Diverse disability

Richard Berthoud

Institute for Social and Economics Research,
University of Essex

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Non-technical summary

It is well known that disabled people are less likely to have a job than other men and women of working age. Employment disadvantage is a problem for disabled people themselves, as well as for government. Policy has long been based on the assumption that people are either capable, or incapable, of work. This paper extends earlier analyses which show that the probability of employment is a variable, not an absolute.

The paper suggests that thinking about disability would be clarified if distinctions were maintained between six concepts: condition, impairment, severity, barriers, disadvantage and disability. This analysis focuses on the labour market disadvantage associated with impairment. It is based on a dual perspective in which impairments may have a direct effect on life chances (the medical model), but where artificial barriers also stand in the way of disabled people's progress (the social model).

The research analyses the first wave of the new official detailed survey of disabled people, the Life Opportunities Survey. Respondents were defined as "disabled" if they had at least one impairment which was at least "moderately" severe and limited their activities at least "sometimes". 21 per cent of the sample fitted this definition – this is a relatively broad definition in comparison with other surveys, and probably includes a relatively large number of not-very-severely disabled people. A logistic regression equation was used to estimate the probability of employment of disabled people, in comparison with that of non-disabled people, taking into account the demographic characteristics that affect job-chances for both groups – family structure, age, education and ethnic group.

50 per cent of disabled people (aged 20-59) had a job (16 plus hours). 73 per cent of the same group of people would have had a job if they had the same demographic characteristics but had no disadvantage associated with their impairments. But the "disability employment penalty", averaging 23 percentage points, varied widely:.

- Disabled people with poor educational qualifications were more disadvantaged than well-educated disabled people, even after taking account of the penalty already associated with low levels of education.
- People who could not perform some tasks at all, and who were affected all the time, were more disadvantaged than those with less severe or less frequent limitations on their activities.
- Mental health conditions, limited mobility and behavioural problems were associated with higher penalties than other impairments. The more impairments a respondent reported, the less likely they were to have a job.
- Those who had impairments just one year (in a sequence of three) were not disadvantaged at all. It was those who were disabled three years running who suffered most.

Taking account of all these factors, it was possible to calculate a personal employment penalty for each member of the sample. About a third faced penalties of up to 10 percentage points and should perhaps not be considered "disabled" at all. The top third faced penalties of between 35 and 68 percentage points, many of who might be considered "incapable" of work. In between there was a group with serious but not forbidding penalties. This "50:50" group may be the primary focus of policy interest.

Diverse Disability

Evidence on employment outcomes
from the Life Opportunities Survey

Richard Berthoud

Institute for Social and Economic Research

University of Essex

Contact: berthoud@essex.ac.uk

Abstract

Policy has long been based on the assumption that disabled people are either capable, or incapable, of work. This paper extends earlier analyses which show that the probability of employment is a variable, not an absolute. The disability employment penalty varies by number, type, severity and duration of impairments. Many impaired people's job prospects are scarcely affected, and they are probably not "disabled" at all. Others have very low chances of employment, and fit the concept of "incapacity". In between is a group who face serious barriers, without work being ruled out altogether. This "50:50" group may be the primary focus of policy interest.

Aims

It is well known, and well documented, that disabled people are less likely to have a job than other men and women of working age. There was a steady fall in the employment rate among disabled people between the 1970s and the mid-1990s, and the number of people claiming incapacity benefits rose rapidly over the same period. The figures have stabilised, but have hardly responded to 20 years of efforts by governments of all parties to encourage or cajole disabled people into a job.

Employment disadvantage among disabled people is a major problem for disabled people themselves (poverty, social exclusion) as well as for government (benefit payments, reduced labour supply). These two sets of problems are addressed respectively by the Office for Disability Issues, encouraging the integration of disabled people into the labour force under the general heading of "Fulfilling Potential"; and by the Department for Work and Pensions, imposing an increasingly restrictive regime of conditions on claimants of incapacity benefits under the general heading of "Welfare to Work".

Social security policy has long been based on the assumption that disabled people are either wholly capable, or wholly incapable, of work. In principle, the first group should compete on level terms with other men and women with similar qualifications and other characteristics, and enjoy the same high employment rates without a disability penalty. If (exceptionally) they were out of work, they would be subject to the same low benefit rates and stringent conditions as non-disabled unemployed people. In principle, the second group should expect an employment rate close to zero. For many decades non-working people judged incapable of have work have enjoyed slightly higher rates of benefits, and have not been expected to look for a job.

This paper uses new data to build on earlier work analysing the relationship between individuals' impairments and their employment prospects, to question whether the evidence supports this binary view of labour market disadvantage. Although it takes a largely empirical approach, the results have important implications for theoretical constructs of disability as well as for labour market and social security policy.

