

Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: <http://orca.cf.ac.uk/86652/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Jones, Melanie and Latreille, Paul L. 2010. Disability and earnings: Are employer characteristics important? *Economics Letters* 106 (3) , pp. 191-194. 10.1016/j.econlet.2009.11.017 file

Publishers page: <http://dx.doi.org/10.1016/j.econlet.2009.11.017>
<<http://dx.doi.org/10.1016/j.econlet.2009.11.017>>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



Disability and Earnings: Are Employer Characteristics Important?

Melanie K. Jones and Paul L. Latreille*

**School of Business and Economics
Swansea University**

Abstract

We use matched employee-employer data from Britain to assess the influence of disability-specific workplace policies and practices on the earnings of disabled workers. The presence of equal opportunities policies increases the relative wages of disabled workers, but this is partially offset by the negative influence of workplace accommodations.

JEL Classification: J30, J14

Keywords: Disability, Earnings, Employer characteristics.

Acknowledgements: The authors acknowledge the Department of Trade and Industry, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the Policy Studies Institute as the originators of the 2004 Workplace Employment Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. The National Centre for Social Research was commissioned to conduct the survey fieldwork on behalf of the sponsors. None of these organisations bears any responsibility for the authors' analysis and interpretations. Thanks to participants at a Work Pensions and Labour Economics Study group (WPEG) Seminar, December 2007, the Royal Economics Society Annual Conference, March 2008 and an anonymous referee.

* Corresponding author: Melanie Jones, School of Business and Economics, Swansea University, Singleton Park, Swansea SA2 8PP. Tel: +44 (0)1792 295168. Fax: +44 (0)1792 295872. Email: M.K.Jones@swan.ac.uk.

1. Introduction

There is a growing literature examining differences in labour market outcomes between disabled and non-disabled individuals (see for example, Jones et al., 2006; DeLeire, 2001). Whilst these studies consider the influence of personal, household, regional and employment-related characteristics, the literature neglects the potentially important role of employer characteristics, which have been found significant in the analysis of earnings amongst other minority groups (Mumford and Smith, 2007). These may be particularly important in the disability context since in many countries legislative reforms incorporate important elements regarding employer practices. For example, in the UK and the US, under the 1995 Disability Discrimination Act (DDA) and the Americans with Disabilities Act (ADA) respectively, employers have a duty to make ‘reasonable accommodations’ to facilitate access for disabled individuals. Evaluation of the ADA suggests that by imposing costs on employers, the accommodation element may have reduced demand for disabled workers (Acemoglu and Angrist, 2001). The potential influence of accommodation on earnings is also unclear: as Baldwin and Johnson (2001) note, whilst accommodations may increase the productivity of disabled workers, employers may try to pass on the cost to disabled workers through reduced earnings.¹

The analysis of disability has received less attention at the workplace, rather than individual, level. In the UK, evidence on issues such as employer awareness of the DDA, perceptions of disability, prevalence of adjustments and disability-related practices has largely come from specialized surveys of employers (Simm et al., 2007; Woodhams and Corby, 2007). The approach used here, which deploys a large-scale matched employee-employer dataset in

¹ Direct evidence relating to workplace accommodations is limited. Studies have considered the determinants of receiving an accommodation (see, for example, Campolieti, 2004). Burkhauser et al. (1995) examine the impact of workplace accommodations on job exit and Gunderson and Hyatt (1996) use a specialized dataset from Ontario to examine the impact of accommodation on the earnings of injured workers.

Britain, the 2004 Workplace Employee Relations Survey (WERS 2004), contributes to and links both these elements of the literature, by examining the impact of organizational policies on the outcomes of disabled employees.

2. Data

WERS 2004 is a stratified random sample of 2,295 establishments with more than 5 employees taken from the Inter-Departmental Business Register maintained by the Office for National Statistics. Data on workplace characteristics are obtained from a management questionnaire, whereas information relating to employees is taken from a self-completed questionnaire given to a random sample of 25 employees at each establishment (or all employees in smaller workplaces). Employees are defined as work-limited disabled if they answer positively to the following two questions:

Do you have any long-term illness, health problem or disability? By long-term, we mean that it can be expected to last for more than one year.

and

Does this illness or disability affect the amount or type of work you can do?

The remaining sample forms the ‘non-disabled’ group.² It should be acknowledged that since this measure is self-reported it shares the limitations of all such measures (see Bound, 1991).³

In addition to information on personal characteristics, employees are asked about their

² Individuals should only answer the second question following a positive response to the first. A small number of mutually inconsistent responses are dropped from the analysis.

