ARTICLE

Melanie Jones

School of Business and Economics,
Swansea University

Disability, education and training

SUMMARY

This article uses data from the 2008 Quarterly Labour Force Survey (QLFS) to examine differences in human capital between disabled and non-disabled individuals of working age. The initial focus of the paper is on how the level of educational attainment differs between the two groups. It goes on to consider differences in the accumulation of human capital, both through post-compulsory education and through job-related education and training.

Introduction

There is both academic and government interest in identifying and explaining the differences in labour market outcomes between disabled and non-disabled individuals. This is unsurprising, since some of the differences are stark. For example, the employment rate among disabled people is typically less than 50 per cent compared to nearly 80 per cent among the non-disabled group (see, for example, Smith and Twomey, 2002). In investigating the reasons for this disadvantage, studies have consistently identified the importance of a gap in educational attainment between the two groups, with disabled people being less likely to hold academic qualifications (see, for example, Jones et al., 2006). Policymakers are also aware of this issue, with one of the elements in *Improving the Life Chances of Disabled People* by the Prime Minister's Strategy Unit (2005) being to enhance the employability of disabled people through improvements in training and lifelong learning.

This article uses recent data from four quarters of the 2008 Quarterly Labour Force Survey (QLFS) to examine differences in the stock of human capital (as measured by highest educational qualification) between disabled and non-disabled individuals. However, human capital is a dynamic concept; an individual's knowledge and skills can be enhanced through education and training or through less formal mechanisms such as work experience and learning by doing. As such, this article goes on to consider differences in the

accumulation of human capital between the disability groups.

Description of the data

The Labour Force Survey is a quarterly survey of 52,000-53,000 households (approximately 120,000 individuals). The statistics presented in this paper represent average values of the 4 quarters in 2008 to eliminate seasonal variation. It should be acknowledged that some of the figures will be affected by the economic recession experienced at this time; however, figures relating to the stock of human capital are likely to be less sensitive than some other labour market indicators since they reflect an accumulation of education over a lifetime. The data are weighted in each quarter to be representative of the total population. Throughout the analysis the sample is constrained to those of working age, that is, males aged between 16 and 64 and females aged between 16 and 59.

Although there are several alternative definitions of disability (see Tibble, 2004 for a review), the Disability Discrimination Act (DDA) definition of disability available in the LFS is used throughout this analysis. The DDA definition refers to a disabled person as someone who has a 'physical or mental impairment that has a substantial and long-term adverse effect on his or her ability to carry out normal day-to-day activities'. The rest of the population form the non-disabled group¹. On the basis of this definition, just under 16 per cent of the working age population (or nearly 6 million people) are disabled and, consistent

with previous evidence, the prevalence of disability increases with age from about 7 per cent amongst the youngest group (aged 16-24) to 32 per cent among the oldest group (aged 55-64). About 70 per cent of people with a DDA disability report having a disability that affects the type or amount of work they can do, making them disabled according to both DDA and work-limiting definitions.

Highest qualifications

The LFS collects a comprehensive range of indicators on educational attainment. The initial focus of this paper is on highest educational attainment represented by the broad groupings, from the lowest level of no qualifications, to the highest level of qualifications at degree level. The proportion of disabled and non-disabled people of working age in each of these groups is presented in **Table 1**. There is a dramatic difference in the stock of human capital between disabled and non-disabled people, measured at a single point in time. Nearly 12 per cent of disabled individuals have a degree or equivalent level of education, compared with just over 22 per cent of the non-disabled group. Disabled people are, instead, far more likely to have no qualifications, with nearly one quarter having no qualifications compared to less than 10 per cent of the non-disabled group. It is, however, worth noting the gap in educational attainment between disabled and non-disabled individuals in employment is much narrower². For both groups those in employment have, on average, a higher level of educational attainment, but this is particularly the case for disabled individuals. Less than 10 per cent of disabled workers have no qualifications compared to 38 per cent of the non-employed group, illustrating that it is a subgroup of more qualified disabled people that are in employment.

