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Disability and work: a review of the British evidence

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ABSTRACT

By international standards, rates of disability in Britain are high, and employment rates for the disabled are low. This paper reviews the impact of disability on labour market outcomes in Britain. The British situation is firstly set in a legislative and policy context. The paper then highlights key themes in the growing evidence focusing on the relationships between disability and labour market outcomes. Finally, important areas for future research are highlighted.

Keywords: Disability; labour market outcomes; review.

Discapacidad y trabajo: Una revisión de la evidencia británica

RESUMEN

En comparación con otros países, las tasas de prevalencia de la discapacidad británicas son elevadas y las tasas de empleo para las personas con discapacidad reducidad. Este artículo revisa el impacto de la discapacidad sobre los resultados de mercado de trabajo en el Reino Unido. En primer lugar se establecen el marco legislativo y el contexto político. A partir de ellos, el artículo trata los temas clave de la creciente literatura sobre el tema en cuestión. Finalmente, se destacan los campos considerados más importantes para la investigación futura.

Palabras clave: Discapacidad, resultados de mercado de trabajo, revisa.

JEL classification: I0, J2, J3, J7

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1. INTRODUCTION

Whereas there is a large body of evidence examining the labour market impact of disability and of anti-discrimination legislation in this area in the United States, economists have only recently begun to consider these issues in Britain. The issue is an important one, not least since it is estimated that approximately one in five persons of working age is disabled (Smith and Twomey, 2002) and hence, either directly or indirectly, disability affects so many individuals. However, examination of these issues assumes further significance in light of the UK government's aspiration to raise the employment rate from its current level of around 75% to a target rate of 80% by 2010 (Latreille, *et al*., 2006). Such an ambition necessarily implies that some economically inactive persons, many of whom are likely either to be disabled themselves or acting as carers for disabled persons, will need to (re-)engage with the labour market. Proposed reforms to incapacity benefits contained in the recent Green Paper "A New Deal for Welfare: Empowering People to Work" (Department for Work and Pensions, 2006) launched in January last year explicitly make this rationale a focus[1].

The aim of the present paper is to review the British literature in this area, taking stock of the current state of knowledge, identifying emerging themes, and suggesting potentially useful areas and issues for future work. The remainder of the paper is set out as follows. In Section 2 we set the British situation in international context and provide a description of the way in which disability and its impact vary within Britain. This is followed in Section 3 by a brief description of the disability legislation, focusing on those aspects relating to the labour market. The empirical evidence is reviewed in Section 4, which provides the backdrop to the discussion of potential areas for future work in Section 5. Finally, Section 6 concludes.

2. BRITAIN IN CONTEXT

2.1 International variation

Even allowing for problems of comparability, the incidence of disability in the UK is high relative to the rest of Europe. According to Dupre and Karjalainan (2003) the UK had the second highest incidence of disability among 15 EU countries expressed

[1] To quote: "individual citizens… need to meet their responsibility to take the necessary steps to re-enter the labour market when they have a level of capacity and capability that makes this possible" (Department for Work and Pensions, 2006: 4). The aim is to reduce the number of disability benefit claimants by 1 million over the next decade.

Table 1: Prevalence of long-standing health problems or disability, EU Member States 2002 (Percentages of the relevant population)

	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	UK
Total	18.4	19.9	11.2	10.3	8.7	24.6	11.0	6.6	11.7	25.4	12.8	20.1	32.2	19.9	27.2
By gender															
Females	17.9	21.1	10.3	10.6	8.0	24.8	10.5	6.3	9.6	26.4	11.6	21.6	33.6	21.7	27.8
Males	18.9	18.8	12.2	9.9	9.4	24.3	11.6	7.0	13.7	24.5	14.0	18.5	30.7	18.2	26.7
By marital status															
Single	14.1	15.4	7.7	5.5	6.9	19.3	8.8	4.9	6.9	19.4	8.8	13.5	23.4	15.6	20.9
Married	19.4	20.8	11.9	11.9	9.3	26.4	11.8	7.2	12.6	26.8	14.0	22.1	36.2	22.7	28.9
Widowed	31.5	37.0	22.6	25.7	19.1	44.9	23.5	15.0	28.7	45.4	25.9	44.9	59.1	30.0	47.5
Divorced	32.6	32.1	18.1	15.7	13.5	36.2	21.9	9.8	18.3	41.0	18.0	26.1	43.2	28.7	36.3
By age															
16-24	6.2	11.6	3.5	2.6	2.9	11.9	5.0	2.1	3.3	13.7	5.2	8.0	15.8	10.4	15.8
25-29	10.2	13.0	4.6	3.1	4.1	16.3	6.2	2.8	5.9	17.0	6.8	10.1	19.6	13.7	17.4
30-34	13.4	11.7	5.8	4.1	5.1	18.7	7.7	3.2	6.7	17.4	8.3	12.0	22.2	16.7	19.1
35-39	16.7	15.2	7.3	5.8	6.2	20.8	8.7	4.5	7.0	21.3	8.5	15.1	24.7	20.3	20.9
40-44	19.2	20.3	9.1	7.8	7.7	25.7	10.1	5.4	10.8	27.1	10.5	18.5	28.4	22.3	24.9
45-49	23.0	23.9	11.7	9.9	9.6	28.2	13.4	7.1	14.2	28.0	14.5	22.2	33.7	22.2	29.3
50-54	26.8	26.0	16.2	15.0	13.9	35.5	16.8	10.4	19.8	35.2	20.7	30.4	42.8	26.1	37.6
55-59	32.1	31.0	22.9	21.2	18.8	41.1	22.9	13.2	25.3	41.6	26.5	41.4	52.3	29.9	46.0
60-64	32.1	34.8	24.3	30.1	24.9	42.3	29.4	16.5	27.9	42.7	25.3	47.2	65.9	29.8	53.1
By education															
ISCED 0-2	26.8	26.9	12.2	15.4	12.3	30.9	17.0	9.0	16.2	32.0	15.4	23.3	39.0	21.4	40.9
ISCED 3	14.8	18.4	12.3	6.2	4.5	22.7	7.1	3.8	10.0	23.0	12.6	8.9	30.9	21.7	24.4
ISCED 4-6	10.4	15.3	8.8	5.4	3.4	17.1	7.3	3.1	6.3	20.0	10.4	9.0	27.2	16.1	19.9

