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Citation for final published version:

Jones, Melanie and Wass, Victoria Jane 2013. Understanding changing disability-related employment gaps in Britain 1998-2011. *Work Employment and Society* 27 (6) , pp. 982-1003. 10.1177/0950017013475372

Publishers page: <http://dx.doi.org/10.1177/0950017013475372>

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Understanding changing disability-related employment gaps in Britain 1998-2011

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Abstract

A large and enduring employment gap attaches to impairment and disability. Nevertheless disability remains a neglected area of research in both labour economics and sociology of work when compared to other protected groups. The government has looked to health professionals (Black, 2008 and Marmot, 2010), rather than to social scientists, for policy advice, including in relation to the workplace. The Black Review charts an improvement in employment prospects for those who report disability (1998-2007), a reversal of a prior trend. Our purpose is to uncover and disentangle the drivers of employment growth for those reporting disability. The effects of changes in group characteristics, some which may be linked to an increase in the rate of ill-health reporting, are considered and also the effects of changes in the employment structure towards flexible working, the public sector and non-manual jobs. The analysis extends to 2011 to capture the effects of the recession.

Key words: Black Review/disability/employment gap/employment disadvantage/impairment

Introduction

Employment is the key area of disadvantage for those who are disabled and of working-age. Indeed, the difference in outcomes by disability, what are referred to subsequently as ‘gaps’, are much larger for employment than for earnings (Blackaby 1999, Longhi et al 2010) and much larger for disability than for other protected groups (National Equalities Panel (NEP) 2010: 117). Around 30 percent of the working-age population recorded a long-standing illness or impairment in 2011 (Labour Force Survey (LFS)), including 11.6 percent who report that this was activity-limiting both at work and in day-to-day living. The former group are defined as impaired and the latter group as disabled. The same survey records an employment gap of 44 per percentage points between those who are defined as disabled and those who are not.¹

The magnitudes of both the prevalence rate and the employment gap have ensured that the subject of disability-induced economic inactivity has been of particular and perennial concern to politicians. It has, over the years, prompted a stream of policy initiatives, including employment regulation in the form of the Disability Discrimination Act (DDA) (1995) (from 2010 the Equality Act) and supply side incentives in the form of changes to benefit levels and eligibility and personal job search assistance initiatives (see Barnes and Mercer, 2005:534-5; Berthoud 2011a; Burchardt, 2000:2, 30-33; Jones et al 2006:408 for details of policy changes over different periods).

Rather more surprising is the shortage of mainstream social science research on the labour market effects of disability in the UK, less than for other disadvantaged groups (see Berthoud, 2008:129, in relation to a review of articles published in this journal and Jones et al 2006:407, 410, in relation to studies in labour economics) and less than in the USA (Jones et al 2006:407). In a recent collection of studies which chart the fate of vulnerable groups (including women, older workers, younger workers, immigrants, ethnic minority workers and those with low-education levels) over the course of the recent economic downturn (Gregg and Wadsworth 2010), an analysis of disability is missing.² In organisational studies too, disability is a neglected subject of study (see Foster and Wass, 2013).

The side-lining of disability in the mainstream social science literature is brought into sharp relief by two major and influential government-commissioned and academically-authored reports, both undertaken by health professionals. The Black Review (2008), based in Occupational Health, measures the disability-induced employment gap and proposes its annual

monitoring as ‘a base line indicator’ of the health of the working-age population. The Marmot Report (2010), based in epidemiology, emphasises the social gradient of disability which arises because ill-health and impairment interact with other characteristics associated with disadvantage. This choice of medical advisors reflects what Holmqvist (2009:405) refers to as medicine’s expansion into social science. While both make reference to the role of social and economic factors in relation to health, and Black identifies negative attitudes towards ill-health and disability in the workplace as a barrier to employment, both analyses focus on individual pathology as the source of employment disadvantage and as the focus for policy intervention. Edwards and Imrie (2008:338) and Riach and Loretto (2009:114) locate this approach more widely in Giddens’s (1991) and Beck and Beck-Gernsheim’s (2002) framework of the disembedding consequences of individualisation, where the social context in the construction of the disability-related employment gap is eroded by a focus on the personal and internal as the source of and solution to the employment problems associated with disability.

Importantly for this study, Black (2008:32) identifies a reduction over time in the employment disadvantage which attaches to disability, 10 percentage points over the ten years from 1998. This marks a reversal of a previous upward trend to 1998 noted by Berthoud and Blekesaune (2006) and Berthoud (2011a) (using the General Household Survey (GHS)) and to a lesser extent by Burchardt (2000) (using the LFS) and prompts the more detailed analysis undertaken here. The employment gap is a composite summary measure and our purpose is to unpick its component parts and uncover the important drivers of its recent downward trend. In particular, it is to distinguish between the contribution to this downward trend of compositional changes in (1) individual characteristics (e.g. improvements in educational attainment among those with impairment); (2) individual health-related characteristics (e.g. a reduction in the average severity of impairment) and (3) changes in employment opportunities brought about by the structural shift towards non-manual, and especially service sector, employment and greater employee rights to flexible working arrangements. In broad terms, the first and second have their foundation in the medical and supply-side approach to understanding and addressing the issue of disability-related employment disadvantage and the third, which has its focus on labour demand and the employment practices of the organisation, incorporates aspects of the social approach.

This is primarily a descriptive article which charts the trends and drivers in employment disadvantage for those with ill-health and disability over a 13 year period from 1998. If it is

possible to distinguish between drivers of both the relative improvement in the employment gap over time and of the gap that remains, we will be in a better position to predict future improvement and even to elicit this through policy intervention. In so doing, it is hoped to initiate a refocus of research on the study of the effects of disability on employment on a par with that for other disadvantaged groups and to reclaim for social science an area of study which has its foundations in the economic and social structures of the workplace.

The article is organised as follows: the next section reviews the main conceptual approaches to understanding the disability-induced employment gap and the findings from the select number of UK studies that have sought to estimate it. The subsequent section describes our empirical approach and is followed by a discussion of our findings. The data extend to April 2011 and any effects of the recession on the gap in disabled and non-disabled employment rates are outlined before concluding with a summary of the contribution of this article and its implications for future work.

Understanding and measuring the effects of disability in the labour market

Most evaluations of disabled employees and their position in the labour market start from what Roulstone (2004:18) and Foster (2011:176) term a 'deficit model of disability'. The implication of this deficit, whether it is real or perceived, whether it is biologically- or socially-determined, is a reduction in capacity for work and work performance. In this way, it is the deficit which drives down employment prospects. There are two competing approaches to the cause of this deficit. In the social model of disability, the dominant analytical framework in the field of disability studies in the UK, the deficit is socially constructed rather than innate to the individual with the impairment. The deficit arises from a mismatch between the needs of the impaired individual and the physical environment, the organisational culture and job structures (see Williams-Whitt and Taras 2009:2). It is emphatically not individual, an approach associated with the biomedical approach in which the deficit in performance arises from the effects of an individual's pathology. The key to understanding the social model of disability lies in the difference between 'impairment' and 'disability'. Impairments can but need not be disabling. When a person with an impairment tries to negotiate society or the workplace, he or she is confronted by social attitudes, social structures, institutional practices and cultures that serve to exclude, marginalise and disable (see Barnes and Mercer 2005; Holmqvist, 2009; Oliver, 1996:30). Williams-Whitt and Taras' (2009:3) observation that illness and injury create

real problems in the workplace, problems which are socially constructed ‘because jobs have been designed to be done “efficiently” by most employees rather than inclusively by all’ resonates with the feminist analyses of organisational practice in relation to gender (see Acker,1990). Accommodations or adjustments to the workplace or work practice invariably conflict with the ableist logic of the organisation with the result that the worker with an impairment is rendered disabled.