³ The sample is restricted to full-time employees to reduce the problem of justification bias, that is, where the non-employed have an incentive to over-report disability.

earnings. The bounded nature of these responses is typically dealt with in one of two ways: the mid-point of the pay band can be adjusted by a (continuous) measure of usual hours to create a continuous measure of hourly pay (see Mumford and Smith, 2007) or interval regression can be applied on the bounded pay variable, which again may be adjusted for hours of work (see Booth and Bryan, 2004). Both approaches are applied to examine the sensitivity of the results.

3. Methodology

The basic Mincer-type earnings equation is extended to consider workplace characteristics, and, in particular, the role of disability-related workplace characteristics as follows:⁴

$$W_{ij} = \alpha + \beta X_{ij} + \phi Z_j + \delta Y_j + \gamma D_{ij} Y_j + \varepsilon_{ij} \quad (1)$$

where W_{ij} is the log of hourly earnings for individual i in workplace j . Standard personal and household characteristics are included in X_{ij} , while Z_j captures observable workplace characteristics such as size and occupational distribution. Workplace characteristics specifically related to disability are included in Y_j . These include the existence of a formal equal opportunities (EO) policy explicitly mentioning the disabled, which is included to capture management response to disability equality issues. Since such policies have been criticised as being ‘empty shells’ (Hoque and Noon, 2004) these controls are supplemented with information relating to employer actions, specifically whether the employer reviews relative pay on the basis of disability.⁵ The percentage of the workforce that is disabled according to the manager is also included, following similar analysis in relation to gender

⁴ It is not possible to control for the potential sample selection bias created by focusing only on employees. Fortunately, previous analysis finds that controls for this selection bias are often insignificant in earnings equations, albeit when estimated separately by disability status (see Jones et al., 2006).

⁵ Information is also provided on monitoring disability in recruitment and selection, and promotion. Given the current context a control for monitoring pay appears most appropriate. Indeed, a more general measure of ‘any’ monitoring is not a significant determinant of the earnings of the disabled.

segregation (Mumford and Smith, 2007). Finally, given the debate on the influence of workplace accommodations, our controls include whether an adjustment has been made to the workplace to accommodate the disabled. Interactions between each of these variables and individual disability status (D_{ij}) will capture any disability-specific effect. In an additional specification we utilise the ‘panel’ element of the data to control for unobserved workplace heterogeneity by replacing the controls for observable workplace characteristics with workplace fixed effects. Both specifications assume the influence of personal and other workplace characteristics are common between the disability groups. The main results are not sensitive to this.

4. Results

Table 1 documents the prevalence of disability-specific policies and practices amongst workplaces in Great Britain. On average managers report that just over 1% of their workforce is disabled; nearly 87% report having *no* disabled workers. Despite this, more than a fifth reported having made an adjustment, which may reflect over-reporting or that workplaces have made adaptations for *former* or *potential* disabled employees.⁶ Over 55% of workplaces have a written EO policy mentioning disability, and nearly 10% take positive actions to recruit disabled individuals. Fewer monitor pay or other outcomes such as promotion of their disabled workers. Disability-related workplace characteristics are more prevalent in the public sector, part of which is explained by workplace size, but public authorities are also under a greater obligation – at least following the DDA 2005 – to be proactive regarding disability equality.

⁶ This proportion is similar to those who reported having identified issues with workplace accessibility for the disabled.

Table 2 presents responses from both manager and employee surveys in terms of the disability incidence, both defined consistently as being work-limiting. The proportion of employees self-reporting disability exceeds the (average) estimate reported by the manager. This difference remains even when using matched data and comparing responses within a workplace. If we assume the status reported by individuals reflects the ‘true’ incidence, then the evidence indicates the sample of employees consistently over-represents disabled workers or that managers underestimate disability amongst their workforce. The latter would be consistent with employers having a more narrow perception of disability (Simm et al., 2007), and/or that the channels for reporting disability are limited, and/or that employees are reluctant to disclose in anticipation of discrimination. Similar comparisons by gender and ethnicity confirm that the difference in reporting is particularly pronounced with disability.

In these data, the disabled earn (on average) just over 90% of the non-disabled in the sample (£9.01 per hour compared with £9.83 for the non-disabled), which is broadly comparable with data from the Labour Force Survey. Many of the other descriptive features of the employee data are also consistent with those reported in the existing literature (see Jones et al. 2006).