What is "disability"?

At the risk of sounding academic and pedantic, it is helpful to establish a vocabulary with which to distinguish between different concepts associated with disability. The box proposes a series of six concepts, each one potentially an outcome of the previous one.

Condition refers to a physical or mental illness or abnormality such as a broken back, glaucoma, mental illness and so on. It is a medical classification.

Impairment refers to tasks that the person concerned cannot do − cannot walk, cannot see, cannot leave the house and so on. It is a practical classification.

Words	
	Example
"Condition"	eg Broken back
"Impairment"	eg Unable to walk
"Severity"	eg Ranging from a limp to unable to walk at all
"Barriers"	eg Inaccessible buses
"Disadvantage"	eg Can't get a job
"Disability"	People with impairments are often disadvantaged

Conditions often lead to impairments (eg broken back > cannot walk) but they are not the same thing. Some conditions are not associated with impairment, at least in their early stages (eg hypertension). The same impairment may be associated with several different conditions (eg difficulty in walking may be caused by a broken back, a congenital absence of limbs, heart disease, lung disease, neurological disease). Impairment is often but not always associated with ill-health (eg someone born without an arm may feel perfectly healthy).

Impairments may vary between the slight and the *severe* (eg has difficulty walking or seeing / cannot walk or see at all). It stands to reason that if impairments are associated with disadvantage, those with severe impairments will be more disadvantaged than those with slight impairments

People with certain impairments may face certain *barriers* in their attempt to lead an ordinary life. For example people unable to walk and using a wheelchair may not be able to get on or off a bus, and face serious mobility problems as a result. The important point is that some barriers are unnecessary and could be lowered as a consequence of policy decisions (eg accessible buses). Technology is increasingly important in eliminating such barriers. But some other barriers are intrinsic and cannot be affected by policy (eg no blind person will ever be offered a job as a bus driver).

Impaired people face all sorts of *disadvantages.* This paper focuses on employment, and distinguishes disadvantages experienced by disabled people from those faced by other groups analysed by gender, age, education and so on. It can be assumed, but needs to be established, that disabled people also face disadvantage in income, social participation, need for care and so on.

Disability is then an overarching concept encapsulating the fact that people with impairments are commonly disadvantaged in various domains. It is almost an abstract, equivalent to "inequality", referring to the distribution of life chances rather than to individuals with specific impairments, though the term "disabled people" identifies the people affected.

This vocabulary is proposed to clarify thinking about the nature of disability, and to help identify lines of policy development. In practice, popular and professional discourse frequently uses some of these terms interchangeably: often confusing *condition* and

impairment (eg listing blindness as a condition, or mental illness as an impairment); and often referring to *impairments* as *disabilities* (eg people with disabilities).

The key issue is the relationship between *impairment* and *disadvantage.* There are two theories. According to the medical or personal model of disability, the impairment directly causes the disadvantage (ie the fact that you cannot walk stops you from getting on a bus to travel to work, and prevents you from undertaking tasks valued by an employer). According to the social model of disability, disadvantage is caused by discriminatory barriers imposed by institutions on people with impairments (ie inaccessible buses, work tasks constructed on the assumption that people can walk). It is not so much that you cannot work, as that you cannot get a job.

The medical model is the basis for the sequence of social security benefits awarded on grounds of incapacity. It is often assumed by people, including many politically inactive disabled people, who do not explicitly refer to the perspective as the medical model – they are hardly aware of the alternative social model. The social model is the basis for the Disability Discrimination Act and subsequent equalities legislation. It is asserted with almost evangelical fervour by many organisations of and for disabled people, who deny that impairment as such has any role to play in explaining disadvantage. In between are commentators, including the Office for Disability Issues, who announce that they adopt the social model, but retain an interest in impairment's direct role in determining outcomes.

The perspective of this paper is that both the medical and the social model help to explain patterns of disadvantage. You have to be impaired before you can be disabled, and it would be surprising if variations in impairment characteristics were not associated with variations in outcomes. Social model fundamentalists tend to deny the relevance of personal characteristics such as type and severity of impairment, because they see the problem to lie outside the individual, in social barriers. At the same time, the social model has been immensely useful for policy, in focussing on what can be done to enable people to work, travel and so on. (Note the converse between *dis*abled and *en*abled.) So it is not a question of choosing between the medical and social models of disability; it is essential to recognise the combination of both.

The empirical sections of this paper demonstrate the relevance of impairment characteristics to outcomes, and so help to re-establish the contribution of the medical model. In doing so, it does not at all detract from the validity and value of the social model.

