired, care of home and family and other not employed). This section will distinguish between three forms of non-employment: 'unemployment', permanently sick<sup>29</sup> and all other non-employed (i.e. retired, care of home and family and other not employed).

'Unemployment' is defined as people who have no job but are looking for work. Unemployed people are generally classified as economically active and thus, part of the workforce.

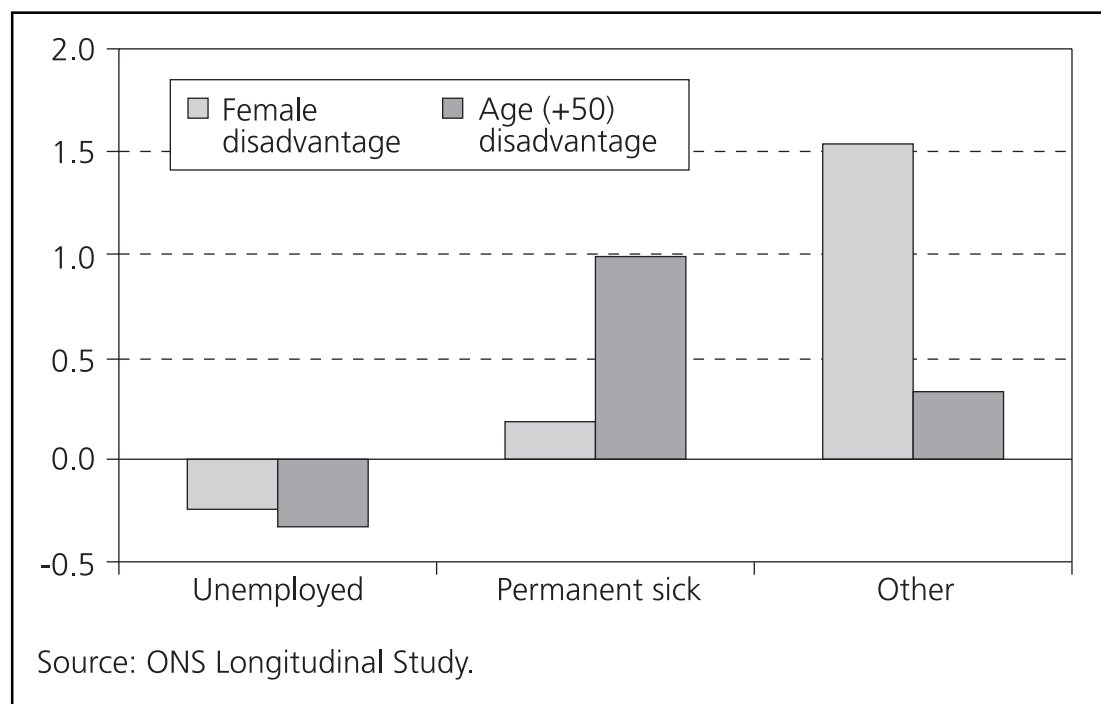
More people were not working in 2001 because of permanent sickness than because of unemployment, as indicated by Table 3.1. These two groups tend to be classified as non-voluntarily out of employment. But Census data cannot say how far other non-employed groups (retired, care of home and family and other not employed) are not working voluntarily or if this situation is enforced.

Figure 3.28 illustrates the three forms of non-employment by age (over 50) and gender (female disadvantage), somewhat similar to Figure 3.4 (in Section 3.3) but this analysis uses three forms of non-employment and a single year (the 2001 Census only) and it controls for all other variables (sex, age, education level, ethnic and religious groups, country level unemployment rates and Metropolitan County) except disability (not independent of these variables) and family composition (not independent of age).

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<sup>29</sup> Permanent sickness indicates here a reason for not being employed and should not be confused with disability analysed in Chapter 7 which also includes employed people.

**Figure 3.28 Three types of employment disadvantage in 2001, by age (above 50) and gender log-odds statistics**



The probability of each form of non-employment (unemployed, permanently sick and other reasons for non-employment) is compared with the probability of being employed (working or studying). Thus, this analysis assumes that people are non-employed for three different and unrelated reasons. This could be seen as a restrictive assumption but facilitates comparisons with previous analyses which also compare with being employed.

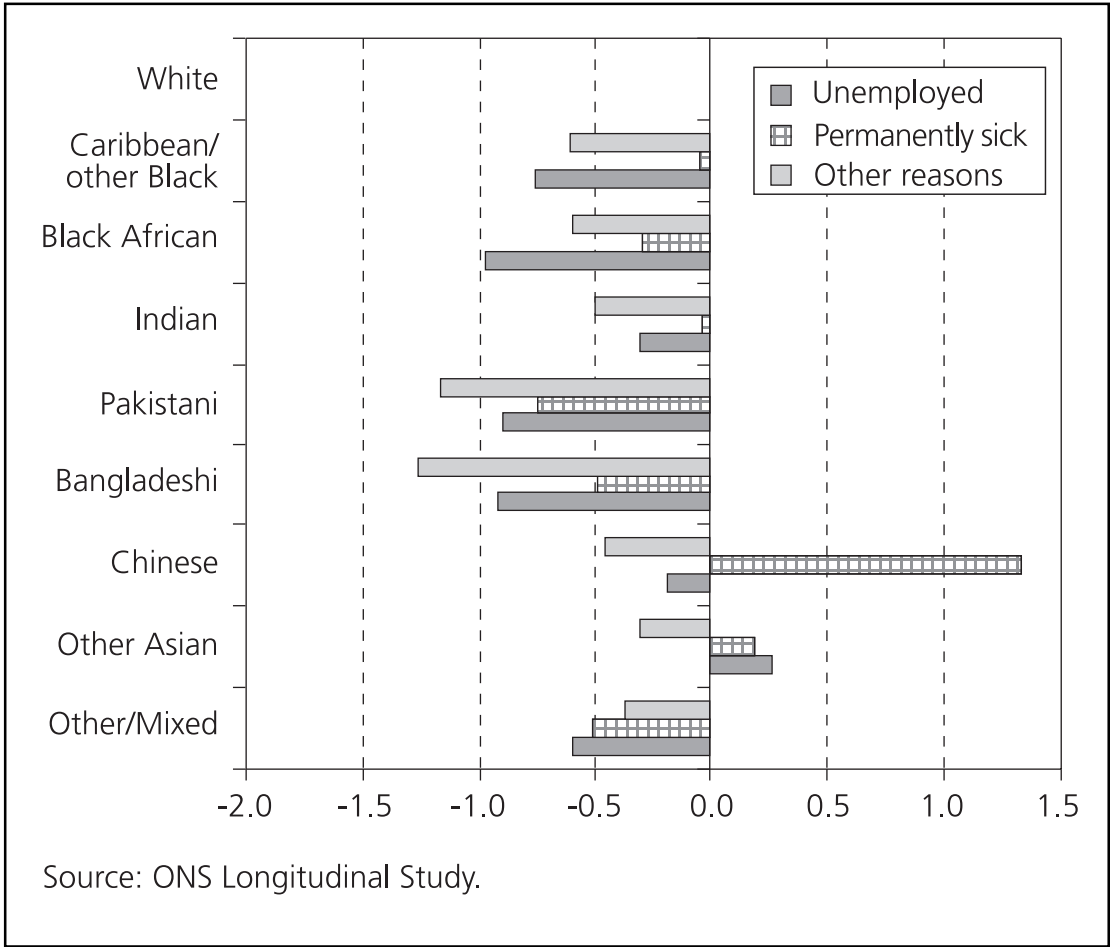
Women are much more likely than men to be non-employed for reasons other than unemployment or sickness, most notably taking care of their home and family. Men are at greater risk of unemployment than women. The risk of permanent sickness is almost evenly distributed between men and women, with a slightly enhanced risk for women compared with men. People over 50 years old experience employment disadvantage chiefly by being at greater risk of permanent sickness, but also for other reasons than unemployment and sickness, notably early retirement. Older potential workers are, on the other hand, less likely to be unemployed than younger people.