That the disadvantage is entirely socially determined, ignores the effect of impairment on capability which adaptation cannot counter. Edwards and Imrie (2003:240) suggest that each conceptual approach captures important aspects of disabled people’s lives but that both are ‘problematical for failing to recognise that there is a dialectical relationship between the individual and society, or where intersubjective and subjective experiences are intertwined’.

The medical model views disability as a consequence of a medical disorder, a biological dysfunction which is intrinsic to the individual. The underlying pathology requires clinical diagnosis followed by clinical intervention, normally with the objective of improving functionality. Impairment is constructed both as the problem for and responsibility of the individual with the focus on the rehabilitation and activation of the individual (with assistance from Occupational Health advisors) to modify themselves and their behaviour in order to better cope with their functional deficits (Riach and Loretto 2009:114). The choice to analyse, understand and manage the disability-induced employment gap using medical models and labels, ‘to make medical’ (Holmqvist 2009:405) what is, at least in part, a social and economic phenomenon can be situated within the individualisation framework in which ‘responsibility for the self by the self becomes an increasingly legitimised practice in society’ (Riach and Loretto, 2009:113).

Labour market studies of disability, to the extent that they are concerned with explaining the source of the deficit, take their lead from the medical model and focus on the impact of an individual productivity deficit on employment and earnings. So for example, in an early study, Blackaby et al. (1999) report higher unemployment probabilities and lower wages for those reporting disability, with differences in individual characteristics accounting for around half of the differential. Subsequent studies can be divided into those, like Blackaby et al., which are primarily concerned to measure the gap at a single point in time using comprehensive adjustments for type of disability, personal and job characteristics (Berthoud, 2006 and 2008; Butt et al., 2008) and those which are principally concerned with trends in employment rates

or gaps over time (Berthoud, 2007; Berthoud, 2011a; Berthoud and Blekesaune, 2006; Burchardt, 2000) including one which specifically tests for (and fail to find) a DDA-induced shift in disabled employment rates (Bell and Heitmueller, 2009). Using various sources of data, measures and specifications, each find disability is associated with a large and persistent employment disadvantage.

Time series analyses indicate a long-term increase in the proportion of the working-age population who report disability on a number of disability measures. They also indicate, at least until the late 1990s, an increasing employment gap. In the studies reaching into the twenty-first century (Bell and Heitmueller, 2009; Berthoud, 2011a; Jones 2006), the rising trend reaches a plateau and Jones (2006) finds the first signs of a narrowing of the employment gap for the work-limited disabled. This trend reversal is confirmed in the Black Review (2008), though no attempt is made to understand its causes.

Method of investigation

Our purpose is to measure employment gaps by disability and to uncover the drivers of these gaps. The empirical strategy is to chart employment outcomes for different groups over time and to distinguish between alternative explanations for these trends. The following three questions provide a focus for the analysis.

- 1. To what extent is the narrowing of the employment gap a consequence of changes in the composition of inter-group personal characteristics?*
- 2. To what extent has an increase in the rate of reporting disability, and consequent changes in health characteristics (type and severity of impairment), contributed to the rise in employment for disabled groups?*
- 3. How do disabled individuals differ in terms of the structure of their employment and have changes in this structure (for example growth in public sector employment) provided disproportionate benefit in terms of employment prospects?*

Data used are collected from the individual records of the 2nd (April-June) Quarters of the LFS from 1998 to 2011. The LFS continuously collects information on an extensive set of socio-economic and labour force characteristics from a rotating sample of around 60,000 households per quarter (about 80,000 working-age individuals). It is the largest household survey within

the UK and our analysis thus provides a robust and representative picture of the employment situation of disabled individuals. The analysis begins in 1998 which is the first year in which the LFS uses its current module of disability questions.³ Four measures of disability-related employment rate differentials are used. These are defined in Table 1 below and distinguish between disability and the less restrictive definition of impairment, and between the raw employment gap and the penalty which is adjusted for different inter-group employment-determining characteristics.

[Table 1]

In contrast to most studies of disability, the analysis distinguishes between impairment and disability. The purpose is to capture the sensitivity of employment rate trends to varying the restrictiveness of the definition. Impairment (top row of Table 1) is a basic health measure which identifies reduced functional capability arising from a long-lasting illness or condition. Functional limitations consequent on ill-health or impairment are defined as a disability if they adversely affect activities of day-to-day living (as defined in the DDA 1995) *and* the amount or the type of work that might be undertaken. This is the most restrictive definition of disability available within the LFS and is the one recommended by the Office for National Statistics for labour market analyses (Cousins *et al.* 1998:326). Disability (bottom row) captures the mismatch between an individual's reduced capabilities and the level of capability that is required/expected to function independently at home or at work. Disability is the more complex characteristic: it captures elements of the medical (functional impairment) and social model (mismatch and expectations). As a consequence it is potentially a better predictor of employment.

Both measures are self-reported and may be subject to recognised biases, including measurement error and justification bias (Bound, 1991). The latter suggests that individuals with inferior labour market experiences may use disability to justify non-employment. The empirical evidence on the issue is mixed (see Jones, 2008) but, if present, our analysis will overestimate the true employment gaps and penalties associated with disability, although the implications for examining changes over time are less clear.

As with other UK studies of disability and employment (Berthoud 2006 and 2008; Burchardt, 2000; Jones 2006, NEP 2010), the employment/non-employment dichotomy is used rather than one based upon activity and inactivity.⁴ Employment is defined using the ILO definition and

includes both paid employees and the self-employed. Trends in both employment gaps and employment penalties are reported. The employment gap (first column, Table 1) is the percentage point difference in the employment rate between those who are impaired and disabled and those who are not. It ignores the effects of the social gradient. The employment penalty (second column) seeks to measure the difference in employment which arises only from a 'disability' effect, that is, after the removal of the effects of the social gradient. The employment penalty measures that part of the employment gap which is not explained by differences in characteristics and which therefore arises from differential treatment, differences in preferences/behaviour or differences in unmeasured individual characteristics. In short, in so far as relevant characteristics are measured, the employment penalty compares employment outcomes by disability status for otherwise similar individuals.

Question 1 is addressed by a comparison of trends in the employment gap and the employment penalty. The probability of employment is modelled using a probit model which has been widely applied in the literature, including in previous analyses of the impact of disability on employment (see, Blackaby *et al.*, 1999; Kidd *et al.*, 2001; Jones, 2006; Jones *et al.*, 2006). The employment gap is the marginal effect on the disability variable when disability is included as a single co-variate. The employment penalty is the marginal effect on the disability variable in the full model where the inclusion of the employment characteristics nets out the effect of inter-group differences in these other employment-determining characteristics. Our specification includes six control variables - age, ethnicity, highest educational attainment, marital status, the presence of a dependent child aged under 16 in the household and region of residence. These characteristics, which are defined for both employed and non-employed individuals, are designed to capture supply and demand side influences on the probability of employment and have consistently been found to be important in previous analyses. The model is estimated separately for males and females and for each year under consideration to allow the influence of disability to vary by sex and across time. The marginal effect on the disability variable estimated from each specification is the percentage point reduction in the probability of employment associated with disability. Trends in the impact of disability including (gap) and excluding (penalty) inter-group differences in characteristics are reported, thereby separating the effects of changes in characteristics from the effects changes in treatment by the employer, differential behaviour by the individual (including in relation to out-of-work benefits) and differences in unobservable work capacities.