Data

The ONS Life Opportunities Survey (sponsored by the Office for Disability Issues) is the latest of four specialist surveys of disabled people undertaken in Britain over the past 35 years. It is the first to interview non-disabled people for comparison with disabled people, to re-interview the same respondents at yearly intervals, and to ask direct questions about respondents' perception of discrimination. The analysis here was based on the first wave of the LOS, conducted over 24 months between 2009 and 2011.

The analysis was confined to survey respondents who gave a full interview, and who were aged between 20 and 59. The analysis used the calibration weights supplied with the data set, but excluded two observations, one with a negative weight, and one with an unrealistically high weight. Records for whom any of the relevant answers were missing were also excluded. The total effective sample size was 18,621, of whom 4,811 were defined as disabled..

The analysis was based on a logistic regression equation predicting the probability of an individual being "in work". Work was defined for this purpose as employment or self-employment for at least 16 hours per week, or participating in education. The methods are closely modelled on previous analysis of employment penalties reported in the papers cited on page 2.

Survey respondents were defined as "disabled" if they reported at least one impairment (from a list of 14 possibilities) which was at least "moderately" severe, and which also limited their activities at least "sometimes". 21 per cent of men and women in the age-group (20-59) were considered "disabled" according to this definition. This is at the upper end of the range of estimates of the prevalence of disability, and indicates that the LOS question sequence may have included a relatively large number of individuals with relatively minor impairments.

Basic analysis

The first table below shows a basic analysis in which the probability of being in work is found to vary according to demographic characteristics, of which disability is treated as a

simple either/or condition. These are well-established findings which provide a base-line for the more detailed analysis by disability characteristics in the subsequent tables. Considering first non-disability characteristics:

Table 1 Logistic regression equation predicting the probability of being in work – disability defined as a simple either/or condition

	Coefficient			Coefficient
Family structure			**Age** (per year)	
Single man	-0.68		20-45	0.00
Partnered man (base case)	0		45-59	-0.06
			Ethnic group	
Single woman	-0.49		White (base case)	0
Partnered woman	-0.46		Mixed	-0.44
Age of youngest child (per year, women only)	0.09		Asian man	-0.38
Education			Asian woman	-0.79
No qualifications	-0.75			
Qualifications below O level/GCSE	-0.06 ns		Black man	-0.87
O level/GCSE (base case)	0		Black woman	-0.13 ns
A level/further education	0.38		Other	-0.28
Degree etc	0.50		Constant	0.32
Disability				
Any impairments	-1.08		Pseudo R^2	13.9%
Interaction between impairment and education	0.21		Sample size	18621

- Women, and men without a partner, are less likely to be in work than men with a partner
- The older a woman's children are, the more likely she is to be in work.[1]
- Employment rates do not really vary by age up to the age of 45, but decline steadily after that, even after allowing for the increasing prevalence of impairment.
- In general, members of ethnic minorities are less likely to have a job than white people with otherwise similar characteristics, but this disadvantage varies by specific ethnic group and gender.[2]

[1] Men, and women with no children, are treated in the analysis as though their youngest child was 19.
[2] The LOS does not provide as much detail of ethnic groupings as would normally be considered essential for this analysis. In particular, Indians tend to have much higher employment rates than Pakistanis and Bangladeshis, so "Asian" does not summarise the position of either group.

- People with higher educational qualifications are much more likely to be in work than those with no qualifications.

- These conclusions about the demographic influences on employment rates mainly remain true even after the more detailed evidence about impairment has been taken into account in later tables.

- The analysis shows that people reporting any impairment are disadvantaged in the labour market compared with others who are like them in other respects. Averaged across all disabled people (including those with minor impairments) the overall employment rate was 50 per cent. The regression analysis estimates that the same people would have had a 73 per cent chance of being in work if they had had no impairments – so the disability employment penalty was 23 percentage points.

This disadvantage was less for impaired people with higher educational qualifications than for impaired people with none, even after taking account of the general benefit of qualifications.[3] While the overall average disability employment penalty was 23 percentage points, this varied considerably according to whether the disabled person concerned was well- or poorly-educated.

Table 1a Employment penalty experienced by disabled people with different educational qualifications

	Penalty
No qualifications	33%
Lower	28%
O Level/GCSE	23%
Further	16%
Degree etc	11%
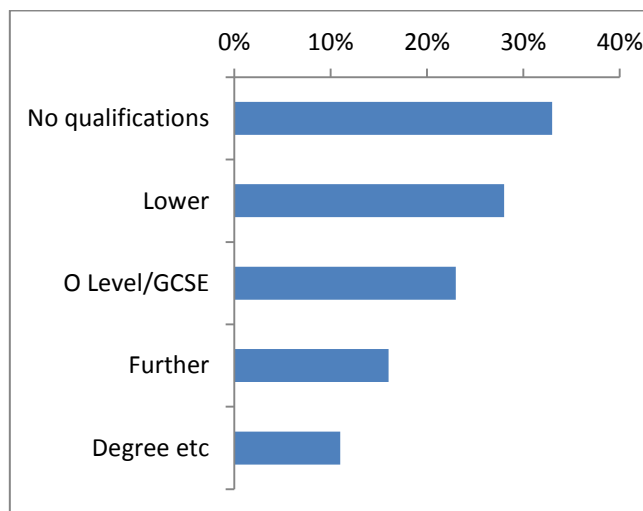
Derived from the logistic regression equation in Table 1