3.11.1 Ethnicity and religion

Do these results vary by ethnic or religious group? This is described in Figure 3.29 (men) and 3.30 (women). This analysis controls for the same variables as the previous one but ethnic and religious groups are compared in separate models (not controlling for each other) as in Sections 3.7 and 3.8. Pakistani and Bangladeshi men and women, the most disadvantaged ethnic group as regards non-employment more generally, are at enhanced risk of all three types of non-employment. For both genders this is most pronounced for ‘other’ reasons (than unemployment or sickness) but the difference between the three forms of non-employment is not very large.

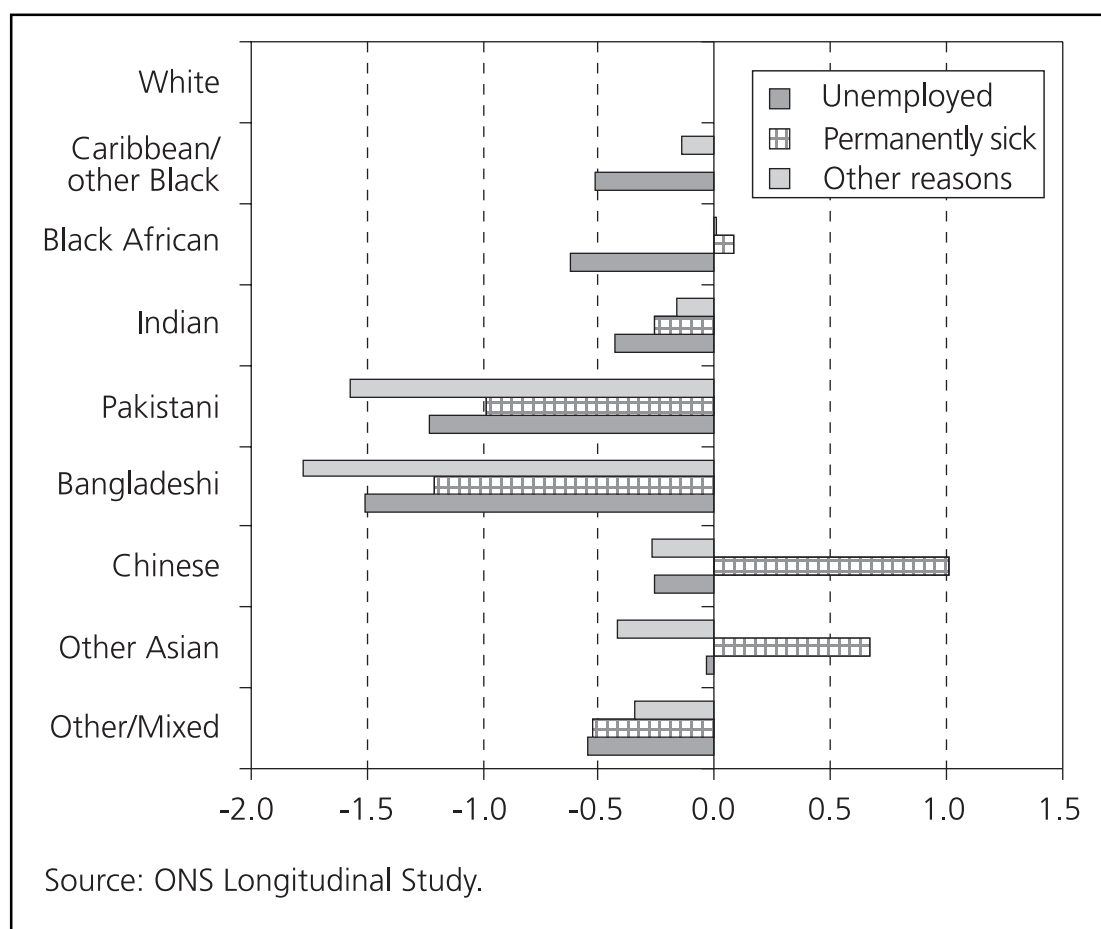
Black groups (Caribbean, other or African – men and women) are at enhanced risk of being unemployed. Black men but not black women, are also at enhanced risk for other reasons of non-employment. Chinese men and women as well as ‘other Asian’ women, are at low risk of being non-employed because of poor health.

Figure 3.29 Three types of male employment penalties in 2001 by ethnic group, log-odds statistics