The focus of the results from the earnings equations (presented in Table 3) is on the influence of disability-related workplace characteristics since these have not been examined elsewhere. The models include an extensive set of personal and workplace controls which are not reported here, most of which operate as might be expected *a priori*.⁷ Column (1) reports a simple OLS model in which the impact of disability operates via an intercept shift only. In this model the disability earnings penalty, controlling for other factors, is approximately 5½%

⁷ Descriptive statistics and coefficient estimates relating to the remaining employer and employee characteristics are available on request.

and the disability related workplace characteristics have no significant influence on earnings. The specification in column (3) replaces the workplace characteristics in column (1) with workplace fixed effects. The impact of disability is slightly reduced (to just over 4%) suggesting the negative association between disability and earnings is not explained by disabled workers selecting into low paying workplaces; it actually exists between disabled and non-disabled workers within the same workplace.

Column (2) augments (1) with the disability interactions discussed above. With the exception of workplace adjustments for the disabled, the disability workplace characteristics have no effect on the earnings of non-disabled workers.⁸ These characteristics have a more important influence on the earnings of disabled workers, suggesting they are not merely ‘empty shells’ (Hoque and Noon, 2004).⁹ Indeed, unlike Davies and Welpton (2008) who find no influence of EO policies on the gender pay gap, we find that, disabled employees in workplaces with EO policies that make reference to disability earn nearly 9% more than those working in establishments where they are absent.¹⁰ In contrast, being employed in a workplace that has made adjustments for the disabled is associated with a significant decline (5%) in earnings for the disabled.¹¹ Whilst it is not possible to match the adjustment to a particular disabled employee, this is consistent with the arguments of Acemoglu and Angrist (2001): by raising the costs of employing disabled workers, legislation may have unintended consequences. In this context it would appear that some of the (perceived) cost of adjustment is ‘passed on’ in

⁸ The weakly positive relationship between workplace adjustments and earnings may reflect the fact that both would be associated with ‘good employers’.

⁹ The results from column (2) are qualitatively similar if instead, the model is estimated using interval regression on the bounded pay weekly measure with a control for usual weekly hours. They are also robust to the use of complex survey weights.

¹⁰ These interactions are interpreted as differences from the relevant shift coefficients. Since the latter are very small and insignificant, the interactions essentially denote the impact of the policies on the disabled.

¹¹ This specification also suggests that working in a workplace which monitors pay increases the earnings of the disabled by 8% but that being employed in a workplace with a greater proportion of disabled workers is associated with a small pay penalty for the disabled. Neither influence is significant after controlling for workplace fixed effects.

the form of lower wages for the disabled.^{12, 13} Both influences are robust to the inclusion of workplace fixed effects in column (4), suggesting the disability pay gap within workplaces with an EO policy is narrower than in those without, whereas the reverse is true for workplaces who make an adjustment for the disabled.

5. Conclusion

This paper uses matched employee-employer data in Great Britain and finds that disability-related practices are important determinants of the relative earnings of disabled workers. Disabled employees in workplaces with formal equal opportunities policies earn more, all else equal, and this serves to reduce the disability pay gap. More surprisingly, workplaces which have made an adjustment for a disabled employee appear to pass some of this cost onto disabled employees in the form of a pay penalty, again raising concerns about the impact of this aspect of legislation.

¹² An earnings penalty may also be observed if the presence of an adjustment proxies for the limitation engendered by disability. This would happen if, for example, the presence of an accommodation indicated the firm was hiring from a group of more restricted (less productive) disabled workers. Unfortunately, there are no controls within WERS for the severity of the disability. However, since the adjustment is measured at the workplace level it is not necessarily related to the needs of a particular disabled employee.

¹³ The equations have also been estimated separately for the public and private sectors. The evidence of an earnings penalty for accommodation exists in the public sector, where disability policies are concentrated.

References

- Acemoglu D. and Angrist J.D., 2001, Consequence of employment protection? The case of the Americans with Disabilities Act, *Journal of Political Economy* 19(5), 915-950.
- Baldwin, M. and Johnson, W. G., 2001, Dispelling the myths about work disability, paper prepared for the 1998 IRRA Research Volume, *New Approaches to Disability in the Workplace*, Cornell University Press.
- Booth, A. and Bryan M., 2004, The union membership wage-premium puzzle: is there a free rider problem? *Industrial and Labor Relations Review* 57(3), 401-421.
- Bound, J., 1991, Self-reported versus objective measures of health in retirement models, *Journal of Human Resources* 26(1), 106-138.
- Burkhauser, R., Butler, J. and Kim, Y., 1995, The importance of job accommodation on the job duration of workers with disabilities: a hazard model approach, *Labour Economics* 2(2), 109-130.
- Campolieti, M., 2004, The correlates of accommodations for permanently disabled workers, *Industrial Relations* 43(3), 546-572.
- Davies, R and Welpton, R., 2008, How does workplace monitoring affect the gender wage differential? Analysis of the Annual Survey of Hours and Earnings and the 2004

Workplace Employment Relations Survey – A research note, *British Journal of Industrial Relations* 46(4), 732-749.