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[3] The interaction between impairment and education is estimated by assuming a range of scores between -2 for no qualifications through to +2 for higher qualifications

**Considering alternative ways of characterising people with impairments**

The logistic regression equation summarised in Tables 1 and 1a takes account of a series of demographic characteristics (from family position to educational qualifications), and then distinguishes between disabled and non-disabled people simply on the basis of whether respondents reported any impairment which caused at least "moderate" difficulties and limited their activities at least "sometimes". The next sequence of analyses all continue to take account of the same set of demographic characteristics, with very similar coefficients which will not be repeated in subsequent tables. Tables 2 to 5 each assess the variations in employment penalties according to alternative ways of classifying impairments. Each table substitutes a different classification – they are not (yet) analysed all at the same time.

Severity of impairment

The majority of people classified here as "disabled" reported impairments which were no worse than "moderate"; only small numbers were completely unable to perform the relevant function (eg completely blind). If there was some function that the disabled person could not do at all, the penalty was estimated to be 38 percentage points, compared with 9 points if the worst impairment was only "moderate" (Table 2).

Table 2 Logistic regression equation estimating the employment penalty experienced by disabled people with different severities of impairment

	Fre-quency	Coeff	Penalty
Moderate	16.9%	-0.464	9%
Severe	9.6%	-1.536	32%
Cannot do	0.6%	-1.820	38%
Pseudo R^2		14.2%	
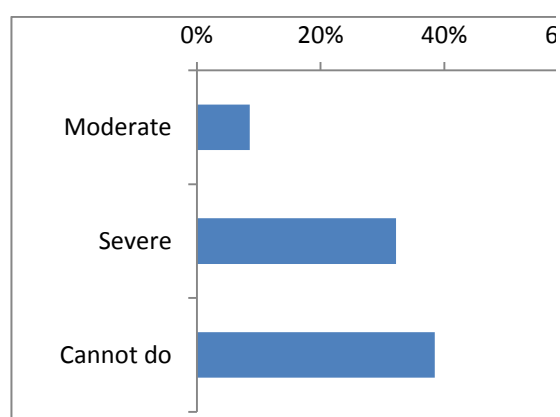
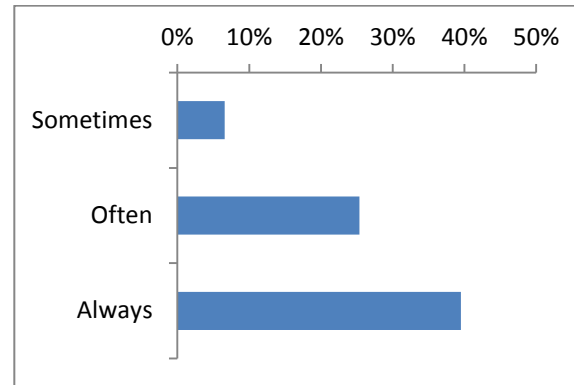Controlling also for demographic characteristics as shown in Table 1

Frequency of impairment

The group of disabled people (as defined) split roughly half and half between those who were (at worst) only "sometimes" limited in their activities, and others who were "often" or "always" affected. If there was some activity that was "always" limited, the penalty was 40

percentage points, compared with 7 percentage points if the limitations were only "sometimes" (Table 3).

Table 3 Logistic regression equation estimating the employment penalty experienced by disabled people with different frequencies of limitation

	Fre-quency	Coeff	Penalty
Sometimes	14.3%	-0.370	7%
Often	6.6%	-1.231	25%
Always	6.8%	-1.874	40%
Pseudo R^2		15.1%	