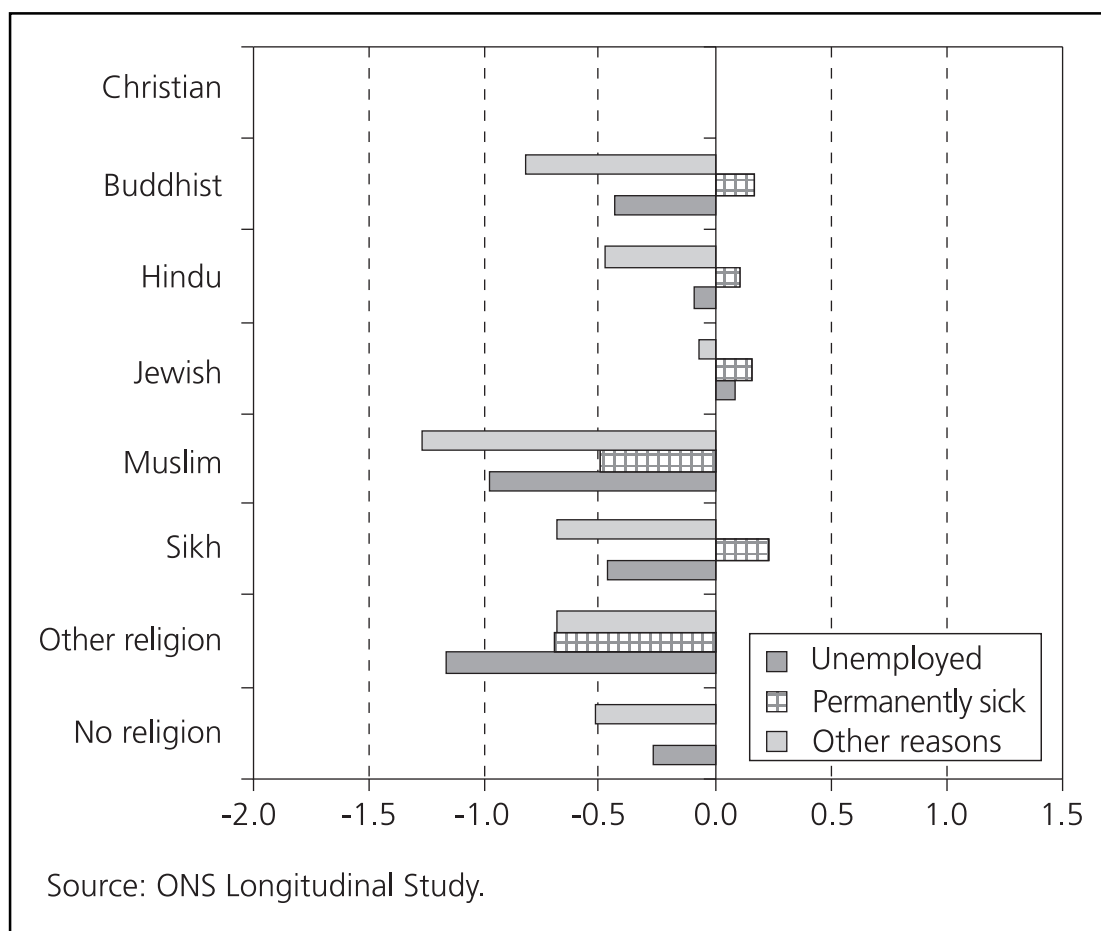
When studying religious groups (in Figures 3.31 and 3.32), Muslims reveal a similar result to Pakistanis and Bangladeshis (in Figure 3.29 and 3.30), with enhanced risk of all three types of non-employment, but most pronounced for reasons other than unemployment and sickness. This is the case for both men and women, even if the employment gap is constantly higher among (Muslim) women than (Muslim) men (as compared with Christian women and men).

**Figure 3.30 Three types of female employment penalties in 2001 by ethnic group, log-odds statistics**

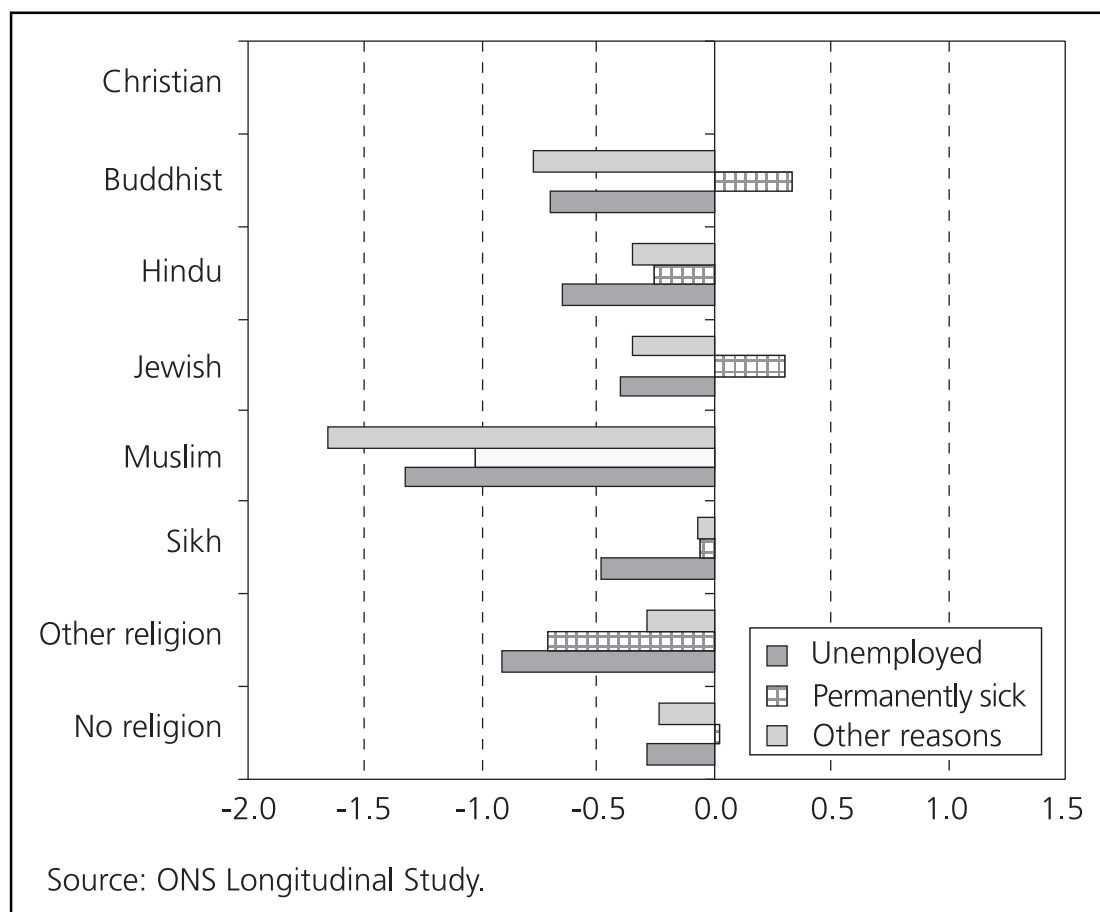


It appears that several ethnic and religious minorities are at enhanced risk of all reasons of not being employed except poor health (permanent sickness). This is the case for Caribbean men and Indian men, male and female Buddhists, Sikh men and people with no religion.

**Figure 3.31 Three types of male employment penalties in 2001 by religion, log-odds statistics**



**Figure 3.32 Three types of female employment penalties in 2001 by religion, log-odds statistics**



In summary, this analysis of three types of non-employment has revealed that:

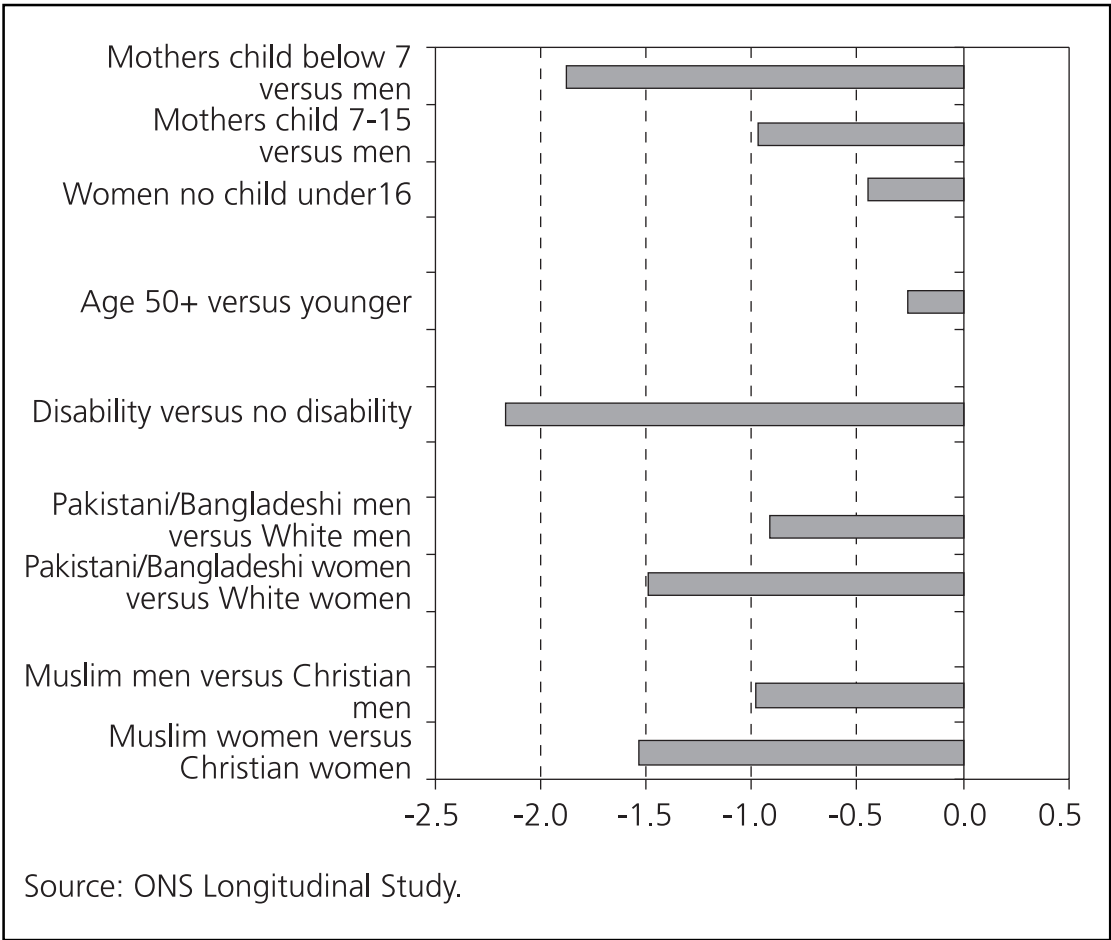
- 1** female non-employment is largely associated with taking care of home and family;
- 2** over-50s' non-employment is largely associated with permanent sickness;
- 3** non-employment among ethnic and religious minorities is often associated with all reasons for not being employed except poor health (permanent sickness);
- 4** Muslims, including Pakistanis and Bangladeshis, are at high risk of all reasons for not being employed but most pronounced for 'other reasons' than unemployment and poor health;
- 5** black groups are at higher risk of unemployment.

### 3.12 Comparing employment disadvantages

This analysis has aimed to compare employment disadvantages/penalties between several social groups using the same source of data. So far, social groups have been compared with relevant comparison groups section by section. But, which of these social groups described so far experience the strongest employment penalties? Such

a comparison is presented in Figure 3.33 using data only from the 2001 data in the ONS LS.

**Figure 3.33    Comparing employment penalties in 2001 between various disadvantaged groups, log-odds statistics**



Three groups of women (with at least one child below 7 years, with a youngest child 7-15 years and with no child below 16 years) are compared with men, as in Figure 3.12. Those aged 50-59 years are compared with those aged 20-49. Disabled people are compared with non-disabled people. Notice that all these comparisons control for other variables (education level, family composition, etc) with only two exceptions: ethnic and religious groups are compared in separate models (as in previous analyses) and disability (census definition not independent of employment) is not controlled for when comparing other social groups (as in previous analyses).

The lower part of the graph compares Pakistani and Bangladeshi men and women with white men and women respectively and Muslim men and women with Christian men and women respectively, since these are the ethnic and religious groups experiencing the strongest employment penalties. Notice that ethnic groups are here compared using the 2001 Census, whereas Section 3.7 used the 1991 Census.



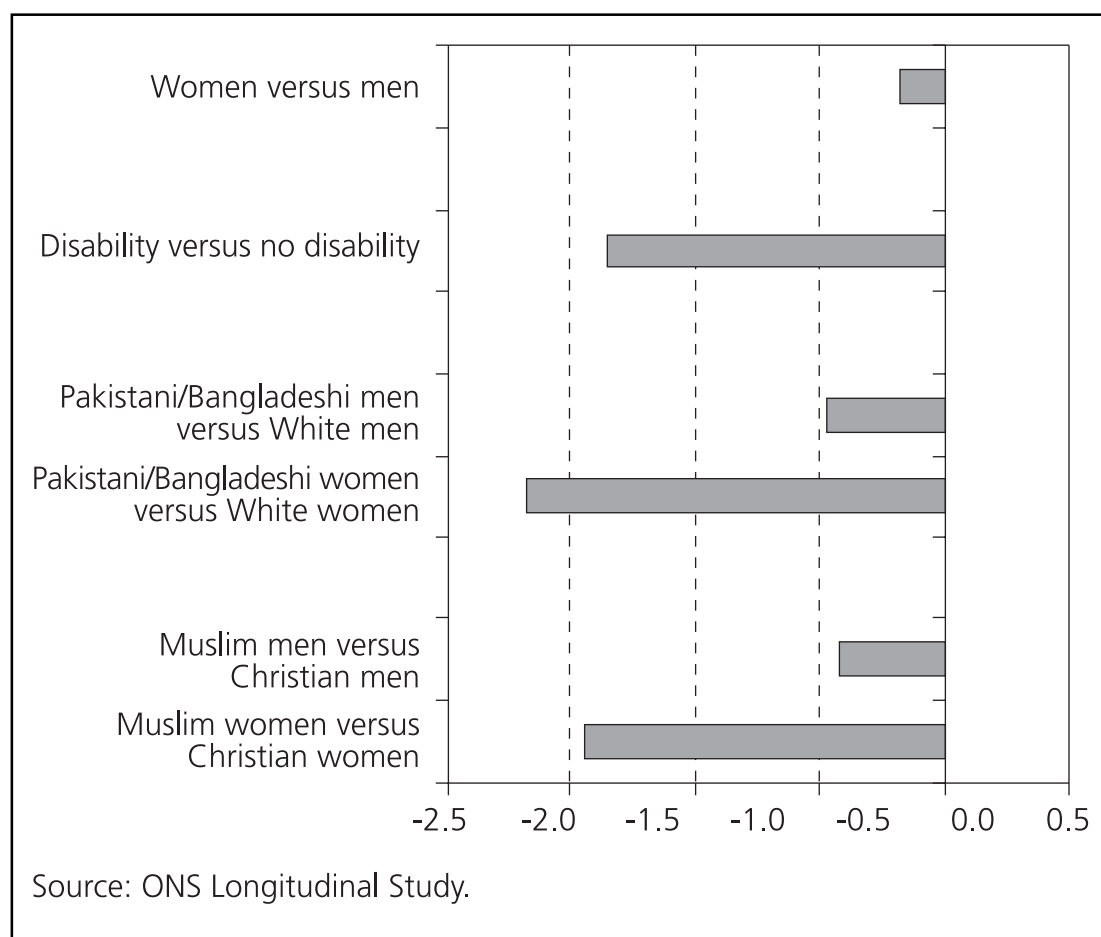
When merely comparing employment penalties at one point in time (in the 2001 Census) we find that the largest employment penalty is experienced by disabled people (as compared with non-disabled), followed by mothers of small children (as compared with men) and Muslim women, including those of Pakistani and Bangladeshi origin (as compared with Christian/white women). Muslim and Pakistani/Bangladeshi men (as compared with Christian/white men) and mothers of older children (as compared with men) are in a middle position in this 'worse off' comparison. Relatively smaller employment disadvantage is experienced by people in their 50s (compared with younger people, when controlling for education level) as well as by women with no dependent children (compared with men). Half of the above 50 employment disadvantage (in Figure 3.33) is explained by disability.