The reasons for this gap in educational

attainment are more difficult to distinguish. For disabled individuals who have been disabled from birth, the disability itself may affect formal schooling in childhood and, thus, the accumulation of education. However, other individuals will experience age onset disability and, as such, their disability will not have directly affected their accumulation of education in their early years. It may, however, be the case that education and disability are jointly determined, or that, having a low level of education increases the risk of age onset disability. Indeed, Jenkins and Rigg (2004) use data from the British Household Panel Study and find that those with low educational qualifications are more at risk of becoming disabled. As such, those who become disabled later in life are likely to be a non-random group of those with particularly low levels of human capital, contributing to the pattern evident in **Table 1**. Consistent with this, Loprest and Maag (2007) use US data on the age of disability onset and find very little difference in the educational attainment among disabled individuals aged over 45 depending on whether their disability was early (before age 22) or late (after age 22) onset.

Although no information is available about the timing of disability onset in the 2008 LFS, **Table 2** considers highest academic qualifications by age and disability. The gap in educational attainment by disability status is evident even among the youngest age group (16-24), where the percentage of disabled people having a degree is about half that of the non-disabled group. This is matched by more than twice the percentage of disabled individuals having no qualifications compared to their non-disabled counterparts. Although highest educational attainment varies across the age groups due to cohort effects, the comparisons by disability status are broadly similar across the age distribution,

suggesting low educational attainment is an issue for the entire disabled group.

The situation may, however, be more acute for individuals with certain types of disabilities and **Figure 1** presents highest qualifications by the type of main health problem reported³. There is considerable variation within the disabled group, with those having health problems relating to mental health faring particularly badly. Just over 37 per cent of this group report having no qualifications and only 8 per cent have the highest (degree level) qualifications. This is not surprising since this group includes those with learning difficulties (see **Box 1** for definitions) although, even after excluding this group, individuals with other mental health problems are less well qualified than those with the physical disabilities. This is likely to contribute to the particularly acute labour market difficulties identified among this group (see Jones *et al.*, 2006) and, consistent with this, the employment rate for this group falls to about 20 per cent. Of those with physical disabilities, individuals with health problems relating to 'limbs' are the least well qualified, with 27 per cent reporting having no qualifications.

The severity of disability is also likely to be an important determinant of educational attainment. Unfortunately, the LFS does not contain a direct measure of the severity of the disability but a proxy is created by calculating the total number of health problems reported by each disabled individual. Using this measure Berthoud (2003) demonstrates that employment is strongly negatively related to the severity of the disability. **Figure 2** presents the highest qualification by number of health problems. The proportion holding qualifications at degree level decreases continuously as the number of health problems rises from 1 to 5 or more, while the proportion with no qualifications increases continuously.

Table 1
Highest qualification by disability status, 2008¹

	DDA Disabled						Non-disabled					
	All		Employment		Non-employment		All		Employment		Non-employment	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Degree or equivalent	704,697	11.83	510,534	17.95	194,163	6.24	7,024,882	22.28	6,228,933	24.81	795,949	12.40
Higher education	463,244	7.78	306,283	10.77	156,961	5.05	2,689,894	8.53	2,368,896	9.43	320,998	5.00
GCE 'A level' or equivalent	1,168,893	19.63	690,272	24.27	478,621	15.39	7,552,579	23.95	6,088,999	24.25	1,463,581	22.80
GCSE grades A-C or equivalent	1,252,727	21.03	650,676	22.87	602,051	19.35	7,243,777	22.97	5,549,056	22.10	1,694,721	26.40
Other qualifications	897,474	15.07	404,346	14.21	493,128	15.85	3,921,222	12.44	3,018,080	12.02	903,143	14.07
No qualifications	1,468,946	24.66	282,922	9.95	1,186,024	38.13	3,097,950	9.82	1,858,008	7.40	1,239,942	19.33
Total	5,955,981	100.00	2,845,033	100.00	3,110,948	100.00	31,530,304	100.00	25,111,972	100.00	6,418,332	100.00

Note:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

¹ Data are weighted and sample is constrained to the working age population. Employment and non-employment are defined using ILO definitions. Individuals who are non-employed include both the ILO unemployed and those classed as economically inactive.