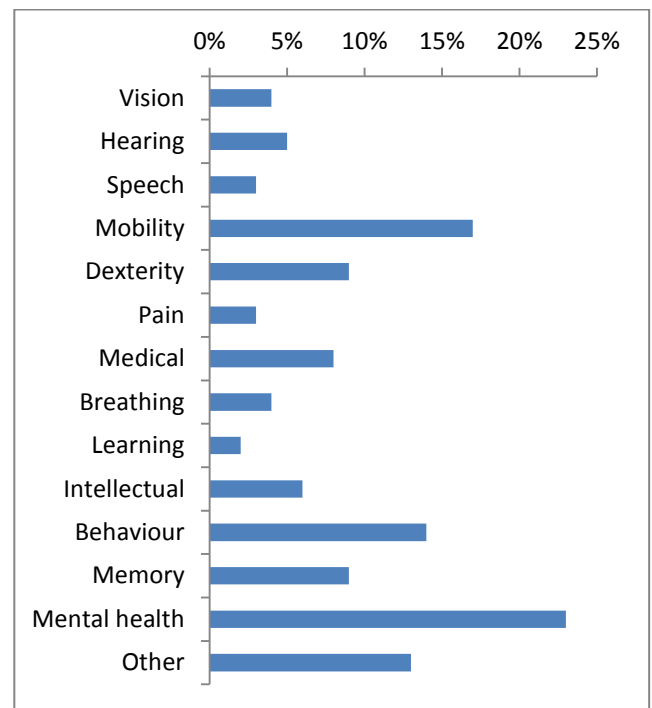Controlling also for demographic characteristics as shown in Table 1

Type of impairment

Types of impairment varied in frequency between "pain" (1 in 7 of this age group) and "intellectual" (about 1 in 30). (Note that the LOS has not strictly distinguished between conditions and impairments, as suggested earlier.) Every type of impairment was associated with a reduction in employment chances (compared with people who did not report that type of impairment). But mental health conditions, mobility problems and behavioural issues indicated the most serious penalties (Table 4). Mental health conditions and mobility were also among the relatively common impairments, and so contribute substantially to the overall employment penalty.

Table 4 on next page

Table 4 Logistic regression equation estimating the employment penalty experienced by disabled people with different types of impairment

	Frequency	Coeff	Penalty
Vision	1.5%	-0.244	4%
Hearing	1.1%	-0.304	5%
Speech	0.7%	-0.263	3%
Mobility	5.0%	-1.023	17%
Dexterity	3.8%	-0.588	9%
Pain	13.5%	-0.195	3%
Medical conditions	9.3%	-0.445	8%
Breathing	1.6%	-0.282	4%
Learning	1.7%	-0.139	2%
Intellectual	0.3%	-0.413	6%
Behaviour	0.9%	-1.123	14%
Memory	2.3%	-0.642	9%
Mental health condition	4.5%	-1.347	23%
Other	0.9%	-0.910	13%
Pseudo R^2		17.1%	

Controlling also for demographic characteristics as shown in Table 1

Number of impairments

Given that each type of impairment reduced employment rates, it follows that the overall number of impairments was strongly associated with disadvantage. Getting on for half of those defined as disabled reported only one type of impairment, but there were significant numbers with five or more. People reporting five or more impairments were 61 percentage points less likely to have a job than otherwise similar non-disabled people. For people reporting only one impairment, the penalty was only 7 percentage points (Table 5).

The fact that the *number* of impairments reported was very strongly associated with variations in employment probabilities has important implications for future analysis, especially of other surveys. The FRS provides data on impairments, the LFS and the BHPS provide data on conditions. This new analysis of the LOS confirms that the number of problems is quite an effective proxy for the overall seriousness of disadvantage.

Table 5 Logistic regression equation estimating the employment penalty experienced by disabled people with different numbers of impairments

	Fre-quency	Coeff	Penalty
One	10.4%	-0.4	7%
Two	4.1%	-1.0	19%
Three	2.8%	-1.8	38%
Four	1.7%	-2.5	51%
Five plus	2.2%	-3.3	61%
Pseudo R^2		16.6%	

Controlling also for demographic characteristics as shown in Table 1

Duration of impairments

Although survey question sequences are intended to discount short-term health problems, it should not be assumed that all impairments are permanent. Cross-sectional surveys such as the FRS, including the previous specialist surveys of disability, provide only a snapshot of impairments reported on a single occasion, and cannot distinguish between episodes and continuous periods. The Life Opportunities Survey will eventually provide data over a sequence of years, but for the present it is necessary to use the long-established British Household Panel Survey to address this issue.

The analysis here identifies adults (20-59) who were disabled at wave 2 ("this year"), and checks whether they were or were not disabled at wave 1 ("last year") and wave 3 ("next year"). The sample consisted of 4,898 adults in the 20-59 age range, of whom 413 were recorded as disabled "this year". Note that the prevalence of disability is much lower in the BHPS analysis (8 per cent) than in the LOS analysis (21 per cent). This should not be interpreted as a conflict between the sources; the BHPS analysis has evidently chosen a tighter definition of disability, with a higher threshold of impairment, than the LOS analysis. This will tend to mean that overall disability penalties calculated for the BHPS are higher than those estimated for the LOS (because the "extra" disabled people included in the LOS definition will tend to have less disadvantage – see Table 8 below in support of this point). But the BHPS analysis is mainly aimed at comparing the penalties associated with short-term and long-term impairments.