We have also investigated if people belonging to two potentially disadvantageous social groups experience more employment disadvantage than the combination of each of these strands would lead us to expect. In general, the penalties are just additive – we find no such tendencies in the data, at least not when comparing social groups with reasonable similar employment rates. When comparing social groups with very different employment rates such as mothers (as compared with men) or Muslims (as compared with Christians) with and without disability, the general tendency is that these combined strands experience less employment disadvantage than their separate sources of employment disadvantage would indicate. This tendency occurs when using log-odds statistics, which assumes that percentages are much harder to change when a small proportion of a social group are non-employed (e.g. men, Christians) than when a larger proportion are non-employed (e.g. mothers, Muslims). This tendency of 'less than additive' effects from combining two or more strands of disadvantage would have been less apparent when looking at predictions presented as proportions/percentages rather than log-odds statistics.

How persistent are the employment penalties as described in this cross-sectional analysis (Figure 3.33)? Notice that some of the individual characteristics in Figure 3.24 are, by nature, transitional. Women move in and out of motherhood, under 50s will eventually/hopefully become over 50; people become, and cease to be, disabled.

Figure 3.34 compares transitions into employment from 1991 to 2001 for social groups which are typically non-transitional: women versus men, disabled in 1991 versus non-disabled in 1991, and ethnic and religious group as above.

**Figure 3.34 Comparing transitions into employment from 1991 to 2001 between various disadvantaged groups, log odds statistics**



Non-employed women have transition rates into employment slightly lower than non-employed men. Hence, even if many women leave employment when having children, this group still experience less persistent employment disadvantage/penalty than some other disadvantaged groups because of their relatively high probability of re-entering employment when children grow older. Disabled people experience low probabilities of entering employment once non-employed, even when (as here) including those who no longer regarded themselves as being disabled (in 2001). Also, Muslim women, including women of Pakistani/Bangladeshi origin, experience low probabilities of entering employment. Disabled people and Muslim women are the two social groups with the highest employment penalties and the lowest probabilities of entering employment when being non-employed. Muslim men are also in a disadvantaged position regarding both employment penalties and, to a lesser extent, the probability of entering employment once non-employed but at not nearly the same level as Muslim women.

In summary, this analysis has shown that:

- two groups stand out with high employment penalties and long lasting employment disadvantage: disabled people and Muslim women; and
- mothers and Muslim men experience employment penalties but these penalties are less long lasting (persistent) at the level of individuals than those affecting disabled people and Muslim women.



## 4 Review and conclusions

This has been the first systematic comparison of the employment disadvantages of different social groups over a 30-year period. It provides a direct comparison of the penalties faced by older people, disabled people, women and members of ethnic and religious minorities. The analysis also shows the trends over the previous three decades as well as the persistence in non-employment for the same individuals from one decade to the next. The findings are of obvious relevance to the Equalities Review's consideration of the impact of separate bodies of anti-discrimination and equal opportunities legislation over broadly the same period.

Our findings will probably not be the last words on the scale of each of the individual employment penalties. Where the estimates are at odds with other studies, it may be because other researchers, specialising in the analysis of one particular group, have been able to use more detailed data (e.g. on disability), or because they have focused on particular issues relevant to the population group under examination (e.g. the migration history of ethnic minorities). These specialist considerations have had to be glossed over in the interests of comparability across groups but are still relevant to a detailed understanding of disadvantage.

Employment disadvantages have changed in the study period. The female employment disadvantage has been reduced dramatically. This includes employment disadvantage associated with motherhood in particular. A new disadvantage associated with age above 50 years has come about in the period. Some social groups experienced rising employment penalties from the 1970s to the 1990s but with some improvements more recently. This includes workers over 50, disabled people and men of Caribbean and Pakistani/Bangladeshi origin.

Three social groups stand out with very low employment rates: mothers, disabled people and Muslims, including people of Pakistani/Bangladeshi origin. There have been considerable improvements in the employment situation of mothers. Disabled people are, on the other hand, worse off today than they were 30 years ago. Pakistani and Bangladeshi men are also worse off today than 30 years ago compared with white men, but from a position not very much different from white men in the 1970s. Pakistani and Bangladeshi women have been far behind white women throughout the last 30 years and they have not improved their employment position compared with other women over this period.

When investigating the same individuals in pairs of Censuses, two groups stand out with very low employment rates as well as low probabilities entering employment once out: disabled people and Muslim women including Pakistani and Bangladeshi women. Even if mothers and Muslim men also experience considerable employment penalties, they are much less persistent than those affecting disabled people and Muslim women. Observed characteristics such as age composition, educational level and so on can explain very little of the persistent employment disadvantage experienced by these groups beyond disability and the combination of religion and gender.

The same people tend to belong to both ethnic and religious minorities. Thus, it is not always easy to say whether people are disadvantaged because of their ethnic group or their religion. Analysing combinations of ethnic and religious groups indicates considerable employment disadvantage for Muslim women and men across different ethnic groups. Among women, it appears that religious group is more important than ethnic group as a predictor of employment penalties. Among men, both religion and ethnic groups can predict employment penalties. But even among men, religious group is at least as important as ethnic group. People who don't confess to any religion are largely in a similar position to the majority religious group within their ethnic group. This could indicate that it is not religions as such but perhaps cultural factors associated with religions that predict employment prospects.

This analysis provides few explanations of why some social groups experience employment penalties. The analysis cannot say how far low employment rates reflect choice or constraints, including discrimination. Potential explanations for employment gaps have been approached in two ways. In part, we have controlled for characteristics such as age composition, educational level, family composition and county-level unemployment rates. For the most disadvantaged groups, disabled people and Muslim women, these characteristics can explain only a small part of their low employment rates and low transition rates into employment.

The other approach has been to distinguish between three reasons for non-employment among ethnic and religious minorities. The social groups being compared tend to have different reasons for not being employed. Black people face a relatively high risk of unemployment. Several ethnic and religious minorities have high risks of not being employed for all reasons other than poor health. Muslims, men as well as women, are at enhanced risk for all reasons for not being employed, though also here least pronounced for poor health.