Source: Eurostat, Statistics in Focus, Population and Social Conditions, Theme 3 – 26/2003.

as a percentage of the working age population in 2002 (28.2% compared to 32.2% in Finland). The results summarised in Table 1 indicate that in the UK, as elsewhere, there is not much difference in the incidence of disability as given by the percentages of the relevant population between men and women, but incidence is much lower for single persons, rises with age and falls with the level of education. The most common form of disability is back or neck problems, followed by heart, blood pressure or circulation and legs or feet. Approximately 18% of the disabled were born with a disability and slightly more acquired it as a result of work-related diseases, accidents or injuries. Men are much more likely than women to have become disabled as a consequence of work activities.

Table 2 displays the employment rates for disabled and non-disabled individuals. The disabled have lower employment rates relative to the non-disabled in all countries and it is the most severely disabled that have the lowest employment rates. However, with the exception of Poland and Spain, the UK has the lowest ratio of disabled to non-disabled employment rates at 0.53, considerably lower than the OECD(19) average at 0.62, or the EU(11) average at 0.60. Thus, the UK faces a double labour market problem: not only are rates of disability higher, but the employment rate of the disabled is lower.

Table 2: Employment rates for the disabled across countries.

Employment rate by severity of disability, percentage of 20-64 population, late 1990s				
		Disabled		Non-disabled
	All	Severe	Moderate	
Australia	41.9	31.4	46.9	76.6
Austria	43.4	23.9	50.2	71.8
Belgium	33.5	21.1	40.0	61.7
Canada	56.3	-	-	78.4
Denmark	48.2	23.3	55.1	79.4
France	47.9	36.4	55.5	66.6
Germany	46.1	27.0	52.9	69.0
Italy	32.1	19.4	37.9	53.8
Korea	45.9	13.4	51.5	61.7
Mexico	47.2	-	-	61.1
Netherlands	39.9	26.5	46.4	67.0
Norway	61.7	-	-	85.8
Poland	20.8	-	-	71.2
Portugal	43.9	27.6	55.3	74.0
Spain	22.1	15.1	26.5	54.2
Sweden	52.6	33.8	69.0	75.8
Switzerland	62.2	-	-	79.1
United Kingdom	38.9	19.3	46.8	73.9
United States	48.6	26.4	58.8	83.9
OECD (19)	43.9	-	-	70.8

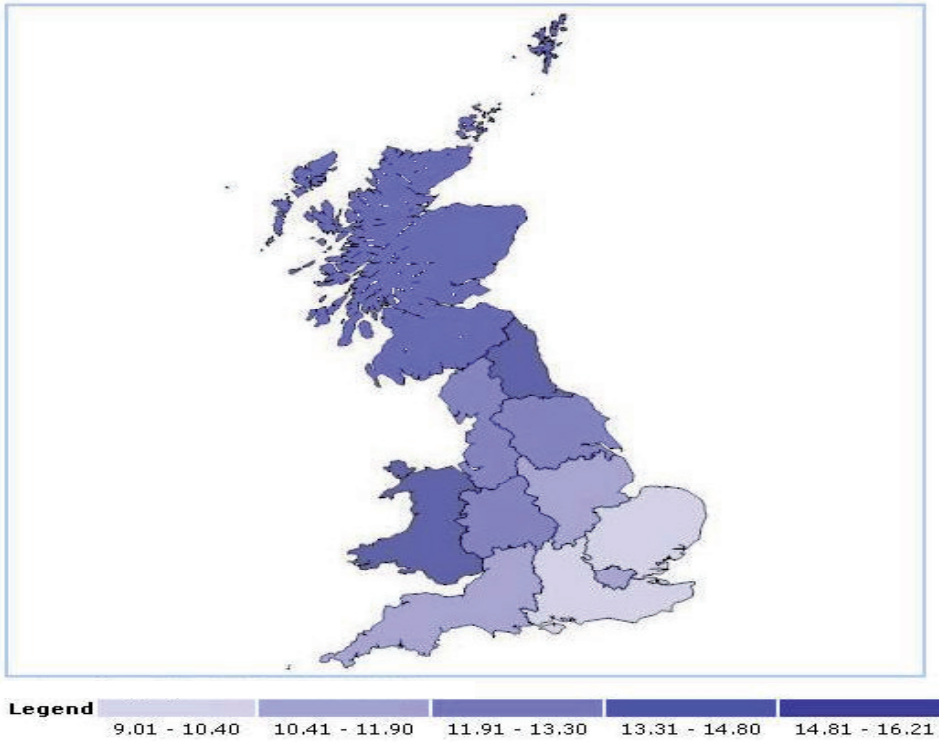
Source: Adapted from Table 3.3. Transforming Disability into Ability: Policies to Promote Work and Income Security for Disabled People, OECD 2003.