Table 6 looks at all the people identified as disabled "this year" in the BHPS – equivalent to a sample of people identified as disabled in a normal one-off survey.

- Nearly a quarter of those disabled "this year" were not disabled either "last year" or "next year". Using a three-year window, it looks like a one-year episode, though some of those affected may have had intermittent conditions.

- A similar proportion were still disabled "next year", but had not been classified as disabled "last year" – this looks like the start of a period of disability.

- A small number seemed to be ending a period of disability, with the sequence "last year", "this year", not "next year". This is consistent with the expectation that disability, once started, tends to be a long term experience whose prevalence increases with age.

- Nearly half of those found to be disabled "this year" turned out to have been in the same position both the previous year and the subsequent year, and fit the stereotype of long-term disability.

Table 6 Logistic regression equation estimating the employment penalty experienced by disabled people with different durations of impairments (**Source BHPS**)

	Fre-quency	Coeff	Penalty ("this year")
This year only (010)	1.9%	-0.2	3%
This year and next year (011)	2.0%	-1.4	28%
Last year and this year (110)	0.6%	-1.3	29%
All three years (111)	4.0%	-2.2	41%
Pseudo R^2		23.6%	
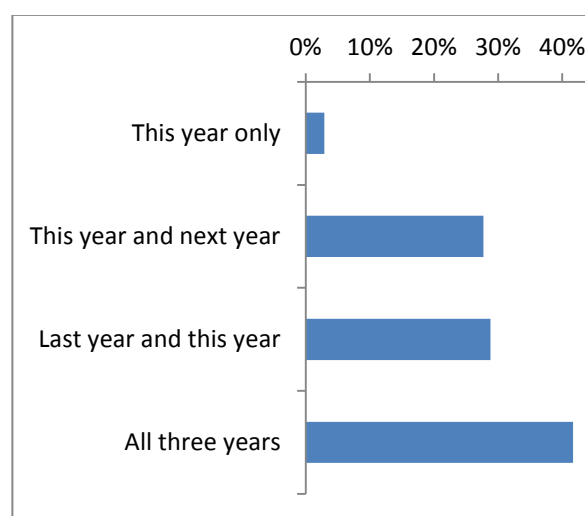
Controlling also for demographic characteristics similar to those shown in Table 1. The penalty for "this year only" is not significant

The striking point emerging from Table 6 is that those who were only disabled "this year", without reporting impairments earlier or later – nearly a quarter of all disabled people – were hardly disadvantaged at all. These apparently short-term episodes had no significant employment penalty. On the basis of this evidence about employment, it is difficult to interpret these episodes as counting towards the total number of disabled people.

There was a significant penalty associated with being disabled two out of the three years – perhaps it is surprising that the apparent start of spell was as disadvantaging as the apparent end of a spell.

But, as one would expect, people in the middle of at least a three-year spell of impairment faced a serious employment penalty.

Directly comparing impairment characteristics

Tables 1-5 were based on a series of logistic regression equations in which five alternative ways of describing impairments were tested one after the other. Table 7 (below) is based on a similar but more ambitious equation, in which four sets of characteristics are considered all at the same time. This allows for the possibility that (for example) the frequency with which activities are limited is highly correlated with the degree of difficulty experienced in performing the relevant function. (It is not possible include the duration of impairments in this concurrent analysis, because Table 6 is derived from a different source.)

To avoid having to analyse and interpret an excessive array of overlapping variables, the new equation has simplified each of the sets of characteristics in a single summary measure, as follows:

- *Interaction between disability and qualifications*: a score ranging between -2 (no qualifications) and +2 (degree), only if the respondent reported at least one impairment.
- *Severity:* a score combining *degree of difficulty* (a score ranging from 1 (moderate) to 3 (cannot do)) and *frequency of limitation*: (a score ranging from 1 (sometimes) to 3 (always)). The two detailed scores are multiplied together to range from 1 (moderate and sometimes) to 9 (cannot do and always).
- *Type of impairment*: scored 1 if one of the three impairments found to have the most adverse effect on employment rates was reported (mental health condition, mobility, behaviour); scored 0 if none of these. Note that none of the other 11 types of impairment was significantly associated with variations in the employment penalty, once the number of impairments had been taken into account. This suggests that the 11 impairments are more or less interchangeable with each other, so far as their effects on employment are concerned.

- *Number of impairments*: a straight count of the number reported, up to a maximum of five (more than five was coded as five).

As before, the analysis also takes account of the background variables (family, age, ethnic group and educational qualifications) reported in Table 1.