Table 2
Highest qualification by age and disability status, 2008¹

	DDA Disabled					Non-disabled				
	Age					Age				
	16-24	25-34	35-44	45-54	55-64	16-24	25-34	35-44	45-54	55-64
Degree or equivalent	5.01	16.61	13.44	12.07	10.40	10.29	32.49	24.85	21.75	19.98
Higher education	3.49	6.65	7.95	8.37	8.76	3.58	7.73	10.27	11.09	11.10
GCE 'A level' or equivalent	23.89	18.71	17.43	17.67	22.40	33.89	20.61	19.60	22.52	23.89
GCSE grades A-C or equivalent	30.52	26.37	26.23	20.07	13.25	31.76	18.68	24.15	21.38	15.35
Other qualifications	14.57	13.67	15.12	15.36	15.45	9.74	13.66	13.32	12.24	13.50
No qualifications	22.52	17.99	19.84	26.47	29.75	10.74	6.84	7.81	11.02	16.19

Note:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

¹ Data are weighted and sample is constrained to the working age population.

Figure 1
Highest qualification by the type of health problem¹

Note:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

¹ Data are weighted and sample is constrained to the DDA disabled population of working age.

Figure 2
Highest qualification by the number of health problems¹

Note:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

¹ Data are weighted and sample is constrained to the DDA disabled population of working age.

Box 1

Defining disability

Individuals with a long-term health problem are asked: 'Which of these is your main health problem/disability?' There are 17 possible responses which are coded in the LFS variable 'HEALTH'.

For the purpose of this analysis the responses are regrouped to create the following aggregate groups of health problems as follows:

- **Group 1.** 'Limbs' contain health problems connected with arms, legs, hands, feet, back or neck
- **Group 2.** 'Sight or hearing' contain difficulties with sight or hearing

- **Group 3.** 'Heart, lungs and digestion' contain problems connected with chest or breathing problems; heart, blood pressure or blood circulation problems; stomach, liver, kidney or digestive problems and diabetes
- **Group 4.** 'Mental health problems' contain problems related to depression, bad nerves or anxiety; severe or specific learning problems and mental illness, phobias, panics or other nervous disorders
- **Group 5.** 'Other' contains speech impediments; severe disfigurement, skin conditions, allergies; epilepsy; progressive illnesses not included elsewhere and other health problems or disabilities

For example, while 19 per cent of disabled individuals with a single health problem have no qualifications the corresponding figure for the more severely disabled (those with 5 or more health problems) is over 35 per cent.

Participation in education and training

The LFS also contains several questions that measure the acquisition of human capital. The results in **Table 3** focus on education and training immediately post-compulsory schooling (and therefore relate to individuals aged between 16 and 24). The first row presents the proportion of young disabled and non-disabled individuals that are currently undertaking formal full-time education. About 30 per cent of young disabled individuals are in full-time education (which includes school, further or higher education) compared to 40 per cent of the non-disabled group; this clearly contributes to the gap in qualifications identified in **Table 2**⁴. Indeed, Burchardt (2005) finds that despite young disabled individuals having similar aspirations at age 16 there is a gap in educational participation immediately post compulsory schooling. Participation in post-compulsory education is typically the outcome of a decision in which the present value of future benefits (for example, the additional labour market reward) are weighed against more immediate costs (both in terms of additional expenditure and the cost of forgone activities). The lower participation rate among disabled individuals may reflect a greater financial and psychological direct cost of education, due, for example, to their disability status affecting the ability to study and/or to access education. The benefit of education would also be lower for people with disabilities if they anticipate a shorter career (and thus period over which to earn at return on their investment) due to their