2.2 Inter-regional variation

There is also considerable variation in the incidence of disability within individual regions in Britain. Figure 1 plots the percentage of those of working age who were both DDA and work-limiting disabled by region in 2003. As is evident, disability is more concentrated in the 'North' which has seen a decline in heavy industry since the 1980s. For example, the rate of disability is highest in the North East at just over 16%. In contrast in the South East and Eastern region disability rates are only about 9%. As Smith and Twomey (2002) surmise:

"the reasons for regional variations in disabilities ……. are likely to be associated with regional variation in the distribution of industries; the availability of, and access to healthcare and adequate housing; lifestyle and dietary behaviour; levels of education; and the age distribution of the population" (p. 418)

Figure 1: Prevalence of disability by region (%)



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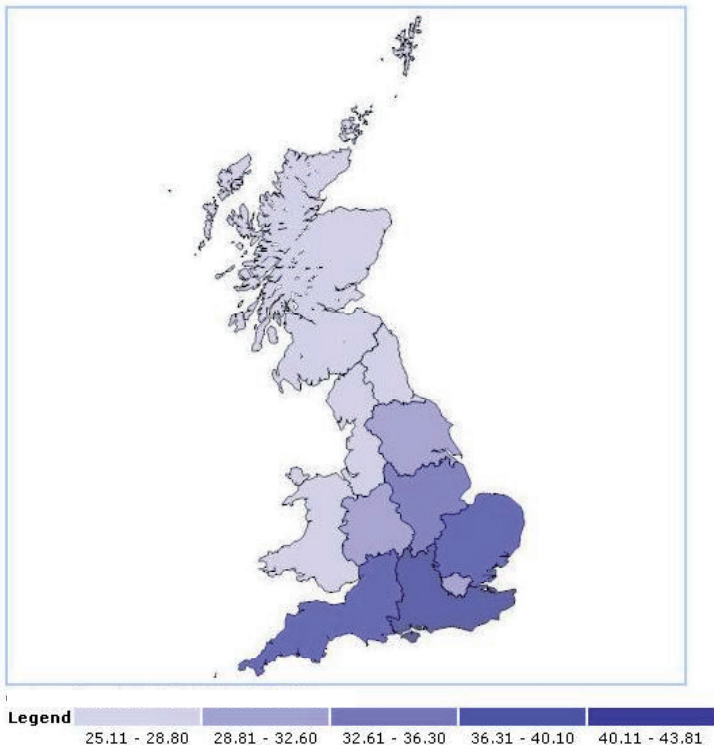
However, again it is not only disability rates that vary, but the impact of disability on labour market outcomes. Figure 2 shows the employment rates of working age DDA and work-limited disabled individuals by region in 2003. Again, the 'North'-'South' divide appears important: the areas with the highest prevalence of disability also have the lowest employment rates for the disabled. For example, in Wales only 25.1% of disabled individuals are employed; in contrast, in the South East the corresponding employment rate is 43.8%. Thus, the problems caused by disability also vary dramatically across regions[2]. Of course, since the disabled population is heterogeneous, this may in part reflect differences in the composition of disability; however the distribution is consistent with the importance of demand-side factors. The regional distribution of disability and the labour market difficulties faced by these individuals are likely to be the result of a combination of demand and supply side factors. Indeed, the areas with the high rates of disability and lower employment rates of the disabled are the slacker labour markets, many of which have experienced large job losses in manufacturing. The experience of high unemployment in these areas may have contributed to a culture of benefit dependence which remains long after the demise of these industries.[3] Furthermore, lower average earnings in these areas increase the replacement rate of disability benefits. However, the health problems associated with heavy industry and the resulting poverty in some cases are also likely to be more concentrated in these areas. Moreover younger, better educated individuals are more likely to leave to seek opportunities elsewhere, leaving an ageing and often low skilled population, both of which are positively correlated with disability and inactivity.

[2] See Jones *et al*. (2006b) for an examination of the issue in Wales. They also identify important intra-regional differences in disability incidence.

[3] For a more detailed analysis of this see Blackaby *et al*. (2003). They report that once economic factors that are likely to influence the incidence of long-term sickness have been accounted for, the incidence of sickness claimants in Wales remains significantly high. This finding could be consistent with either cultural factors such as one type of benefit being viewed as more socially acceptable than others, or simply because overworked family doctors are more willing to sign off individuals who are otherwise unlikely to find work.

Figure 2: Employment rate of the disabled by region (%)



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3. UK DISABILITY LEGISLATION

The primary piece of legislation impacting on (the employment of) disabled persons in the UK is the aforementioned Disability Discrimination Act 1995. This has subsequently been modified by statute in response to EU Council Directive 2000/78/EC as implemented in the Disability Discrimination Act 1995 (Amendment) Regulations 2003, while further changes (some of which have yet to come into force at the time of writing), are embodied in the Disability Discrimination Act 2005 (DDA 2005). The provisions have also been supplemented by a significant body of case law as well as the *Codes of Practice* issued by the Secretary of State and, latterly, the Disability Rights Commission set up in 2000 under the provisions of the Disability

Rights Commission Act 1999 with the aim both of eliminating discrimination against disabled persons and promoting equal opportunities[4]. The Special Educational Needs and Disability Act 2001 (SENDA) brought access to education within the remit of the DDA, making it unlawful for education providers to discriminate against disabled pupils, students and adult learners. In addition, local education authorities and schools are under a duty to plan to increase progressively the accessibility of schools to disabled pupils[5].