The difference between the gap and the penalty is the part of the gap which is explained by differences in observed characteristics. However, not all relevant information is measured in the LFS and this has implications for our estimates of the employment penalty. The LFS is a cross-section and an important unobserved characteristic in our model is an individual's labour market history, particularly their experience of earlier periods of non-employment and their (previous) occupation. If disabled individuals currently not working report longer spells of non-employment than those who are non-disabled, the disability employment penalty will be overestimated. This would also be true if disabled individuals are more likely to have previously worked in an occupation or industry in decline.

In contrast to the late 1980s and early 1990s, which witnessed a dramatic increase in the number of disability benefit claimants, the period under consideration has been characterised a gradual fall in claimants (from 7.4 percent of the working-age population in 2000 to 6.5 percent 2011, McInnes (2012)). This is consistent with welfare reforms and active labour market policies aimed at sharpening the financial incentives to work and assisting disabled people in their job search. The main source of out-of-work disability benefit, Incapacity Benefit (IB), was replaced with Employment and Support Allowance (ESA) for new entrants from 2008 and with a slow and limited rolling programme for existing claimants beginning in October 2010. Eligibility for ESA is defined more narrowly in the new Work Capability Assessment (Berthoud 2011b). There have been several other policy changes over the same period, including the introduction of the New Deal for Disabled People in 2001 (subsequently renamed Pathways to Work). The scheme provides advice and support to help disabled individuals enter the labour market. Evaluation indicates that this has been much less effective in reducing employment rates for the disabled than for lone parents (Parekh et al 2010:78-9, 83). It is important to note that the definitions of impairment and disability used in this study are broader than those used to classify individuals as eligible for disability benefits and that changes in benefit eligibility do not necessarily coincide with changes in disability status (see Berthoud, 2011a). However, to the extent that benefit changes alter individual propensities to report impairment or preferences for work, they enter our framework as another unobserved influence which is likely to affect employment.

Question 2 is concerned that it is increases in the rate of reporting of impairment and disability, which progressively include those close to the margin of the classification, which is driving the increase in the disabled employment rate, independently of any change in labour market

outcomes for those previously classified as disabled. Higher impairment prevalence rates may arise from two sources: an increase in the prevalence of an impairment or an increase in the propensity to disclose an impairment. The latter in particular would be associated with an increase in group membership at the margin. Using a measure developed by Berthoud (2011a:38-39), the product of the prevalence rate and the employment gap, it is possible to account for any 'artificial' change in the employment rate which is due to a change in the reporting rate. An increase in reporting is likely to also involve a change in the composition of conditions and symptoms. The probit model is adapted to monitor whether employment growth has been concentrated among individuals with certain impairments, in particular, the influence of severity (measured by multiple conditions) and the nature of the condition (distinguishing between mental and physical impairment). The marginal effects estimated from these models are interpreted as the additional employment gap (penalty) experienced by those holding the characteristic under consideration relative to all other impaired individuals.

Having examined how changes in the individual characteristics (employment and health) of those reporting impairment and disability might have contributed to improved employment outcomes, *Question 3* considers some demand-side factors which capture changes in job opportunities. While our analysis relating to *Question 1* accounts for regional differences in demand (measured at a point in time), it does not take into account changes in labour demand over time. Here, changes in the structure of labour demand and the nature of jobs are considered, specifically the relative growth of part-time, non-manual work and public sector jobs over the course of the decade from 2000 as a potentially important contributory factor to the rise in the employment rate among disabled individuals.

Following Berthoud (2007) the personal employment equation (outlined above) is re-estimated but pooling the data across the period rather than estimating each year separately. Controls for the aggregate composition of employment are included as explanatory variables. Interaction terms between disability and employment composition identify differences in the impact of the changing nature of employment on disabled individuals. Three specifications of this pooled model are estimated: (1) includes personal characteristics only (2) also includes the composition of employment and (3) also includes an interaction between disability and the composition of employment. The proportion in part-time employment and in public sector employment are used to measure the employment mix. In all these models a time trend and a disability time trend interaction (allows the employment trend to differ by disability status) are

included. From each specification a probability of employment by year and disability status is estimated and, from this, a predicted disability employment penalty is generated.

Trends in employment gaps and employment penalties

Question 1 seeks to isolate the ‘disability effect’ from the effects of changes in other characteristics by comparing trends in the employment gap and the employment penalty. The gap and the penalty are measured by the marginal effect of the disability variable in two probit specifications, one with a set of controls for employment-related characteristics and one without. The probit specifications for 1998 and 2011 are reported in the Appendix. The marginal effect on disability without the controls (the disabled employment gap) is 56 percentage points for men in 1998 and with the controls (the disabled employment penalty) the corresponding figure is 53 percentage points. These marginal effects are graphed (separately for men and women) for the period 1998 to 2011 in Figures 1 and 2, for impairment and disability respectively.

The impairment employment gap is reported in Figure 1 (solid lines) with ● (▲) markers for males (females). The employment penalty is depicted with dotted lines and ○ (△) markers for males (females). Figure 2 follows the same terminology but for disability (as defined above).

[Figures 1 and 2]

The impairment employment gap for men exceeds that for women (30.3 and 24.5 percentage points respectively in 1998).⁵ The employment gap exceeds the employment penalty for both men and women in 1998 indicating that part of the observed employment disadvantage arises from other disadvantageous employment-related characteristics (3.5 and 0.7 percentage points for men and women respectively). That the gap and the penalty are relatively close, emphasises the overwhelming disadvantage that attaches to impairment *per se*. The impairment employment gap has fallen over time by 10 percentage points for both men and women. The gap has narrowed from both sides, that is, the employment rate for the impaired has increased over time and for the non-impaired it has decreased. The magnitude of the former exceeds that of the latter. The penalty has fallen over time but by less than the gap. By 2011, the gap and the penalty were equal for men (men reporting impairment no longer have disadvantageous characteristics relative to those who do not) and for women the employment penalty exceeds the employment gap from 2003. Women reporting impairment tend to be advantaged by their

employment characteristics, largely because they are less likely to be married or have dependent children.