DeLeire, T., 2001, Changes in wage discrimination against people with disabilities: 1984-1993, *Journal of Human Resources* 36(1), 145-158.

Gunderson, M. and Hyatt, D., 1996, Do injured workers pay for reasonable accommodation?, *Industrial and Labor Relations Review* 50(1), 92-104.

Hoque, K. and Noon, M., 2004, Equal opportunities policy and practice in Britain: evaluating the 'empty shell' hypothesis, *Work Employment and Society* 18(3), 481-506.

Jones, M. K., Latreille, P. L. and Sloane, P. J., 2006, Disability, gender and the British labour market, *Oxford Economic Papers* 58(3), 407-459.

Mumford, K. and Smith, P. N., 2007, The gender earnings gap in Britain: including the workplace, *Manchester School* 75(6), 653-672.

Simm, C., Aston, J., Williams, C., Hill, D., Bellis, A. and Meager, N., 2007, Organisations' responses to the Disability Discrimination Act, Department for Work and Pensions Research Report No. 410 (CDS, Leeds).

Woodhams, C. and Corby, S., 2007, Then and now: disability legislation and employers' practices in the UK, *British Journal of Industrial Relations* 45(3), 556-580.

Table 1. Disability related workplace characteristics.

	All	Private	Public
Average % workforce disabled	1.09	0.97	1.69
<i>% of workplaces with</i>			
No disabled employee	86.60	88.35	78.27
Disability adjustment	22.09	16.83	48.13
EO policy covers disabled	55.56	49.74	84.30
Monitor pay disabled	3.30	1.65	12.17
Actively recruit disabled	9.06	4.43	31.15

Notes: Statistics are based on a sample of workplaces. Data are weighted.

Table 2. Disability reporting by managers and employees.

	All workplaces		Matched workplaces
	Managers	Employee	% in sample of employees – % reported by managers
% disabled	1.09	4.54	2.81 (105%)
% disabled private	0.97	4.25	2.84 (113%)
% disabled public	1.69	5.39	3.23 (105%)
% female	54.38	49.45	2.71 (16%)
% ethnic minority	6.27	7.09	-0.65 (-12%)

Notes: Data are weighted.

Table 3. Determinants of earnings

	OLS (1)	OLS (2)	Workplace fixed effects (3)	Workplace fixed effects (4)
Disability	-0.054*** (0.014)	-0.091** (0.046)	-0.042*** (0.012)	-0.064* (0.035)
Proportion disabled	-0.054 (0.065)	0.029 (0.088)		
Adjustment	0.008 (0.006)	0.011* (0.006)		
EO policy for disabled	0.005 (0.008)	0.001 (0.008)		
Monitor disabled pay	0.004 (0.010)	-0.001 (0.010)		
Disability × Proportion disabled		-0.235** (0.116)		-0.214 (0.151)
Disability × Adjustment		-0.063** (0.028)		-0.065** (0.026)
Disability × EO policy covers disabled		0.088* (0.047)		0.076** (0.037)
Disability × Monitor disabled pay		0.079* (0.046)		0.036 (0.046)
R ²	0.59	0.59	0.67	0.67
F-test [p-value]	241.57 [0.00]	230.38 [0.00]	195.75 [0.00]	178.88 [0.00]
Observations	12504	12504	12504	12504
Workplaces	1416	1416	1416	1416

Notes: *, ** and *** indicate significance at 10, 5 and 1 percent levels respectively. Data are unweighted. Robust standard errors reported in parentheses. Controls are also included for gender, ethnicity, age, tenure, qualifications, over-education, gender mix of job, temporary contract, supervisory responsibilities, union membership, marital status, dependent children and occupation in all models. Workplace characteristics, namely, industry, region, workplace size, use of performance related pay and job evaluation schemes, workplace unionisation, occupational mix and employment growth are also included in columns (1) and (2).