As should be clear, disability has been an active area for legal reform over the last few years. To date however, only a small number of economic studies has sought to evaluate the impact of UK legislation on the labour market outcomes of disabled people (see Section 4 and below), and because of the time lag between implementation and the availability of suitable data, these have to our knowledge, as yet explored only the impact of the 1995 legislation. For this reason we focus initially and primarily on the provisions in the 1995 Act, although more recent changes/additions to the legislation are also briefly discussed.

Before doing this however, it is worth noting that a range of other policy initiatives affecting the labour market outcomes exist alongside the anti-discrimination framework. Incapacity Benefit (IB) for example, is the main sickness-related benefit in the UK for those who have been incapable for work due to sickness or incapacity for 28 days or more. The amount varies in relation to the duration of the disability[6], but for those on long term incapacity (more than 52 weeks) the current rate is £81.35 per week. Whilst there are some exceptions ('permitted work'), individuals are not generally allowed to undertake paid employment whilst in receipt.

At the time of writing, there is a veritable raft of policy measures designed to ease the transition (back) into work. Some of these, such as the New Deal for Disabled People (NDPP) or Access to Work are available exclusively for those with disabilities, while others such as Working Tax Credit are available more widely (but may be tailored to particular circumstances including disability). The first of

[4] Note that while the DDA applies across the UK, slight amendments apply in the case of Northern Ireland, which has its own *Codes of Practice* (as does Scotland for the DDA 2005) and where a separate Equality Commission also operates (see http://www.equalityni.org).

[5] As far as schools are concerned this means disabled students must be educated in mainstream schools unless this is incompatible with the wishes of parents or the provision of efficient education for other children. There must be equal treatment with respect to admission and participation in the curriculum, and enforcement is through a Special Education Needs and Disability Tribunal. Further and Higher Education bodies have similar obligations, though enforcement in this case is the duty of the Disability Rights Commission, backed up by *Codes of Practice*.

[6] The 'perverse' incentive provided by the rise in IB as an inactivity spell lengthens is one of the reasons underpinning the reforms proposed in the Green Paper cited earlier.

the above policies, NDPP, is a voluntary scheme providing a range of advice and support through a network of 'job brokers' to help disabled individuals to move into work. Such assistance may include help in identifying opportunities, openings and training needs, guidance and help in the process of applying for jobs, plus support in the first six months in work, including arranging for any special equipment. Such equipment may also be provided through the Access to Work scheme, which pays (towards) approved costs for this and other additional forms of in-work support such as a reader for blind/visually impaired persons[7].

In terms of financial incentives to re-engage with the labour market, there are again a number of measures extant, although the majority of these such as the Working Tax Credit (WTC), which tops up the earnings of those on low incomes working 16 hours or more per week, are universal in nature rather than targeted towards the disabled specifically (as for example was the case with the Disabled Persons Tax Credit which WTC replaced). That said, separate (additional) elements of WTC apply for the disabled and severely disabled.

3.1 The Disability Discrimination Act 1995

The DDA 1995 had as its main objective "to make it unlawful to discriminate against disabled persons in connection with employment, the provision of goods, facilities and services or the disposal or management of premises" (DDA 1995: p.1). From the perspective of the present paper, the most pertinent sections are those in Part II of the Act, which pertain to employment matters, and in particular relating to hiring, work conditions, promotion, training and dismissal. Various parts of the legislation became operational from different dates, with the majority of the employment provisions taking effect on 2 December 1996. In this context the Act concerned itself with two main forms of discrimination[8]: (i) less favourable treatment by employers of disabled persons for reasons to do with their impairment; and (ii) failure to make reasonable changes to working arrangements or the physical environment (i.e. to make 'accommodations') in order to avoid disadvantaging disabled employees or potential employees. Examples of such accommodations mentioned in the Act include the adaptation of premises, changes to work hours or duties, training, modifications to instructions or manuals or the provision of a reader or interpreter (s.6(3)). Both less

[7] See the Department for Work and Pensions web site (http://www.dwp.gov.uk) for more details of these and other schemes such as residential training and WORKSTEP available to disabled people.

[8] A third form of discrimination, namely victimisation (for example, as a consequence of making a complaint against an employer under the employment provisions) is also covered by the Act (s.55)

favourable treatment and failure to accommodate could however be justified by the employer "if the reason… is both material to the circumstances of the particular case and substantial" (s.5(4) and s.5(5)). In determining the reasonableness or otherwise of an accommodation, a variety of factors were identified as being of relevance, including *inter alia* whether the adjustment would facilitate a substantial alleviation of the effect(s) of the impairment, the practicality and cost of the adaptation, and the scale of resources available to the employer (s.6(4)).