Similar patterns are observed for disability in Figure 2, although the employment differentials are much greater and the narrowing is less. In 1998, the employment gaps attached to disability were 55.7 and 45.0 percentage points for men and women respectively. These fell to 49.1 and 38.6 percentage points respectively in 2011. For men, 3 percentage points of the gap are accounted for by disadvantageous characteristics in 1998 falling to 1 percentage point in 2011. For women the penalty is greater than the gap throughout so that, in 2011, without their advantageous employment characteristics, the unadjusted employment differential for women reporting a disability (38.6 percentage points) would have been 3 percentage points higher.⁶

In answering *Question 2*, the extent to which employment gaps have been narrowed by the greater reporting of impairment and any consequent changes in the nature or extent of ill-health in the impaired group is explored. An increase in the rate of reporting of impairment, whether through increased disclosure or increased ill-health, is likely to be associated with a narrowing of the employment gap because it is those whose impairments are less severe who are progressively included. The first two columns of Table 2 report exactly this, an increase in the rate of reported impairment of 31.3 percent and a reduction in the employment gap of 37.8 percent. The proportion reporting disability has been more stable while the disability employment gap narrowed by 12.8 percent. In Figure 3, the product of the prevalence rate and the employment gap/penalty is used to measure the overall impact of disability/impairment on employment in the population. This can be interpreted as a ‘prevalence-corrected’ measure of the employment gaps and penalties. For each gap and penalty, the reduction in disadvantage associated with impairment and disability has more than offset the increase in its population prevalence indicating a ‘real’ reduction in disability-related employment disadvantage, although the narrowing is proportionately much less than is reported in Figures 1 and 2.

[Table 2]

[Figure 3]

The remaining columns of Table 2 report prevalence rates and employment gaps by type and severity of impairment. The incidence of multiple health problems, as measured as a proportion of those who report at least one impairment, has declined by 7.2 percent for more than one

condition and by 9.2 percent for those who report more than two conditions, implying a change in health composition towards a lower level of severity. This is consistent with both the increased rate of reporting impairment in column (i) of Table 1 and the narrowing of the employment gap reported in column (vi). The presence of more than one condition has a greater employment impact than the presence of one and a lesser impact than the presence of two or more (30.3 and 35.9 percentage point additional gaps respectively in 1998). Both additional gaps and penalties (not reported) have reduced over time by 18.3 percent for more than one condition and 10.2 percent for more than two. That the gaps have narrowed for those reporting multiple health problems is consistent with the narrowing of the prevalence-adjusted gap. At least part of the convergence of employment rates has been achieved through improved employment chances for individuals away from the threshold of the impairment and disability classifications.

There has been a large increase, 37 percent, in the proportion of those who report impairment arising from mental ill-health (column (ix)). The additional mental impairment employment gap in 2011 is broadly the same as it was in 1998 – about 35 percentage points (column (x)). The combined effect of increased prevalence and a fixed gap will have been to widen the employment gap rather than close it.

In answering *Question 3*, changes in the structure of employment which are likely to favour those with impairment or disability are considered, namely employment growth in the public sector, increased flexibility around hours of work and the progressive drift away from manual work (this latter is a continuation of a long-term trend).

For the public sector, a distinct period of expansion begins in 2000. In 1999 public sector employment stood at 5.2 million and accounted for 19 percent of employment. In 2009 this had increased to 6.2 million and 21 percent respectively (see Dolton and Makepeace 2010). The increasing share of the public sector in employment is recorded in Figure 4, separately for men and women and separately by non-impairment, impairment and disability. Consistent notation is used in Figures 4 and 5 where ■ depicts no impairment, ● impairment and ▲ disability. Women, disabled and impaired employees are all over-represented in public sector employment in 1998 and these ‘protected’ groups have all benefitted disproportionately from a period of growth in the public sector. The stark differentials in employment growth are consistent with Hoque and Noon’s (2004) evidence of greater substantive disability policies

in the public sector, Adams and Oldfield's (2012) evidence from the reported experience of disabled people across different workplaces and the reliance of the Black Review on the public sector to take its agenda forward. It is too early to track the abrupt reversal of public sector employment growth from 2011 on the employment rates of the disabled but it is potentially a very serious one. Any retreat in the public sector's lead in providing adjustments and adaptations in the face of pressure from deficit reduction programmes will disproportionately affect the disabled.

[Figure 4]

Previous studies have demonstrated the importance of part-time employment as a source of accommodation for disabled workers (see Jones, 2007). Figure 5 reports the percentage of employees who work full-time, separately by sex and by impairment/disability group. The trends are similar for usual weekly hours worked and are not reported. It is clear that gender differentials in part-time working dwarf those related to disability. Nevertheless, disability was associated with a 14 percentage point greater likelihood of part-time working for both men and women (2011). The decline in full-time employment (and weekly hours) has been particularly marked for disabled men.

[Figure 5]

Long-term structural trends have seen the nature of work shift away from manual labour, a trend that might be expected to benefit those with physical health problems (Berthoud 2007). This redistribution of employment towards non-manual work between 2001 and 2010 is recorded in the final column of Table 3. The main body of Table 3 reports the proportion of employees with impairment (disability) in each one-digit occupational group relative to those without impairment (disability). A ratio exceeding 1 indicates an over-representation of employees reporting impairment or disability within the occupational group and *vice versa*. Although impairment and disability continue to be associated with unskilled and manual work, and an under-representation in the top occupational groups, this association has become weaker over time as those with health problems have gained disproportionately from the aggregate shift towards non-manual work and movement up the occupational class structure.⁷

[Table 3]

Figure 6 presents the predicted disability employment penalties on the basis of the three pooled probit specifications outlined above. Consistent with Figure 2, Penalty 1 (impact of disability holding other personal characteristics constant) narrows by about 6 percentage points over the period. The narrowing is similar when the composition of employment is also held constant (Penalty 2). However, what appears particularly important is allowing disabled individuals to have a different sensitivity to changes in the composition of employment. The extent to which Penalty 3 narrows after accounting for this is lower by 3 percentage points.

[Figure 6]

Impairment, disability, employment and the recession

Our data extend to 2011 and any early effects of the recession on disabled and non-disabled employment rates are examined. Berthoud and Blekesaune (2006:14) and Berthoud (2009) find a counter-cyclical trend, or at least less sensitivity to the business cycle, for disabled men. In contrast, Burchardt (2000:19) reports similar behaviour in employment rates by disability status (at least when outflows from employment are rising at the beginning of a recession) and Leonard Cheshire Disability (2011:2-3,17) reports a relatively greater vulnerability for disabled people during the recent downturn.

The time period under investigation captures the effects of the recession from 2009 to 2011. In Figures 2 and 3, the long-run reductions in employment gaps (disability and impairment) for both women and men continue to fall but, for the employment penalty, the downward trend faltered in 2010. It is too early to tell if this marks an end to the twelve years of gap and penalty convergence. For prevalence-adjusted gaps and penalties the narrowing was less and stalled a year earlier in 2009.

Summary and discussion

The Black Review (2008) proposes that the disability-induced employment gap is used as a ‘top line indicator’ of the health of the working-age population. For the period covered by the Black Review this indicator showed continuous, though modest, improvement. Using the same data, the LFS, this study confirms the continuation of this trend after 2007, and through the economic downturn, and deepens the analysis to examine its possible sources, and therefore its likely sustainability. In pursuit of this, three key questions were explored. *Question 1* sought to

disentangle the effects of inter-group differences in characteristics from treatment and behaviour. While characteristics account for a small proportion of a large employment gap, they have accounted for around half of the small narrowing of the gap over time. As such there may be less scope for further reduction through equalising inter-group characteristics, a warning echoed by Meager and Hill (2006:5). Employment penalties, which measure the disability disadvantage after controlling for differences in other characteristics, have also showed a modest decrease indicating that changes in the environment (for example, access to work) and/or behaviour (for example changes in eligibility, incentives and assistance in relation to benefits and job search) have also been important. However, it is the size of the penalty, and its closeness in size to the gap, which appears to indicate that the causes of and solutions to the disability employment gap are to be found less in the characteristics of disabled individuals and more in the social, cultural and structural characteristics of the labour market.