It is important to note, again, our deliberate choice of the words 'disadvantage' and 'penalty', simply to mean that some people are less likely to have a job than others. Some analysts of employment (or wage) rates have used a broadly similar analytical approach to estimate the unexplained gap between groups (what we call a penalty) and labelled it 'discrimination' (e.g. Carneiro, Heckman and Masterov 2005). Discrimination occurs when an employer selects one job candidate rather than another, not on grounds of 'fair' considerations such as qualifications and experience, but on 'unfair' considerations of age, impairment, gender or ethnicity. There is no

doubt that this occurs (though there has been very little recent research which directly establishes discriminatory practices). But measures of the employment gap and penalty establish the outcome, not the process. There are all sorts of possible processes affecting employment rates. Nevertheless, it has been shown that there is a very wide range of employment rates between the social groups examined, which cannot be explained away by 'fair' considerations such as education or regional unemployment rates. Members of these groups are undoubtedly disadvantaged. Discrimination may be one of the processes which creates or reinforces this inequality.





# Appendix A

## Logistic regression equations estimating employment penalties from the General Household Survey 2000 to 2003

**Table A.1** Logistic regression equations estimating employment penalties from the General Household Survey 2000 to 2003

	Men and women by family position		Comparing men and women		Men only		Women only	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Over 50	<b>-0.78</b>	(.03)	-0.26	(.030)	-0.68	(.05)	-0.84	(.04)
Limiting long-standing illness	<b>-1.53</b>	(.03)	-1.44	(.030)	-1.91	(.05)	-1.27	(.04)
Partnered man	base				Base			
Single man	<b>-1.00</b>	(.04)			-0.99	(.05)		
Single woman, no children	<b>-0.99</b>	(.05)					0.70	(.10)
Partnered woman, no children	<b>-1.11</b>	(.04)					0.63	(.09)
Partnered woman, children 11 and above	<b>-1.56</b>	(.06)					0.16	(.10)
Lone parent, children 11 and above	<b>-1.70</b>	(.09)					Base	
Partnered woman, children above 11	<b>-2.57</b>	(.04)					-0.84	(.09)
Lone parent, children above 11	<b>-2.71</b>	(.06)					-1.01	(.10)
Woman (as a single category)			<b>-1.27</b>	(.025)				
White	Base		Base		Base		Base	
Caribbean	0.26	(.13)	0.18	(.126)	<b>-0.16</b>	(.20)	<b>0.43</b>	(.15)
Indian	-0.38	(.10)	-0.31	(.090)	<b>-0.26</b>	(.16)	<b>-0.42</b>	(.12)
Pakistani/Bangladeshi	-1.17	(.09)	-1.16	(.081)	<b>-0.75</b>	(.15)	<b>-1.54</b>	(.13)
Other ethnic group	-0.63	(.07)	-0.65	(.068)	-0.76	(.11)	-0.54	(.09)
Higher education	0.51	(.04)	0.57	(.036)	0.31	(.06)	0.58	(.05)
A level	0.29	(.05)	0.33	(.043)	0.27	(.07)	0.29	(.06)
O level/GCSE	Base		Base		Base		Base	
Lower qualifications	-0.11	(.04)	-0.10	(.039)	-0.14	(.07)	-0.10	(.05)
No qualifications	-0.80	(.04)	-0.75	(.036)	-0.68	(.06)	-0.88	(.05)
Regional unemployment %	-0.06	(.01)	-0.07	(.011)	-0.17	(.02)	-0.01	(.01)
Constant	3.09	(.06)	2.51	(.051)	3.58	(.09)	1.13	(.11)
Sample size	44,020		44,020		21,143		22,877	

Bold figures are the coefficients supporting the marginal effects quoted in the report. Standard errors are in parentheses. A short-hand test is that a coefficient is significantly different from zero if it is more than twice its standard error.

# Appendix B

## Employment disadvantage in the General Household Survey calculated by two methods

As discussed in Section 2.3, the estimates of employment penalties in most of this report compare people's probabilities of being in work, regardless of whether non-workers are unemployed or economically inactive. An alternative method, often used for estimating ethnic penalties, confines the analysis to economically active people, so that the only non-workers considered to have a disadvantaged outcome are the unemployed, i.e. those looking for work.

The left hand column of this table repeats the regression coefficients for 2000 to 2004 from the main analysis (see Appendix A). The right hand column shows equivalent coefficients from an analysis of employment versus unemployment. The arrows in the centre column point left or right in the direction of the version estimating greater disadvantage. Two arrows indicate a change from advantage (+) to disadvantage (-).

**Table B.1 Regression coefficients for 2000 to 2004 and equivalent coefficients from an analysis of employment versus unemployment**

Regression coefficients	'In work' compared with out of work	Arrows point to greater disadvantage	Employed compared with unemployed
Over 50	-0.78	◀◀	0.20
Limiting long-standing condition	-1.53	◀	-0.72
Single man	-1.00	▶	-1.23
Single woman, no children	-0.99	◀	-0.50
Partnered woman, no children	-1.11	◀◀	0.40
Partnered woman, children 11 and over	-1.56	◀◀	0.30
Lone parent, children 11 and over	-1.70	◀	-0.87
Partnered woman, children over 11	-2.57	◀	-0.11
Lone parent, children over 11	-2.71	◀	-1.41
Caribbean man	-0.16	▶	-0.46
Caribbean woman	0.43	◀◀	-0.33
Indian man	-0.26	▶	-0.41
Indian woman	-0.42	▶	-0.95
Pakistani/Bangladeshi man	-0.75		-0.77
Pakistani/Bangladeshi woman	-1.54	◀	-1.01

The comparison shows that the two approaches can yield very different estimates. It is not helpful to ask which is right and which is wrong, because they are both correct measures of rather different things. The method chosen for this study ('in work' compared with out of work) highlights the lack of jobs among social groups with low economic activity rates – women, especially mothers, and disabled people. This table confirms that the disadvantages of these groups would be reduced or eliminated if the alternative (unemployment-based) analysis had been used.

The decision has some important impacts on others measures though. In particular, the disadvantage recorded for over 50s would disappear if unemployment was the negative outcome being analysed. And all the disadvantages faced by Caribbean and Indian men and women would appear much larger if the unemployment-based calculation had been used. In the case of Caribbean women, the analysis shows that they have a high overall employment rate; though they also have a high unemployment rate (i.e. they are rarely economically inactive).