A key issue for the purposes of the legislation is, of course, the definition of disability itself. S.1(1) of the 1995 Act deemed a person to be disabled "if he has a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out normal day-to-day activities"[9],[10]. Long-term in this context was interpreted as current or previous impairments having lasted, or being likely to last for 12 months or more, or for the remainder of an individual's lifetime, including (potentially) those which might be more intermittent in nature. Specific conditions were not identified, although for degenerative diseases such as cancer, multiple sclerosis or HIV, protection would apply only from the point at which the disease affected normal activities (even if the impact was not substantial), while severe disfigurement was presumed by the legislation as having a substantial such effect. Importantly, in the case of mental impairment, only "clinically well-recognised" illnesses were to be covered (Schedule1, s.1(1)). Further, the DDA initially applied only to organisations employing at least 20 persons (reduced to 15 persons with effect from 1998 (Goss *et al*., 2000: 811)), while certain occupations such the police, armed services etc. were also excluded.

The enforcement of the DDA (an aspect largely ignored by economists) is essentially prosecuted via the individual making a claim to an Employment Tribunal[11]. These are independent statutory bodies with responsibility for resolving a wide variety of (individual) disputes between firms and employees/potential employees (see www.ets.gov.uk). In essence, they are similar to arbitration in the US or to civil courts – albeit less formal than the latter – with a three person panel adjudicating on the legal merits of a specific case and arriving at legally binding decisions enforceable through the (county) courts.

[9] Note that although UK legislation is written using the masculine pronoun, the provisions apply equally to both men and women.

[10] Such activities were specified (Schedule 1, s.1(1)) as those affecting: mobility; manual dexterity; physical co-ordination; continence; the lifting or moving of everyday objects; speech, hearing or eyesight; memory, concentration, learning or understanding; and perception of risk or danger.

[11] Known until October 1998 as Industrial Tribunals.

3.2 Subsequent legislation

Since October 2004, and in response to an EU Council Directive in 2000, the scope of the 1995 Act has been extended to cover all employers (except the Armed Forces) and also partnerships, irrespective of organisation size. There is also a distinction drawn between direct discrimination (i.e. simply *because* the individual has a disability) and what the DRC terms 'disability-related discrimination' (i.e. for reasons *related* to a person's disability), with the distinction relating in part to the choice of comparator group (see the DRC *Code of Practice: Employment and Occupation* 2004 section 4 for discussion and some illuminating examples). Importantly, as of October 2004 the employer can no longer 'justify' direct discrimination or a failure to accommodate, although this concept remains pertinent in the case of disability-related discrimination.

The DDA 2005, the main provisions for which took effect in December of last year, moves the legislation further still in the case of the public sector employer. Thus, analogously to the Race Relations Amendment Act 2002, the latest Act imposes on public authorities a 'general' "duty to promote disability equality"; that is, to promote equality of opportunity for disabled persons. This will require the public sector to become more proactive in its approach to disability ("mainstreaming disability equality into all decisions and activities", DRC, 2005: 5), and is supported for certain public bodies by 'specific' duties, including the implementation of a formal Disability Equality Scheme[12]. Furthermore, as the DRC's *Statutory Code of Practice* makes explicit, promotion of equality of opportunity may involve favourable treatment (positive discrimination)[13].

3.3 Critiques of the employment legislation

The 1995 DDA, while perhaps important symbolically (Gooding, 2000, cited in Woodhams and Corby, 2003), has been the subject of numerous, critical commentaries, the majority by lawyers, sociologists and employment relations/HR and social policy specialists, rather than economists. This is an important and extensive literature. However, given the focus of this review on developments in economics, the following accordingly presents only a very cursory examination of some of the most important issues arising from this other literature, and in particular those of relevance to the work discussed in Section 4.

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[12] This includes formal monitoring requirements – see Roulstone and Warren (2006) for a forward-looking appraisal.

[13] The example given is a reserved parking space for a disabled student which allows them to attend an educational establishment that would otherwise prove inaccessible (p. 4).

While some commentators have taken issue with the restrictive nature of and exclusions from the (original) Act, arguing that it was weak by comparison with, for example, the corresponding US legislation (Goss *et al*., 2000), perhaps the most common complaint is that it is framed very much in the 'medical' rather than 'social' model of disability (see for example Barnes *et al*., 1999; Goss *et al*., 2000; Roulstone, 2003; Woodhams and Corby, 2003)[14]. It has also been attacked for failure to include work among the list of day-to-day activities (Woodhams and Corby, 2003: 168). The DDA it is argued, leads to a focus on definitional issues, and effectively necessitates the procurement and presentation of medical evidence in the prosecution of claims (Taylor and Proud, 2002; Woodhams and Corby, 2003). This is especially true in the context of mental impairment (Wells, 2003). Moreover, the rather ambiguous nature of both the definition of disability, with its "four-part test" (Wells, 2003), and of the grounds for justification, have inevitably led to the development of a substantial body of case law (much of this case law is now moot following the removal of the justification defence in direct discrimination and accommodation contexts – see below). This has further increased the complexity of the legal situation as regards the application of the DDA (Meager *et al*., 1999, 2004).