Question 2 sought to unpick the effects of any changes in the composition of impairment on the narrowing employment gap, especially that likely to arise from an increase in the prevalence of reported impairment. While adjusting for an increase in prevalence reduces the extent to which the employment gap narrows relative to unadjusted figures, the additional employment gap for those with more severe impairment (those with two or more conditions) has also narrowed indicating employment gains have been achieved away from the margin of classification. Moreover, the increase in prevalence comes disproportionately from reporting mental ill-health which is associated with more acute and growing employment disadvantage which would have widened rather than narrowed the employment gap.

The narrowing of the impairment and disability employment gaps has been a gradual and largely continuous trend which possibly reflects the effects of not any one policy innovation but rather multiple innovations which, when combined, have changed the ability of, and incentives for, disabled individuals to work. Gradual change is also suggestive of secular trends and the evidence presented in relation to *Question 3* shows clearly that those with impaired health have benefitted disproportionately from long-term movements towards non-manual and flexible work, though these cannot have been decisive since they pre-date the period of a narrowing gap. The growth in the public sector, actively supported going in to the recession (Gregg and Wadsworth 2010), is a shorter-term trend over the first ten years of the Millennium. The critical role of the public sector, raised by Hoque and Noon (2004) in relation to policies and practices, Adams and Oldfield (2012) in relation the experience of disabled people and

evident in Figure 6, in reducing the disabled employment gap is also recognised in the Black Review as leading the way in changing attitudes. The effects of the aggressive contraction planned for the public sector post date the analyses presented here but it seems likely that, to the extent that the public sector has been a beacon of good practice, it will be less so in the future.

Looking forward, a faltering in the New Millennium trend towards relative and absolute employment growth for disabled people would not be unexpected. If, using Fevre's terminology (2011: 2), it is structure at least as well as agency which determines labour market rewards and opportunities, then social science has much to add to Black's 'New Approach' to health and work in Britain. There is a danger that in medicalising (Homqvist 2002) and individualising (Riach and Loretto, 2009) the disability-related employment gap, the social reality of unemployment and inactivity for disabled people is obscured. A focus on the individual and their disorder, to be remedied by the individual with some assistance from an occupational health service, diverts attention from the more fundamental and difficult structural workplace reforms. In the same way that feminists have examined the structures and practices of the labour market from a social view point, and exposed their gendered nature and values, so there is scope to uncover the ablesim which infects those same structures and practices. While of itself inadequate to the task of addressing disability-discrimination at work, the Black Review is open-handed in its invitation to others to participate in 'further research to inform future action with a comprehensive evidence base.' (Black 2008:113). This study, which set out to look at what drives the reducing employment gap, finds evidence of an individual and a health influence. However, the size of the gap (large), the size of the penalty (large), the extent of the convergence (small) and the falling rate of that convergence suggests that future research should be directed less towards the individual as both the source of and remedy to the employment gap and more to the socialisation of disability as both an explanation of disadvantage and a focus for policy.

Acknowledgments

This paper was previously presented at an ONS/ESDS LFS workshop, December 6th 2011. We are grateful for constructive comments on an earlier draft from Peter Sloane, Stephen Drinkwater, Richard Berthoud, Gerry Makepeace and Ben Baumberg.

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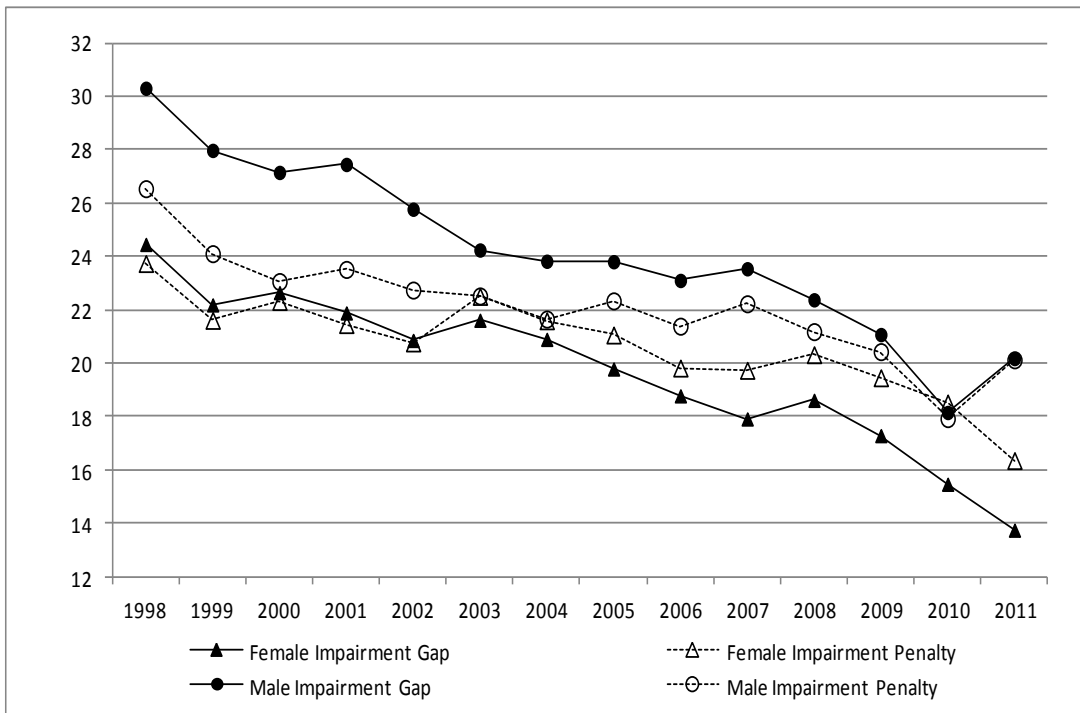
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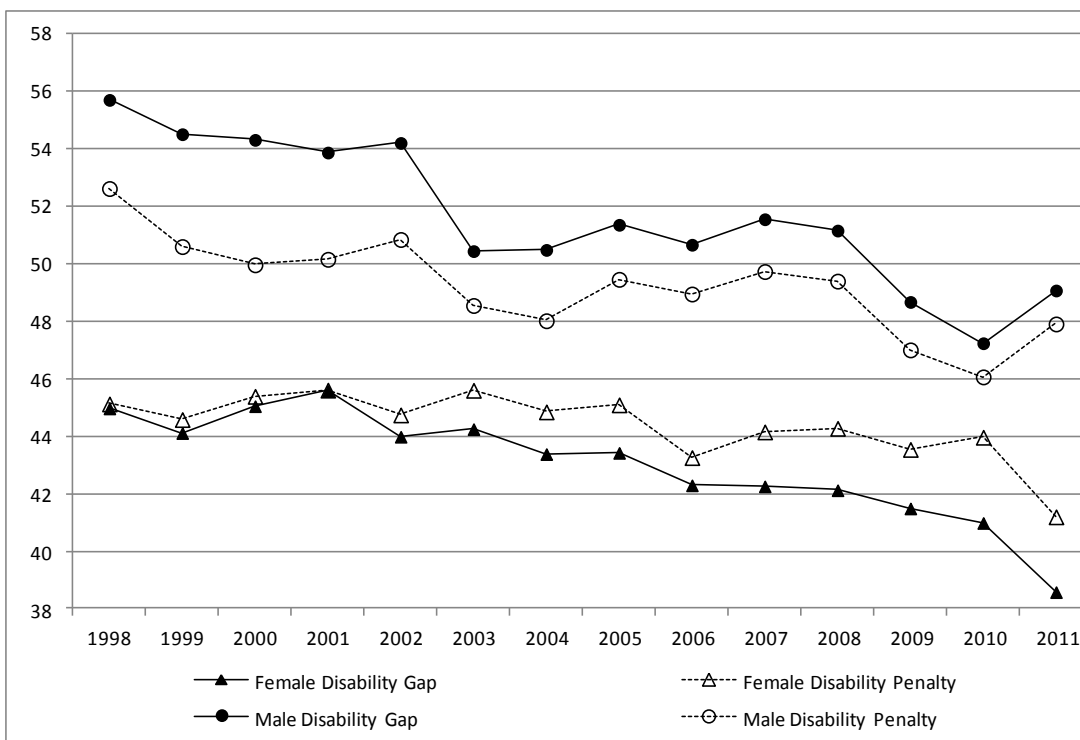
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Figure 1. Employment Gap and Employment Penalty by reporting of Impairment