Table 7. Logistic regression equation estimating employment disadvantage, taking account of five impairment characteristics simultaneously

	Scoring scheme	Coefficient	Standardised coefficient
Interaction with education	-2 to +2	0.140	0.087
Severity (difficulty * frequency)	0 to 9	-0.105	-0.160
Type of impairment	0 or 1	-0.917	-0.254
Number of impairments	0 to 5	-0.281	-0.301
Pseudo R^2		17.0%	17.0%

The ordinary coefficients in the centre column of the table are an indication of how much better or worse people's employment prospects are for each unit increase in the predictor variable under consideration. The analysis confirms that well-qualified disabled people do better than poorly qualified disabled people; that employment prospects fall, the greater the difficulty in performing functions, and the more frequently someone's activities are limited;[4] that they are worse for people with the three most adverse impairments – mental health condition, mobility and behavioural; and that the employment rate falls with increasing number of impairments. These findings are confirmed, even after taking account of possible overlaps between the characteristics under consideration.

It is difficult to use the ordinary coefficients in the centre of Table 7 to compare the relative importance of the four variables, because the metrics are different. The right hand column shows standardised coefficients based on a rerun of the equation in which each of the four variables has been recalculated to have a mean of 0 and a standard deviation of 1 (Z-scores). By framing each variable in the same way, it can be seen that number and type of impairments are clearly the most important predictors of disabled people's employment probabilities, while severity and education are less important.

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[4] More detailed analysis (not shown in the table) suggests that the combination of severity and frequency is more disadvantaging than either of these considerations taken separately.

The ordinary coefficients are additive across the disability variables. Thus someone with no qualifications, cannot do some function and always limited in their activities, with five impairments including (say) mobility, would have a cumulated coefficient of -3.547, while a graduate with who could perform functions with only moderate difficulty and was only sometimes limited in their activities, with only one impairment (none of the three most serious) would have a cumulated coefficient of only -0.106. These coefficients do not translate exactly into estimates of penalties, but they illustrate the huge ranges of employment prospects, within the defined group of disabled people, depending on the characteristics of their impairments.

This latter finding clearly illustrates that a single average employment penalty estimated for the large group of disabled people is not very representative of the prospects facing individuals. Some are much less disadvantaged than the average implies, indeed, may be so slightly affected by their impairments as hardly to be "disabled" at all. Meanwhile others are much more disadvantaged than the average implies, implying a very serious challenge for policy. The point can be illustrated by calculating a personal employment penalty based on the impairment characteristics of each disabled member of the sample. The range is plotted in Figure A.

F*igure A Distribution of employment penalties among disabled people (based on the logistic regression equation reported in Table 7)*
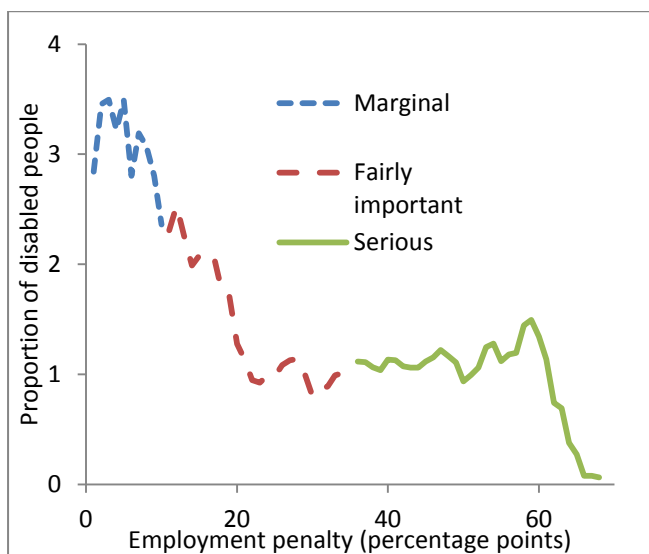
Note: the vertical axis represents the proportion of all disabled people estimated to have an employment penalty within a 1 percentage point range. For example, 2.8% of disabled people have a penalty within the range 1.000 per cent and 1.999 per cent. All figures are smoothed as a three-band rolling average.

A large proportion of disabled people have characteristics which are estimated to reduce their employment chances by less than 10 percentage points. But a significant number of them face employment penalties of 40, 50 or even 60 percentage points. (If it had been possible to include duration of impairments in this analysis, it is likely that there would have been a wider spread, with short-term episodes contributing to the number of low-level penalties, and long-term impairments contributing to the number of high-level penalties.)