Table 3

Participation in education and training amongst those aged between 16 and 24¹

	Percentages	
	DDA disabled	Non-disabled
In full-time education	29.90	39.65
NEET	39.02	15.33
Job related education and training in the last 13 weeks among the employed.	35.87	33.80
Job related education and training in the last 13 weeks among the non-employed	20.67	34.04
Job related education and training in the last 13 weeks among the unemployed	20.42	21.56
Job related education and training in the last 13 weeks among the economically inactive	20.73	38.60

Note:*Source: Average of the 4 Quarters of the Labour Force Survey 2008*

¹ Data are weighted percentages and sample is constrained to the 16-24 age group. Employment and non-employment are defined using ILO definitions. Individuals who are non-employed include both the ILO unemployed and those classed as economically inactive.

disability, or if they anticipate employer discrimination⁵. In contrast, as Famulari (1992) notes for the case of epilepsy, disability may, by reducing the opportunity cost of education (for example, in terms of forgone earnings), increase the incentive to participate in education.

In the second row of Table 3, the percentage classified as NEET (not in employment, education or training) is reported by disability status. It should, however, be noted that the definition of NEET used in this paper is constructed by the author (see **Box 2** for details) and does not represent an ONS or LFS agreed definition. Using this definition, about 39 per cent of young disabled individuals are classified as NEET compared to about 15 per cent of the non-disabled group. This means nearly 4 in every 10 young disabled individuals are neither developing their skills in employment through learning by doing nor through more formal education. The concentration of disabled young people in the NEET group is particularly concerning, since a period away from work or training may cause existing human capital to depreciate and, at this stage of life, will affect the development of work habits. This may reduce the probability of escaping the NEET group. Of course, some disabled individuals may be too sick to work or undertake education and nearly 12 per cent of the young disabled population report not to want or be seeking work because of their health problem. However, even after

excluding this group, the rate of NEET amongst people with disabilities remains at over 30 per cent.

Interestingly, for those in employment, the proportion who have undertaken job related education or training in the last 13 weeks is slightly higher among disabled individuals than the non-disabled, in both cases more than a third of workers received training⁶. For those out of work, the gap re-emerges with 21 per cent of disabled individuals, compared to more than a third of the non-disabled group, reporting undertaking job related education or training during the last 13 weeks⁷. This difference is driven by lower rates of job related education and training among those classed as economically inactive rather than among the unemployed.

Human capital can also be acquired, often less formally in later life, through education and training. **Table 4** presents the results of several alternative measures of participation in education and training amongst those aged between 25 and retirement age. Although the rates of human capital accumulation amongst this group are lower the differences between disability groups are still evident, about 6 per cent of people with disabilities are currently studying towards a qualification compared to 10 per cent of the non-disabled group. However, and consistent with the analysis of the 16-24 age group, rates of job related training are very similar between disabled and non-disabled individuals who are

in employment, for both groups about a quarter have undertaken some job related education or training in the last 13 weeks. This is surprising given that there are several reasons to believe disabled employees may get less job-related training. Firstly, as Fumagalli (2008) notes, disabled employees have a higher probability of exiting employment and, therefore, less incentive for individuals and firms to fund training, since they have a shorter period over which to earn a return on their investment. Secondly, there is a positive association between training and formal educational qualifications (see, for example, Green, 1993), in that it is the most qualified who are more likely to receive job related training, and disabled individuals are less likely to be among this group⁸. Finally, if there is any form of (or even employee anticipation of) employer discrimination against people with disabilities this may reduce training among disabled employees either because access to employer sponsored training is affected or the anticipated return to any investment is reduced. For those not in employment, rates of training are lower and the disparities re-emerge by disability status. Again these are driven by low rates of training among inactive disabled individuals.