# Appendix C

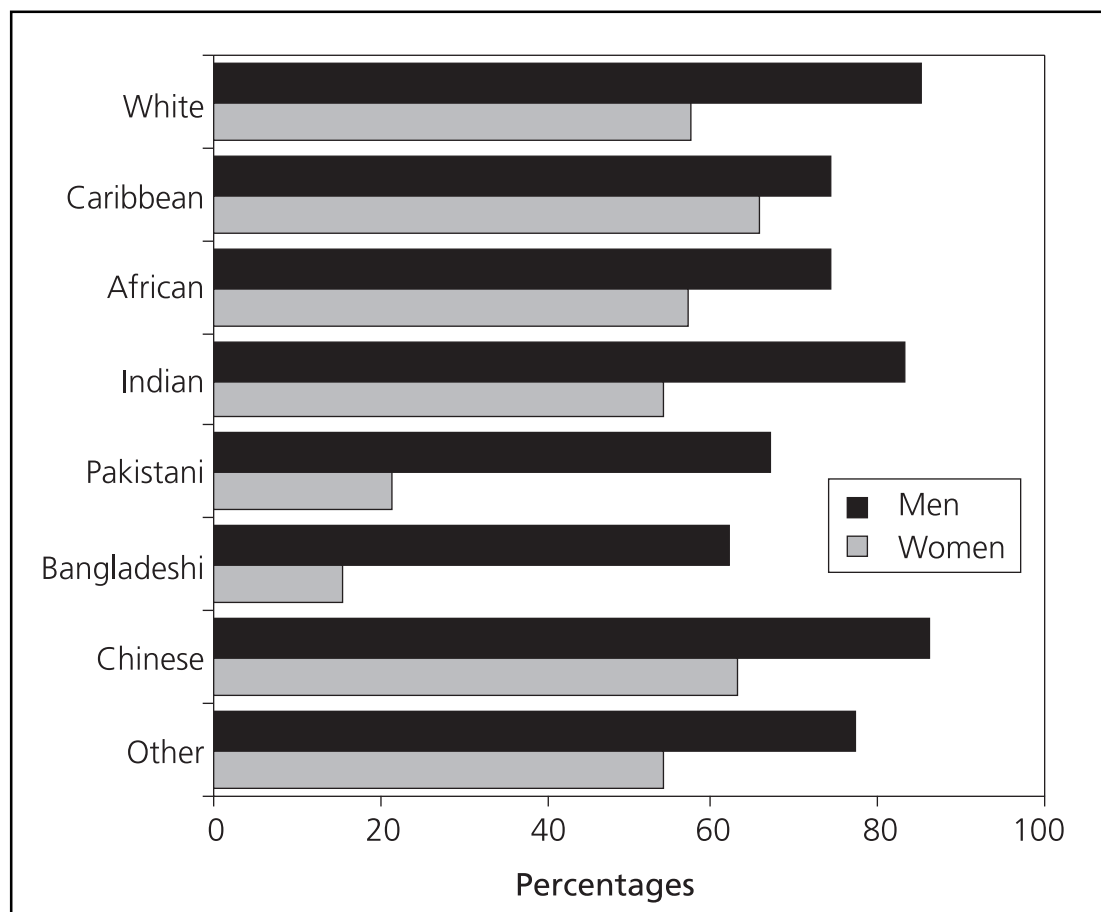
## Ethnic groups in the General Household Survey

From 1983 onwards, the General Household Survey (GHS) asked respondents to specify their ethnic group, in terms broadly similar to the categorisation familiar to present day analysts. The three main categories analysed in this report – Caribbeans, Indians and Pakistanis/Bangladeshis – can be identified with reasonable consistency through the changing coding frames.

As noted in Chapter 2, members of ethnic minorities other than Caribbean, Indian, Pakistani and Bangladeshi have not been analysed separately, because the samples of members of the two smallest named groups (Africans and Chinese) were too small and because a catchall 'other' category would be too disparate to be interpreted as a meaningful social group. Figure P shows, for the record, the employment rates by detailed ethnic groups, for the entire period covered by the direct ethnicity question.

Fortunately, we have both classifications – the direct ethnic question, and the allocation based on country of birth and 'colour' – over the period 1983 to 1992. So we can compare the allocations based on each system. Table C.1 shows that a high proportion of Caribbeans and Pakistanis/Bangladeshis were classified the same under both schemes. There were though, substantial numbers of Indians (according to the direct question) who were classified as 'other' by the country of birth sequence. These were almost certainly African Asians – people of Indian origin who had settled in Uganda or Kenya before coming to Britain.

**Figure C.1**      **Average employment rates by detailed ethnic groups, 1983-2003**



Prior to 1983 there was no direct question about ethnicity. Information was, though, collected about the place of birth both of each respondent and of their mother and father. A classification developed by Nuffield College, Oxford assigned respondents to 'ethnic' categories if one, two or three of these people (self, father, mother) was born in the Caribbean, India or Pakistan/Bangladesh. Some of the people with only one birth in the place under consideration may have been white; but the GHS interviewer was also asked to say whether each member of the sample was 'coloured' – a vocabulary that would not be accepted nowadays. The classification adopted for the current analysis assigned people to minority groups if they and/or a parent had been born in the relevant place and the interviewer also observed them as 'coloured'.

**Table C.1 Allocation of ethnicity by two methods, 1983 to 1992**

	Direct ethnic question					
	White	Caribbean	Indian	Pakistani/ Bangladeshi	Other	Total
Ethnicity assigned by countries of birth and 'colour'						
Row percentages						
White	99.1	0.1	0.1	0.0	0.8	100
Caribbean	0.7	90.4	0.7	0.1	8.2	100
Indian	2.3	0.1	88.0	4.8	4.9	100
Pakistani/Bangladeshi	0.5	0.0	3.9	93.9	1.7	100
Other	1.6	1.2	45.7	2.0	49.6	100
Column percentages						
White	100.0	4.8	4.9	2.4	53.6	
Caribbean	0.0	93.8	0.6	0.1	5.9	
Indian	0.0	0.1	57.6	6.7	3.1	
Pakistani/Bangladeshi	0.0	0.0	1.7	87.5	0.7	
Other	0.0	1.3	35.2	3.3	36.7	
Total	100.0	100.0	100.0	100.0	100.0	





# Appendix D

## Distributions measured as percentages from Chapter 3 using the Office for National Statistics Longitudinal Study

**Table D.1 Employment rates among disabled and non-disabled people in 1991 and 2001**

	Employed in 1991		Employed in 2001	
	Men	Women	Men	Women
Limiting long-standing illness	32.8	25.1	41.5	33.2
No limiting long-standing illness	87.9	68.5	90.9	76.9
<i>N</i>	142,246	144,262	140,494	146,606

Source: ONS Longitudinal Study (LS).

**Table D.2 Employment rates in 1991 and transitions into employment 1991–2001 by ethnic group**

	Employed in 1991		Non-employed 1991 being employed in 2001	
	Men	Women	Men	Women
White	84.1	66.3	51.1	50.9
Caribbean or Other Black	70.7	66.5	54.7	48.7
Black African	65.8	57.4	64.6	54.6
Indian	80.3	57.2	54.4	46.7
Pakistani	62.9	20.2	39.5	14.7
Bangladeshi	56.5	14.3	33.7	8.3
Chinese	84.7	62.7	46.9	46.9
Other Asian	77.5	55.9	68.7	50.0
Other/Mixed	76.7	56.8	52.3	48.5
All groups	83.2	65.1	51.0	49.3
<i>N</i>	142,246	144,262	11,575	31,753

Source: ONS Longitudinal Study.

**Table D.3 Employment rates in 2001 and transitions into employment 1991–2001 by religion**

	Employed in 2001		Non-employed 1991 being employed in 2001	
	Men	Women	Men	Women
Christian	85.3	72.6	49.9	50.7
Buddhist	79.8	64.4	42.9	44.6
Hindu	84.7	66.3	56.6	49.2
Jewish	87.3	72.5	37.8	45.7
Muslim	68.1	30.4	41.0	16.2
Sikh	78.4	65.0	56.2	52.9
Other religion	75.2	69.4	46.2	49.6
No religion	83.0	71.0	55.0	52.0
All groups	83.9	70.6	51.0	49.3
<i>N</i>	141,092	147,123	11,575	31,753

Source: ONS Longitudinal Study.