The distribution of frequencies in Figure A has been presented as three sequences divided arbitrarily into three groups each representing a total of about one-third of all disabled people. The one-third with employment penalties of up to 10 percentage points have been labelled "marginal"; the one-third with penalties in the range 10 to 35 points have been labelled "fairly important"; the one-third with penalties above 35 percentage points have been labelled "serious". Table 8 summarises the position of the three groups. The first three columns of the table record the range of variation between them. While the construction of the groups is arbitrary, the point is made that the disability employment penalty estimated for the "serious" group is 10 times the estimate for the "marginal" group.

Table 8 Summary distribution of employment penalties (based on the logistic regression equation reported in Table 7)

Label	Per cent of disabled people	Range of penalties within this group	Average penalty within this group	Prevalence of disability including this group	Overall average penalty including this group
Marginal	31	0-10%	5%	20%	25%
Fairly important	36	10-35%	20%	14%	35%
Serious	33	35-68%	50%	7%	50%

The final two columns of Table 8 show what the effects would be if the definition of disability was restricted to a tighter group of people with more disadvantaging impairments. The basic LOS definition of disability reports a prevalence of 20 per cent and an overall penalty of 25 percentage points.[5] If the definition of disability is restricted to exclude the "marginal" group, the prevalence falls to 14 per cent, while the overall penalty rises to 35 percentage points. If the definition is further restricted to include only the "serious" group,

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[5] This is slightly higher than the 23 percentage points reported on page 3 because the logistic regression equation in Table 6 is takes more detailed account of impairment characteristics than the simple version in Table 1

prevalence falls to just 7 per cent of the 20-59 population, but the penalty rises to 50 percentage points.

Obviously these figures and conclusions refer to an analysis of employment outcomes, for the working age group (20-59). Further analysis is required to see whether they can be generalised to other barriers and outcomes for all age groups.

Conclusions

Analysis of the latest specialist survey of disabled people, the Life Opportunities Survey, confirms the findings of previous specialist surveys, and of general surveys, that disabled people face an employment penalty compared to the opportunities available to otherwise similar non-disabled people.

The detailed evidence about impairments in a specialist survey also clarifies what non-specialist surveys obscure: that impairment matters. The employment penalty – the extent of disadvantage associated with disability – varies systematically according to the severity, frequency, type, number and duration of impairments, as well as the market conditions within which the disabled person operates. Rather than quote an average penalty of 25 percentage points, it makes more sense to quote a range of penalties, from less than ten to more than 60 percentage points.

The fundamentalist proponents of the social model of disability deny the relevance of personal impairments, arguing that it is discriminatory social barriers, imposed externally on the disabled person, that are responsible for disadvantage. The new analysis shows that personal impairments are important predictors of disadvantage, and help to re-establish the relevance of the medical model as a partial explanation for disability. But this does not at all detract from the value of the social model's contribution to policy, in identifying unnecessary barriers affecting disabled people's access to employment or other activities.

A substantial proportion of people initially identified as disabled on the basis of their impairments turned out to face small employment penalties – less than ten percentage points, some as low as one percentage point. It has to be considered whether this group is "disabled" (ie disadvantaged by their impairments) at all, and whether they should be counted in survey estimates of the number of disabled people in the country. Including hardly-disabled people

exaggerates the numbers and understates disadvantage, compared with a more rigorous definition. It does seriously disabled people no favours at all to pretend that their employment rats are higher than they are.

The government aims to narrow the employment gap between disabled and non-disabled people. That is at best a vague aim, but it is important for actual policies to take account of the wide range of penalties (or gaps), identified by this research. Is it the intention to target those identified as being only marginally disadvantaged and who are potentially most easily slotted into the workforce? Or will policy address the serious disadvantage identified at the other end of the scale, where success rates are likely to be low, but where each job found will make a big difference to someone's life. Unless the strategy is explicit about where in the spectrum the policy will be aimed, it is possible that energy and resources will be dissipated.

The findings have implications for benefits policy, too. The range of employment penalties is inconsistent with the view entrenched for many years in social security legislation that people are either wholly capable of work or wholly incapable. For those whose impairments imply only a small penalty, the obvious policy is to help and encourage them into work, including action by employers to accommodate them. For those whose impairments imply a large penalty, it would be wrong to abandon all hope of employment, but the priority is to provide generous and stable support – a state pension for disabled people equivalent to that for people deemed outside the labour force on the grounds of old age. The crucial group for policy consists of disabled people whose impairments severely restrict employment opportunities without eliminating them altogether. We can stylise their position as having a 50:50 chance of employment. Indeed the current benefit system now distinguishes between three types of potential claimant: those judged capable of work; those judged incapable of work but capable of work-related activity (eg job-search, training); and those judged incapable even of work-related activity. Far more research is required to identify the 50:50 group more precisely, to find out what distinguishes those with a job from those without, and to show what policy actions, aimed at individuals or at employers, would make a difference.