A similar pattern emerges if the accumulation of knowledge and skills is considered (Table 4, rows 6-10). Just less than one quarter of disabled individuals have undertaken lessons or courses, open or distance learning, attended seminars or workshops or undertaken guided on the job training in the past 12 months which has improved their knowledge or skills compared to 37 per cent for the non-disabled group. The figure amongst those in employment is nearly 40 per cent for both groups, but it is considerably lower for inactive individuals and, particularly, inactive disabled individuals, among whom the rate falls to less than 10 per cent.

Further detail is available in the LFS on the nature of job-related education or training and **Table 5** examines differences in the type and duration of training

Box 2**Not in employment, education or training**

The NEET group, those not in employment, education or training, are defined here to include individuals aged between 16 and 24 who are:

- Unemployed by the International Labour Organisation (ILO) definition, excluding those who are also in full-time education; or

- Economically inactive, excluding those who are also in full-time education.

Those in full-time education include those still at school, those on a sandwich course and those full-time in college or university.

Table 4
Participation in education and training amongst those aged between 25 and retirement¹

	Percentages	
	DDA Disabled	Non-disabled
Currently studying towards a qualification	6.36	9.82
Job-related education or training in the last 13 weeks among the employed	24.90	25.99
Job-related education or training in the last 13 weeks among the non-employed	3.40	10.18
Job-related education or training in the last 13 weeks among the unemployed	13.09	12.63
Job-related education or training in the last 13 weeks among the economically inactive	2.63	9.51
Improved knowledge or skills over last 12 months by undertaking lessons, courses, seminars, workshops or guided on the job training ² .	24.30	36.69
Improved knowledge or skills over last 12 months by undertaking lessons, courses, seminars, workshops or guided on the job training among the employed.	39.66	39.87
Improved knowledge or skills over last 12 months by undertaking lessons, courses, seminars, workshops or guided on the job training among the non-employed.	9.87	18.20
Improved knowledge or skills over last 12 months by undertaking lessons, courses, seminars, workshops or guided on the job training among the unemployed.	20.82	23.22
Improved knowledge or skills over last 12 months by undertaking lessons, courses, seminars, workshops or guided on the job training among the economically inactive.	9.00	16.80

Notes:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

- 1 Data are weighted percentages and sample is constrained to the working age population aged 25 to 64. Employment and non-employment are defined using ILO definitions. Individuals who are non-employed include both the ILO unemployed and those economically inactive.
- 2 Individuals are asked (other than the qualifications we discussed earlier) during the last 12 months have you participated in any of the following activities with the intention of improving your knowledge or skills in any area, including hobbies? A positive answer is recorded if they answer positively to any of the following responses:
 - a. Lessons or courses, either practical or theoretical, including classroom instruction or lessons?
 - b. Courses conducted through open and distance education?
 - c. Seminars or workshops?
 - d. Guided on the job training?

Table 5
Job related training in the last 4 weeks amongst workers aged between 25 and retirement¹

	Percentages	
	DDA disabled	Non-disabled
Any job related training in the last 4 weeks	12.29	12.51
Of those undertaking job related training in the last 4 weeks		
On the job	37.83	37.34
Off the job	43.60	45.76
Both on and off the job	18.57	16.90
Of those undertaking job related training in the last 4 weeks		
Less than 1 week	54.11	50.54
Between 1 week and 1 year	14.53	15.18
Between 1 and 2 years	5.36	6.19
Between 2 and 3 years	3.89	4.36
More than 3 years	3.92	5.14
Ongoing/ no definite limit	18.20	18.60
Of those undertaking job related training in the last 4 weeks		
Training will lead towards a qualification or credit towards a qualification	35.78	38.33

Notes:

Source: Average of the 4 Quarters of the Labour Force Survey 2008

- 1 Data are weighted and the sample is constrained to individuals aged 25 to 64 who are in employment. The duration of training is asked in two quarters and thus the results are average values over these two periods. Obtaining a qualification from training is based on information in a single quarter.