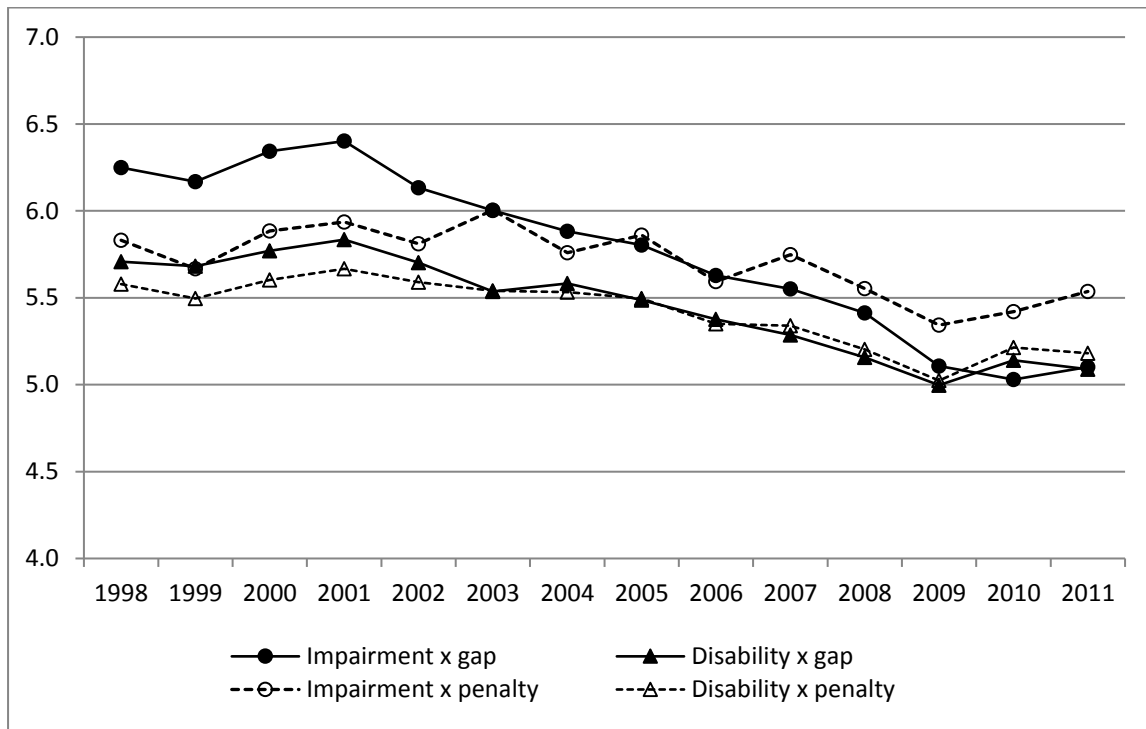
Source: LFS April-June 1998-2011.

Figure 2. Employment Gap and Employment Penalty by reporting of Disability



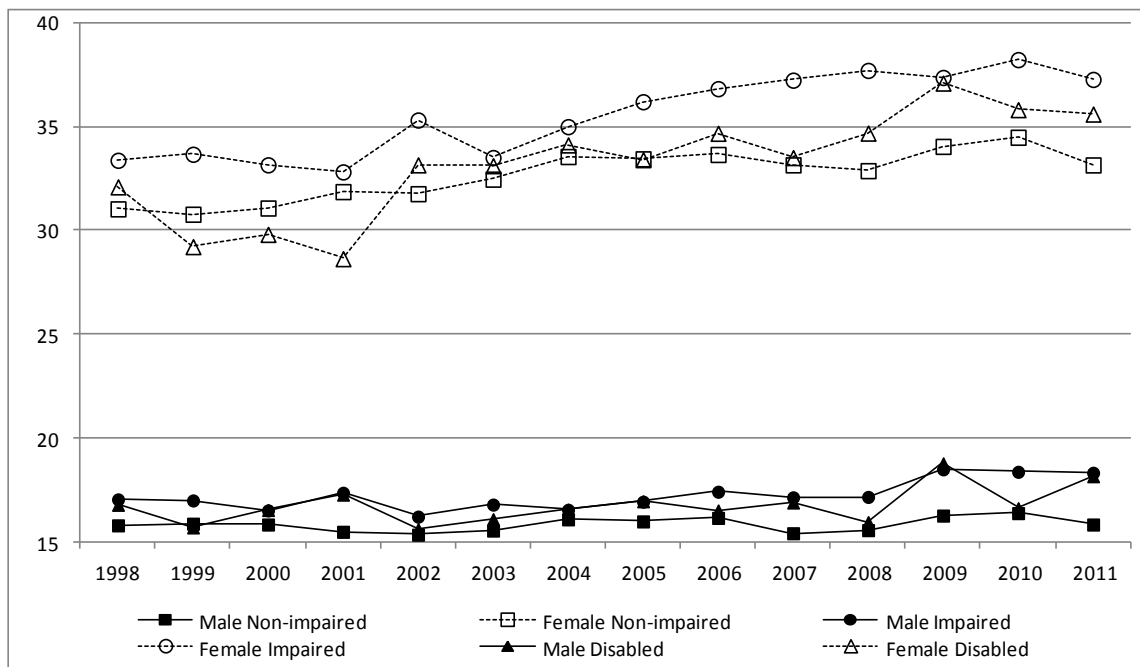
Source: LFS April-June 1998-2011.

Figure 3. Prevalence x Employment Gap/Penalty by Disability and Impairment 1998-2011



Source: LFS April-June 1998-2011.