Equally importantly, while the number of Tribunal claims appears to have risen over time from around 115 cases per month in 1997 (Meager and Hurstfield, 2005) to a peak of 471 per month in 2003/4, the success rate of even the small proportion of claims that go to a full merits hearing is low – less than 20% in both the Phase 1 and Phase 2 monitoring exercises undertaken respectively by Meager *et al*. (1999) and Leverton (2002) (see also the survey in Meager and Hurstfield, 2005)[15]. Many cases with apparent merit fail on legal technicalities (Roulstone, 2003: 124-125), most commonly in relation to the definition of disability (Leverton, 2002) which, on the basis of case study evidence, Hurstfield *et al*. (2004) suggest employers may now be "routinely challenging" (p. 12). These authors further suggest that the complexity of the legal framework within which claims must be prosecuted means neither party to a dispute is likely to understand the law well. Not surprisingly there is powerful

[14] Crudely expressed, the former essentially considers impairment as a defect/deficit, focusing on the nature of and restrictions imposed by an individual's condition(s), and where disabled persons are largely passive recipients of interventions by disability professionals. In contrast, the 'social' model considers disability as being culturally defined and constructed, arising from facets of the individual's social and physical milieu rather than the impairment itself; the focus is instead on empowering the individual to achieve their full potential by addressing the sources of disadvantage. See Hales (1996) for an extensive discussion of interventions from a variety of experiential perspectives.

[15] Employment Tribunals Service data published in their *Annual Reports* suggest this may have improved over the last couple of years, although the success rate remains low relative to the average for all jurisdictions.

evidence that representation matters in determining case outcomes (Roulstone, 2003; Meager *et al*., 1999); legal or other professional representation at Tribunals effectively becoming imperative. These last authors have suggested that the lack of understanding of the law and the costs of medical evidence (and indeed legal costs) act as a potent barrier to some individuals in enforcing their rights. Moreover, even where cases are successful, the typical award does not appear especially generous (Meager *et al*., 1999; Roulstone, 2003), with a median of just £7,500 in 2004/5 (see the *ETS Annual Report & Accounts*, 2005).

4. BRITISH EMPIRICAL EVIDENCE

The issue of disability has become more important to economists in Britain over time due to a sharp decline in the employment rate of the disabled (see Bell and Smith, 2004). Since the mid 1990s several studies have focused exclusively on the impact of disability on labour market outcomes. It is these studies that are the focus of this section[16].

4.1 Measurement

The measurement of disability has developed as a major theme in the US literature on disability (see for example, Bound, 1991), however it has not featured as prominently in Britain. The differences between definitions of disability have been considered by Bajekal *et al*. (2004), who find the size of the disabled population can be affected by the definition itself and the structure of questions in surveys, but the impact is less for the working age population. Importantly however, Berthoud (2003) notes the sensitivity of average employment rates to the definition of disability. Banks *et al*. (2004) highlight the limitations of self-reported information by identifying the existence of dramatic international differences in self-reported disability, despite similar levels of a more objective health measure, namely pain. The results suggest that over 50% of the difference in rates of self-reported disability between US and the Netherlands is due to differences in disability thresholds. If American thresholds were imposed on the Dutch population, the self-reported work disability rate in the Netherlands would fall by 7.6 percentage points to 27.3%, which would narrow the gap between self-reported disability rates in the US and the Netherlands from 14.1 percentage points to 6.6 percentage points.

[16] See Jones (2005a) for an international review of the evidence. In Britain, research on disability has also stimulated research on the impact of informal care on labour market outcomes (i.e. an indirect effect). This evidence is not reviewed here, but see Carmichael and Charles (2003) and Heitmueller and Inglis (2004) amongst others for individual studies.

4.2 Disability Onset

The age of disability onset can have important implications for labour market outcomes. For children, a disability will influence pre-labour market experience, entry to the labour market and their entire labour market history. However, if disabled children are more able to adapt than individuals who become disabled later in life this may reduce the labour market impact of a childhood disability. Jones (2006b) using an *ad hoc* module on disability contained in the Spring 2002 quarter of the LFS finds that the average age of disability onset is 29 years for men, slightly higher than for women, while nearly 15% of the disabled were born with their disability. She finds that individuals who experience disability onset in childhood or youth are more likely to be employed than those with disability onset in prime age consistent with their being more able to adapt to their disability.

Lindeboom *et al*. (2006) make use of the UK National Child Development Survey (NCDS) to develop an event history model which includes unscheduled hospitalisation as a measure of unanticipated health shocks. These increase the likelihood of disability onset by about 138%. Onset of disability at age 25 also reduces the employment rate at age 40 by about 21 percentage points. However, occurrences of shocks are relatively rare events accounting for only 6.6% of all disabilities at age 40; the main part of longstanding disability arises instead from a gradual deterioration in health. Early childhood conditions influence the likelihood of a health shock including factors such as whether the mother smoked during pregnancy, mother's age at birth, child's birth weight, height at age 23 and maths score aged 7. There are also important gender differences: men are much more likely to experience health shocks and experience different types of health shock than women. The onset of disability also has almost twice the size of effect on employment rates of men than of women, although it is not clear to what extent this is a result of gender differences in occupational choice. The authors emphasise an important policy implication of their results: reductions in inequality later in life, and particularly in disability rates, can be achieved most effectively through early interventions.

4.3 Labour market impact

In Britain, identifying and explaining the impact of disability on labour market outcomes has become the focus of labour market research in relation to disability. Studies have consistently identified a negative impact of disability on labour market outcomes, with the impact being greater on employment (or participation) than earnings (Blackaby *et al*. 1999, Kidd *et al*. 2000). Across a range of datasets the employment rate of the disabled is estimated to be about half of the non-disabled rate, and less than half of the gap can be explained by differences in observable characteristics

(Blackaby *et al*., 1999)[17]. O'Donnell (1998) however, argues that this type of model is mis-specified if some disabled individuals are unable to work. Using data from 1985 British Office of Population Censuses and Surveys (OPCS), he models employment as an outcome of two decisions: capacity for work and desire for work, which is found to be an appropriate specification. Failure to model this inability to work overestimates the impact of financial incentives on employment.