undertaken during the last 4 weeks for those in employment, by disability status. Consistent with the results based on the 13 week measure, disabled workers have a similar incidence of training in the last 4 weeks (12 per cent) compared to the non-disabled group. Further examination of the type and duration of training also suggests the differences between disabled and non-disabled workers are relatively limited. About 37 per cent of disabled and

non-disabled workers who have received training in the last 4 weeks only received on the job training. Slightly more non-disabled workers report having only off the job training, but this is matched with a slightly lower percentage reporting having both types of training. At least on the basis of this information, there is no evidence to suggest disabled workers get different forms of (or inferior) training. Over half of the individuals who have received training

in the last 4 weeks have relatively short durations (less than 1 week); however, slightly more disabled workers have training of this duration (54 per cent) compared to non-disabled workers (51 per cent). Over a third of those who have received job related training in the last 4 weeks report that it will lead towards a qualification. People with disabilities are slightly less likely to gain a qualification from training at 36 per cent compared to 38 per cent for the non-disabled. For disabled individuals in employment, job-related training is not a mechanism through which the difference in human capital is widened across the lifecycle.

Conclusion

This article documents important differences in educational attainment between disabled and non-disabled individuals of working age. A person who is disabled according to the DDA definition is 2.5 times more likely to have no educational qualifications than someone who is not disabled. However, variation exists in educational attainment among people with disabilities on the basis of the type and severity of their disability. The situation is most severe for those with mental health problems; members of this group are more than 3.5 times likely as to have no qualifications than non-disabled individuals.

Differences in human capital accumulation are evident between disabled and non-disabled groups and are pronounced from a young age. For example, nearly 4 in 10 young (16-24) disabled individuals are NEET and, therefore, not enhancing their human capital through further education and training or employment. However, consistent with previous evidence that shows differences in labour market outcomes amongst disabled people in work are less pronounced, it is interesting to note that, amongst this group, the gap in educational attainment also narrows. Indeed, there is no evidence to suggest disabled workers get any less job-related education and training, or that is of inferior quality. The rates of education and training fall dramatically for those classed as economically inactive, consistent with them being less likely to search for work. However, in all cases inactive disabled people are accumulating less human capital than the corresponding non-disabled group. This is likely to be both a cause and consequence of them being further away from entering the labour market.

Notes

1. The non-disabled group will contain some individuals with a long-term health problem. However, their health problem is not disabling, in that, it does not affect day to day activity. Sensitivity analysis suggests that, non-disabled individuals with a long-term health problem are less likely to hold educational qualifications than the non-disabled group. However, their qualifications are more similar to the non-disabled group than disabled individuals.
2. Employment and non-employment are defined using ILO definitions (and the LFS variable 'ILODEFR'). Individuals who are non-employed include both the ILO unemployed and those economically inactive.
3. Figure 1 refers only to disabled individuals and they, by definition, report at least one long-term health problem.
4. It may be that more disabled individuals are unable to attend full-time because of their health problem. However, while slightly more disabled young people study part time, the gap in participation remains at over 8 percentage points when any educational course is considered.
5. There is no consistent evidence that the return to education (in the form of higher labour market earnings) is lower for the disabled (see for example, Jones et al. 2006).
6. For those in employment the incidence of job related education and training

in the last 13 weeks is measured by LFS variable 'ED13WK', which refers to education or training connected with the respondents own job or a job they might be able to do in the future.

7. For those out of work the incidence of job related education and training in the last 13 weeks is measured by LFS variable 'FUTUR13', which refers to education or training connected with a job the respondent might be able to do in the future.
8. Similar arguments can be made in terms of occupation. Individuals employed in higher level (more skilled) occupations typically receive more training and disabled workers are less likely to be concentrated among this group.

ACKNOWLEDGEMENTS

This article was prepared in association with the Office for National Statistics. The author would like to thank Richard Jones from the Human Capital Branch and Helen Tam and Gareth Clancy from Labour Market Division for comments.

CONTACT

✉ elmr@ons.gov.uk

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