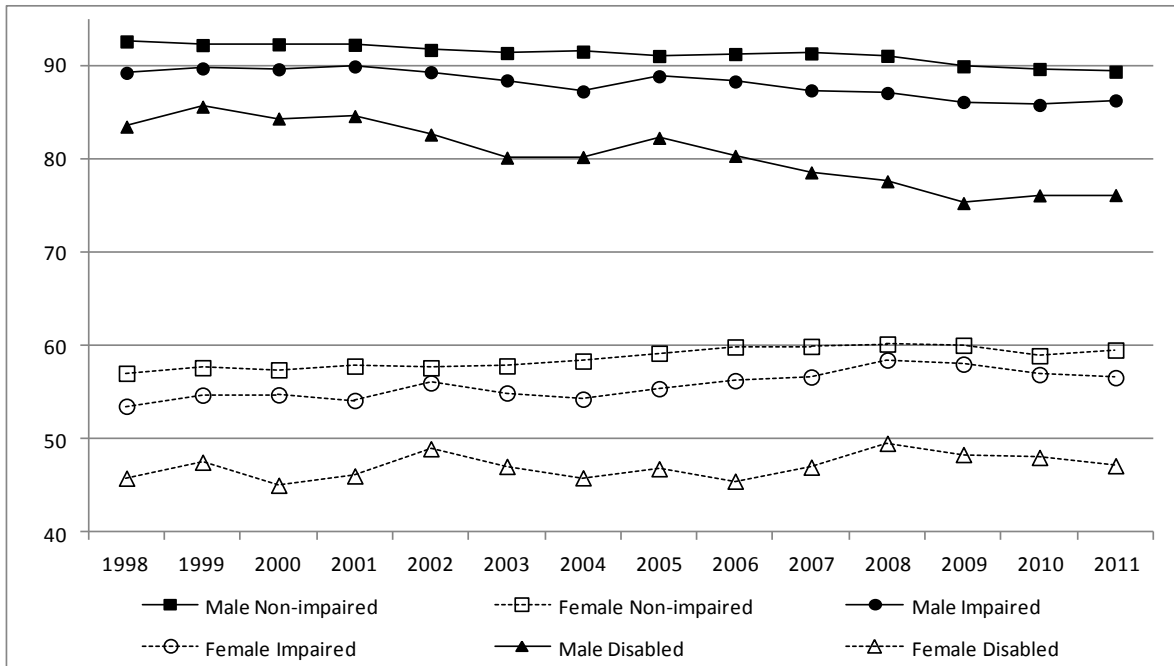
Figure 4. Percentage of those in Employment in the Public Sector 1998-2011



Source: LFS April-June 1998-2011.

Notes: Individuals self-classify their main job as being in the public or private sector where the former is defined as that 'owned, funded or run by central or local government' and the latter comprises everything else.

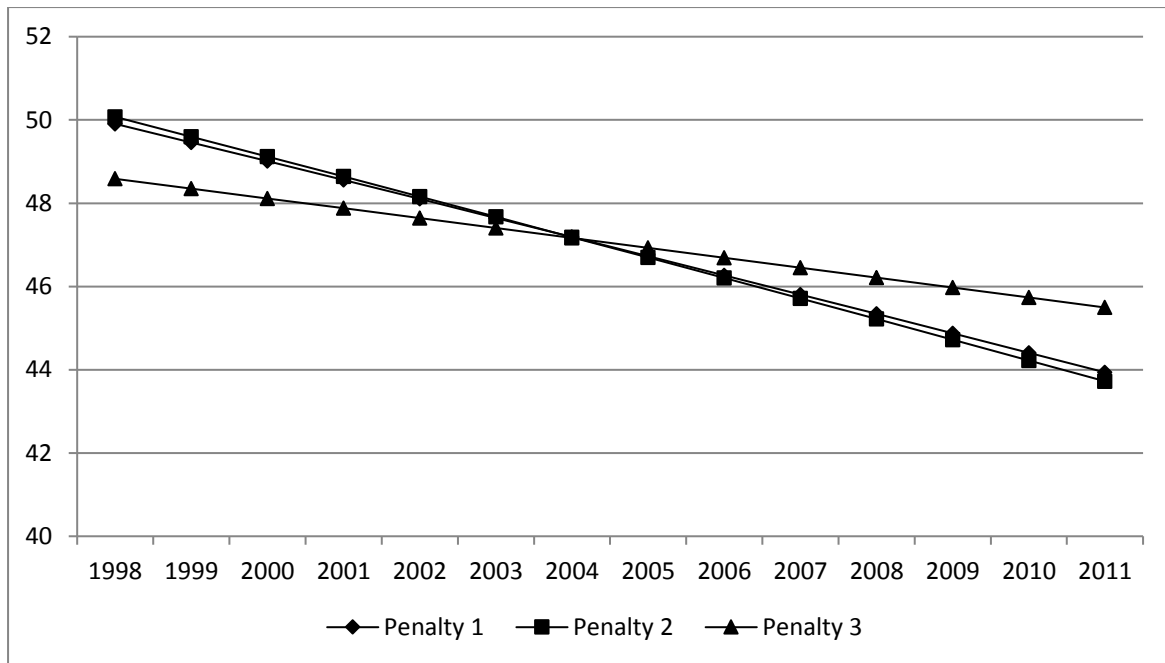
Figure 5. Percentage of those in Employment working Full-time 1998-2011



Source: LFS April-June 1998-2011.

Notes: Individuals self-classify their main job as full or part-time.

Figure 6. Disability employment penalties 1998-2011



Source: LFS April-June 1998-2011.

Table 1 Four health-related employment differentials

	Raw difference in employment rates	Differences in employment rates adjusted for differences in characteristics
Long lasting ill-health or impairment	Impairment gap	Impairment penalty
Long lasting ill-health or impairment which is both work limiting and activities-of-daily-living limiting	Disability gap	Disability penalty

Table 2. Prevalence rates and Employment Gaps by Type and Severity of Impairment and Disability

	Prevalence of impairment	Impairment gap	Prevalence of disability	Disability gap	Prevalence of more than one condition*	More than one condition additional gap*	Prevalence of more than two conditions*	More than two conditions additional gap*	Prevalence of mental impairment*	Mental impairment additional gap*
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1998	22.96	27.22	11.33	50.36	49.76	30.31	28.85	35.90	8.47	34.71
1999	24.67	25.01	11.52	49.33	46.07	28.51	25.59	35.79	8.27	36.53
2000	25.61	24.77	11.61	49.69	43.82	28.47	23.74	35.42	8.19	35.57
2001	26.08	24.55	11.74	49.69	43.94	29.25	24.08	36.68	8.61	34.07
2002	26.44	23.20	11.61	49.09	44.02	29.10	24.45	36.80	8.99	35.08
2003	26.37	22.77	11.69	47.35	45.79	27.67	26.21	33.88	9.12	34.88
2004	26.56	22.15	11.90	46.90	46.73	27.45	26.61	34.00	9.44	37.84
2005	26.78	21.68	11.58	47.38	45.50	27.56	25.46	34.18	9.95	37.39
2006	27.00	20.85	11.57	46.48	45.29	26.05	25.53	33.24	9.77	36.03
2007	26.92	20.62	11.27	46.91	44.14	25.93	24.39	34.13	10.36	36.28
2008	26.58	20.36	11.05	46.67	45.78	25.61	25.44	32.70	10.93	35.11
2009	26.71	19.12	11.07	45.14	45.25	24.27	25.27	30.76	11.29	35.51
2010	30.08	16.72	11.64	44.17	46.95	22.81	25.85	30.71	10.99	34.05
2011	30.14	16.93	11.59	43.90	46.17	24.76	26.20	32.23	11.65	36.02
Percentage point change	7.18	-10.29	0.26	-6.46	-3.59	-5.55	-2.65	-3.67	3.18	1.31
% change	31.30	-37.80	2.29	-12.83	-7.23	-18.32	-9.20	-10.22	37.41	3.76

Source: LFS April-June 1998-2011.