**Table D.4 Employment status among everyone and among those not employed in 2001**

	Percentages of everyone 2001		Percentages of non-employed 2001	
	Men	Women	Men	Women
Employed any hours	84.3	34.3		
Unemployed	4.5	2.8	42.4	9.5
Permanently sick	0.6	5.3	5.3	18.3
Others reasons	5.6	21.0	52.3	72.2
Sum	100.0	100.0	100.0	100.0
<i>N</i>	140,448	146,553	14,928	42,641

Source: ONS Longitudinal Study.



# Appendix E

## Logistic regression equations from Chapter 3 using the Office for National Statistics Longitudinal Study

Table E.1    Regression equations of employment in 2001 by disability status using all variables

	Men		Women	
	Coeff.	S.E.	Coeff.	S.E.
Long-standing illness	-2.45	(.02)	-1.92	(.02)
Age slope 20-30 years	-0.02	(.05)	0.28	(.04)
Age slope 30-40 years	0.11	(.04)	0.06	(.03)
Age slope 40-50 years	-0.17	(.04)	-0.34	(.03)
Age slope 50-60 years	-1.08	(.05)	-1.19	(.04)
Education level 4/5	1.18	(.03)	1.41	(.02)
Education level 3	1.11	(.04)	1.39	(.03)
Education level 2	0.81	(.02)	0.95	(.02)
Education level 1	0.78	(.03)	0.81	(.02)
No/unknown education. (ref)	0.00		0.00	
Has a partner	1.01	(.02)	0.31	(.02)
# Children below 7 years	-0.14	(.02)	-1.06	(.01)
# Children 7-15 years	-0.12	(.01)	-0.38	(.01)
County unemployment %	-0.23	(.02)	-0.08	(.01)
Metropolitan County	0.09	(.03)	0.03	(.02)
Christian (ref.)	0.00		0.00	

Continued

**Table E.1 Continued**

	Men		Women	
	Coeff.	S.E.	Coeff.	S.E.
Buddhist	-0.44	(.13)	-0.69	(.10)
Hindu	-0.45	(.11)	-0.30	(.09)
Jewish	0.03	(.14)	-0.35	(.10)
Muslim	-1.06	(.06)	-1.11	(.06)
Sikh	-0.70	(.11)	-0.05	(.09)
Other religion	-0.61	(.12)	-0.31	(.10)
No religion	-0.20	(.02)	-0.15	(.02)
White (ref.)	0.00		0.00	
Caribbean/Other black	-0.51	(.08)	-0.02	(.07)
Black African	-0.57	(.08)	-0.25	(.07)
Indian	-0.41	(.18)	-0.23	(.15)
Pakistani	0.28	(.09)	-0.05	(.08)
Bangladeshi	0.01	(.08)	-0.62	(.07)
Chinese	-0.08	(.10)	-0.98	(.11)
Other Asian	0.08	(.13)	-0.12	(.10)
Other/Mixed	-0.10	(.10)	-0.36	(.10)
Constant	2.17	(.06)	1.10	(.05)

Source: ONS Longitudinal Study.

**Table E.2 Regression equations for the first analysis of transition rates into employment from 1991 to 2001 by ethnic group using all variables**

	Men		Women	
	Coeff.	S.E.	Coeff.	S.E.
Has a partner	1.21	(.05)	0.52	(.03)
# Children below 7 years	0.00	(.05)	-0.74	(.03)
# Children 7-15 years	-0.15	(.03)	0.02	(.01)
Age slope 20-30 years	0.89	(.92)	-0.03	(.68)
Age slope 30-40 years	-0.55	(.09)	0.15	(.06)
Age slope 40-50 years	-0.54	(.08)	-0.52	(.05)
Age slope 50-60 years	-1.06	(.12)	-1.52	(.07)
Education level 4/5	1.44	(.07)	1.29	(.04)
Education level 3	1.01	(.10)	1.24	(.06)
Education level 2	0.95	(.05)	0.96	(.03)
Education level 1	0.93	(.06)	0.82	(.03)
No/unknown education (ref)	0.00		0.00	
White (ref.)	0.00		0.00	
Caribbean/Other black	0.08	(.16)	0.01	(.11)
Black African	0.16	(.26)	0.37	(.17)
Indian	0.00	(.13)	-0.05	(.07)

Continued

**Table E.2 Continued**

	Men		Women	
	Coeff.	S.E.	Coeff.	S.E.
Pakistani	-0.43	(.13)	-1.55	(.10)
Bangladeshi	-0.63	(.24)	-2.05	(.20)
Chinese	0.14	(.39)	-0.08	(.20)
Other Asian	0.51	(.29)	-0.09	(.16)
Other/Mixed	-0.09	(.24)	-0.19	(.15)
County unemployment %	-0.18	(.03)	-0.11	(.02)
Metropolitan County	-0.03	(.06)	-0.05	(.04)
Constant	-0.59	(.92)	-0.11	(.68)

Source: ONS Longitudinal Study.





## Appendix F

# Comparing England, Scotland and Wales

Would the results described in this report vary if they had been made separately for England, Scotland and Wales? Not all social groups can be investigated separately in Scotland and Wales. The Office for National Statistics (ONS) Longitudinal Study (LS) does not have data about Scotland. Further, ethnic and religious minorities are too small in numbers in Wales and Scotland to allow for such comparisons to be made.

Table F.1 compares employment penalties by sex, and family status using the General Household Survey (GHS) for 1992–2003. These results indicate that people with a long-standing illness experience larger employment penalties in Scotland and Wales than similar groups in England. Some female groups seem to experience less employment disadvantage in Scotland and Wales than similar groups in England. The worse off result for disabled people in Wales is also reproduced in the ONS LS (not shown in the tables).

**Table F.1      Employment penalties in England, Scotland and Wales  
using the General Household Survey, 1992–2003**

	<b>Great Britain %</b>	<b>England %</b>	<b>Wales %</b>	<b>Scotland %</b>
Over 50	14.1	13.9	15.2	14.6
Limiting long-standing illness	27.2	26.2	32.4	32.4
Single man	13.6	13.1	17.4	15.8
Single woman, no children	12.9	12.8	15.5	12.2
Partnered woman, no children	16.5	16.8	18.1	12.5
Partnered woman, children 11 and over	23.7	24.6	19.4	17.3
Lone parent, children 11 and over	30.4	30.8	24.8	29.8
Partnered woman, children over 11	45.4	46.1	40.5	40.3
Lone parent, children over 11	54.4	55.3	53.0	47.7

Note: these figures are different from those in Appendix C of the preliminary version of this analysis (Berthoud and Blekesaune 2006) because an improved method of calculating percentage penalties was developed for the final version of the report. See text page 14 and footnote 8.

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