In earnings decompositions, about half of the 10-15% raw earnings differential between disabled and non-disabled workers is explained by characteristics, resulting in a significant estimate of the upper bound of discrimination (Kidd *et al*., 2000). Further work by Madden (2004) using the Family Resources Survey (FRS) in 1995 suggests the estimation is not sensitive to selection into disability status. However, he identifies the importance of controlling for the impact of disability on productivity. Jones *et al*. (2006a) confirm this finding and use the DeLeire (2001) method to distinguish unobserved productivity from discrimination and find that discrimination falls to 10% of the earnings gap once this affect has been controlled for. Using the same technique, Jones (2006a) also suggests that productivity differences are the dominant explanation for unexplained differences in employment.

Relatively recent research has also considered the type of employment undertaken by those disabled individuals who work. Jones (2005b) identifies a significantly higher concentration of disabled workers in part-time employment and Boylan and Burchardt (2002) and Jones and Latreille (2006) find disabled workers are also concentrated in self-employment. As Boylan and Burchardt (2002) note, this is partly a result of differences in characteristics, but Jones (2005b) and Jones and Latreille (2006) find that a significant gap is unexplained in both cases. They argue that the concentration is predominately a result of accommodating features of these non-standard forms of employment rather than employer discrimination.

A series of UK studies also consider the dynamic aspects of disability by focusing on longitudinal data. Burchardt (2000) finds that, although at any one time the long-term disabled account for a large proportion of all disabled people, only a small proportion who experience disability are long-term disabled. Indeed, over half of those who become disabled as adults have a duration of 2 years or less, emphasizing that it is not a permanent state for many, even if, after four years, the exit rate from disability is severely reduced. The dynamic effects allow Jenkins and Rigg

[17] In Britain disabled individuals are about twice as likely to have no qualifications, and about half as likely to have a degree. Whilst this will contribute to the explained component of a standard decomposition, this may in part reflect pre-labour market discrimination in terms of access to education. However, since only about 20% of disabled individuals are disabled as children, the selection of poorly qualified individuals into disability also appears important.

(2003) to split the effect of disability on labour market outcomes into three stages: i) a selection effect, ii) the effect of disability onset, and iii) the effect of disability post onset. Using data from the British Household Panel Survey (BHPS) they find, consistent with self-reporting bias, that individuals who experienced disability onset were disadvantaged prior to the disability onset, having fewer qualifications, lower incomes and lower employment rates. However, the effect of onset was negative in itself, with the proportion of persons in paid work falling by 26% and their median income falling by 10%. After the initial onset effect, average work income increases, but the probability of being in employment falls with the duration of disability. Burchardt (2003) uses the short longitudinal element of the Labour Force Survey (LFS) and confirms the effects. 2.6% of people become disabled (as defined by the DDA) quarter on quarter and, as a result of the onset of disability, 5% leave employment immediately, whereas after 9-12 months 13% have left employment. The probability of exiting from employment is increased by low human capital and poor employment protection.

In an international comparison, Bardasi *et al*. (2000) compare the impact of disability on the labour market in Britain with evidence in the US and Germany by Burkhauser and Daly (1998). The onset of disability is associated with a larger outflow from employment in Britain, with 81% employed two years prior to onset of disability and only 36% two years after the onset in Britain compared to 96% and 83% in Germany. The onset of disability is not associated with large reductions in average income since income from benefits in part replaces lost labour market earnings. It is worth noting that Zaidi and Burchardt (2005) find that the onset of disability significantly increases the cost of living and therefore real incomes amongst disabled are over estimated.

4.4 Policy evaluation

Relatively few economic studies have considered the impact of changes in legislation or government policy such as DDA, New Deal for Disabled People, Disabled Persons Tax Credit and changes to the disability benefit system. One notable exception to this is Bell and Heitmueller's (2005) assessment of the DDA. Using the methodology of Acemoglu and Angrist (2001) and data from the BHPS and the FRS, they find some evidence of a negative impact (or at least no positive effects) of the DDA. They suggest that the lack of awareness of the Act and low levels of take up of financial support by employers and individuals are possible reasons for the absence of a significant impact. In contrast, Jones (2006) finds using data from the LFS that the raw employment gap narrows over the post DDA period (1997-2003).

The Department of Work and Pensions has undertaken evaluation studies into the New Deal for the Disabled, which as noted earlier, is a scheme offered to those who claim incapacity benefits to aid their move into employment through a series of job

brokers. Adelman *et al*. (2004) outline the characteristics of participants, the service they received and the employment outcomes for those who registered between May and June 2002. One year after registration 46% had entered post-registered employment, of whom 38% moved into employment within six weeks. Those with poor education and basic skills and with a negative attitude to employment were found to be least likely to find work. An earlier report (Department of Work and Pensions, 2004) which synthesises the findings from the first 18 months (July 2001-Nov 2003) found that 32% had gained employment, but that only 39% of these had found sustained employment up to May 2003.