Notes: % of working-age population * % impaired working-age population

Table 3. Change in Occupational Structure and Relative Representation by Disability and Impairment 2001-2010

Standard Occupation Group (one digit)	Impairment		Disability		% change in occupational concentration 2001-2010
	2001	2010	2001	2010	
Managers & senior officials	0.88	1.00	0.76	0.76	13.48
Professionals	0.84	0.89	0.64	0.65	18.73
Associate professionals	0.87	0.93	0.77	0.88	10.88
Administrative & secretarial	1.07	1.04	1.07	1.13	-20.84
Skilled trades	1.03	0.94	1.08	1.09	-9.32
Personal services	1.10	1.10	1.06	1.23	20.90
Retail and distribution	0.97	0.99	1.11	1.29	-4.84
Production & process operatives	1.16	1.21	1.35	1.27	-21.20
Elementary occupations	1.20	1.06	1.42	1.22	-7.83

Source: LFS April-June 2001 and 2010.

Notes: 1.00 represents equal representation by impaired/non-impaired or disabled/non-disabled groups. The percentage change in occupational concentration relates to all workers. 2001-2010 is the longest period where a consistent definition of occupation is available.

Appendix Marginal effects from probit employment regressions 1998 and 2011

Table A1. Disability employment gap

	Male		Female	
	1998	2011	1998	2011
Disabled	-0.557*** (-84.81)	-0.491*** (-61.84)	-0.450*** (-65.84)	-0.386*** (-46.10)
N	43,893	30,807	43,006	29,994
Pseudo R ²	0.15	0.11	0.07	0.06

Source: April-June LFS 1998 and 2011

Notes: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent

Table A2. Disability employment penalty

	Male		Female	
	1998	2011	1998	2011
Disabled	-0.526*** (-68.40)	-0.479*** (-52.56)	-0.451*** (-59.73)	-0.412*** (-44.83)
Age 25-34	0.146*** (34.26)	0.194*** (42.44)	0.138*** (18.89)	0.204*** (29.51)
Age 35-44	0.149*** (30.24)	0.213*** (40.82)	0.205*** (27.73)	0.252*** (35.50)
Age 45-54	0.114*** (19.20)	0.198*** (33.36)	0.158*** (18.41)	0.256*** (33.83)
Age 55-64	-0.052*** (-5.36)	0.050*** (5.42)	-0.026** (-2.06)	0.140*** (14.17)
Non-white	-0.142*** (-12.68)	-0.121*** (-11.49)	-0.180*** (-15.54)	-0.175*** (-16.63)
Degree or equivalent	0.133*** (31.33)	0.168*** (27.23)	0.241*** (45.68)	0.299*** (44.96)
Other higher education	0.117*** (24.49)	0.141*** (22.49)	0.246*** (48.26)	0.252*** (43.08)
A level	0.118*** (25.57)	0.145*** (22.36)	0.173*** (29.03)	0.245*** (35.57)
GCSE A-C	0.106*** (23.37)	0.114*** (16.93)	0.211*** (37.65)	0.206*** (25.99)
Other	0.096*** (20.47)	0.104*** (14.76)	0.140*** (22.34)	0.150*** (17.11)
Married	0.142*** (21.51)	0.150*** (20.43)	0.041*** (5.40)	0.025*** (3.13)
Separated/widowed/divorced	0.027*** (3.66)	0.042*** (4.94)	-0.006 (-0.62)	0.027*** (2.72)
Dependent child	-0.018*** (-3.61)	-0.008 (-1.28)	-0.222*** (-38.53)	-0.170*** (-25.64)
Tyne and Wear	-0.011 (-0.66)	-0.017 (-0.81)	0.010 (0.50)	0.022 (0.99)
Rest of North East	0.004 (0.26)	0.007 (0.36)	0.049*** (2.81)	0.032 (1.52)
Greater Manchester	0.011 (0.82)	0.019 (1.21)	0.066*** (4.40)	0.054*** (3.10)
Merseyside	-0.037** (-2.06)	0.020 (1.04)	-0.010 (-0.52)	0.076*** (3.76)
Rest of North West	0.038*** (3.33)	0.026 (1.64)	0.065*** (4.47)	0.076*** (4.70)
South Yorkshire	-0.010 (-0.60)	0.007 (0.35)	0.021 (1.12)	0.069*** (3.46)

West Yorkshire	0.045*** (3.85)	0.002 (0.10)	0.077*** (5.07)	0.073*** (4.24)
Rest of Yorkshire and Humberside	0.043*** (3.37)	0.024 (1.37)	0.051*** (3.05)	0.080*** (4.23)
East Midlands	0.068*** (7.26)	0.046*** (3.39)	0.086*** (6.62)	0.085*** (5.73)
West Midlands Metropolitan County	0.057*** (5.54)	0.017 (1.04)	0.080*** (5.68)	0.042** (2.33)
Rest of West Midlands	0.078*** (8.29)	0.043*** (2.87)	0.083*** (5.87)	0.085*** (5.18)
Eastern	0.080*** (9.35)	0.066*** (5.38)	0.063*** (4.74)	0.083*** (5.73)
Outer London	0.047*** (4.62)	0.033** (2.32)	0.076*** (5.87)	0.033** (2.04)
South East	0.080*** (9.27)	0.055*** (4.38)	0.077*** (6.18)	0.071*** (4.93)
South West	0.071*** (7.82)	0.037*** (2.67)	0.070*** (5.21)	0.063*** (4.08)
Wales	0.004 (0.32)	0.008 (0.51)	0.037** (2.42)	0.069*** (4.09)
Strathclyde	-0.015 (-1.04)	0.004 (0.24)	0.037** (2.37)	0.047** (2.54)
Rest of Scotland	0.030** (2.57)	0.033** (2.19)	0.069*** (4.82)	0.095*** (6.03)
Northern Ireland	0.035*** (2.89)	0.003 (0.17)	0.017 (1.01)	0.053*** (3.01)
N	43,412	30,329	42,628	29,606
Pseudo R ²	0.27	0.26	0.17	0.19

Source: April-June LFS 1998 and 2011

Notes: *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent
Reference categories aged 16 to 24, no qualifications, single never married, Inner London

Notes

¹ See Table 2 below.

² Figure 1.8 (p. 19) in the introductory chapter reports disabled employment rates well below those of other groups.

³ It is not possible to compare the pre-1998 trend of a rising employment gap with the post-1998 decline using the LFS due to multiple changes in the measurement of disability and impairment prior to 1998 (see Cousins et al, 1998 for details)

⁴ This classification avoids the exclusion of those whose official status is inactive though they are able and willing to work, the 'hidden unemployed'.

⁵ This is because employment rates for non-impaired women are lower than for men.

⁶ Further investigation using an Oaxaca (1973) decomposition methodology suggests that about half the growth in employment among disabled or impaired individuals can be attributed to

changes in the composition of personal characteristics, with improvements in education being the key driver.

⁷ Burchardt (2000:13) reports a similar trend between 1985 and 1996/7.