The literature relating to disability benefits tends to be quite distinct from other work on disability. The literature on the former, and particularly as regards the increase in recipients in the UK in the last twenty years is quite extensive, albeit much of it is descriptive (for partial exceptions see Faggio and Nickell, 2003; and Bell and Smith, 2004). Between 1988 and 2005 the number of people claiming incapacity benefits (IB) in the UK rose from 1.27 million to 2.66 million and in 2006 the government announced plans to encourage many of those on benefits back to work as only 20% were considered to be incapable of work[18]. Individuals will be required to attend periodic job interviews and participate in job seeking support programmes, while in 2008 IB will be replaced by an employment and support allowance with claimants having to undergo a new medical assessment to identify which types of work they are capable of doing in order to qualify for the allowance.

Interestingly, the evidence suggests that IB rolls exhibit similarly strong regional variation to disability prevalence (McVicar, 2006). Working age men and women in the 'North' (including Wales) are considerably more likely to be in receipt of disability benefits than those in the South. In part this reflects spatial differences in self-reported incidence of disability across regions and partly spatial differences in demographic and socio-economic factors. As McVicar acknowledges, there is an acute need for further research in this area, but some evidence is emerging. Beatty and Fothergill (2005) for example, note that the diversion from unemployment to sickness benefits has occurred predominantly in the older industrial areas of the North, Scotland and Wales, and argue that labour demand needs to be boosted in these areas. At the more disaggregated district level, the share of the working age population claiming sickness related benefits ranges from less than 2% in some iacalifies to over 20% in Merthyr Tydfil in the Welsh Valleys and Easington in the North East. As such, sub-regional variations seem to be even more marked than cross-region differences (see also Beatty

[18] There has been a change in the composition of those on incapacity benefit. Those suffering from mental and behavioural problems (including stress) rose by 51.2% between 1997 and 2005, while those suffering from muscular-skeletal problems fell over the same period by 13.8% and those suffering from circulatory and respiratory problems fell by 32.5%.

et al., 2000). The incidence is higher amongst men than amongst women and particularly so among older manual men with few formal qualifications. One study which considers benefit receipt in the context of labour market outcomes for the disabled is Berthoud (2006). He finds receipt of incapacity benefit is less closely linked to the severity of the disability than Disability Living Allowance and highlights that the range in employment disadvantage experienced within the disabled group renders it very difficult to identify those who can work from those who cannot.

4.5 Heterogeneity

Several of the studies have identified the importance of features of the disability on labour market outcomes – that is, the effect of disability is not uniform. Cross-sectional analysis has focused on the type and severity of the disability, whereas the duration and age of disability onset can be considered using longitudinal data. The evidence suggests an important distinction exists between physical and mental health problems since mental health problems appear to have more adverse labour market consequences including employment and earnings (Kidd *et al*., 2001; Jones *et al*., 2006a). Berthoud (2006) amongst others also confirms the differences between impairment types and also that the probability of employment falls with severity. Jones (2006a) further finds, as noted earlier, that the age of disability onset is important for employment.

5. FUTURE ISSUES IN DISABILITY RESEARCH IN BRITAIN

The growth in the economic evidence relating to disability in Britain has coincided with an increase in targets and policy initiatives aimed directly at improving the labour market outcomes of the disabled. Therefore, there is also a growing awareness of what is not known and understood about the disabled population. In this section three areas are identified as potentially important areas for future research.

5.1 Measurement

Although the British literature developed later than in the US, many of the issues discussed in Section 5 have previously been investigated internationally. One area where the evidence in the UK is relatively sparse in comparison to the US is in relation to the measurement of disability and the issue of justification bias and other potential forms of endogeneity between work and health. Disability may be endogenous due to misreporting on the basis of employment status, but there may also be other, more common forms of endogeneity such as common unobservables or a direct relationship between work and health (see Heitmueller and Michaud, 2006 for a study of informal care and labour market outcomes that discusses and addresses various types of endogeneity in that context).

5.2 Policy evaluation

Although some evidence is now beginning to emerge, relatively little economic work exists in relation to policy developments and even major changes in the legislation such as the DDA (although as the discussion in Section 3.3 indicates, there has been substantial work from other perspectives). Whilst analysis of trends in the employment rates of the disabled using other data sets is valuable, it remains difficult to isolate the impact of the DDA from changes in the reporting (and thus composition) of the disabled, other policy initiatives and cyclical fluctuations. In this respect, analysis on firm (and matched) data in addition to individual data may be particularly appropriate, and could provide information on the prevalence, type and cost of workplace accommodations (see the related work by Stuart, *et al*., 2002; and also Jackson *et al*., 2000). Whilst discrimination is difficult to identify, it will also be interesting to continue to monitor legal cases brought under the DDA (as undertaken by Meager *et al*., 1999, 2004; Leverton, 2002).

One important omission from many studies of disability is a consideration of the impact of incapacity benefits. Examination of incapacity benefits has tended to be quite distinct from studies that focus on disability more generally, and this partly reflects the different definitions of the population under consideration. However, ignoring the incentives created by disability benefit regimes (and their changes) is likely to be hazardous. A more integrated approach, which considers which individuals receive disability benefits, is likely to provide a more comprehensive understanding of the low employment rates. The planned changes to incapacity benefit to reduce the disincentives to work will also be an important area for research.

5.3 Heterogeneity

It is increasingly being recognised that the experience of disabled individuals is diverse in terms of the type, severity and duration of the disability. However, there are several other features of disability that are likely to affect labour market outcomes. Studies have neglected – largely due to data constraints – the dramatic difference between the labour market problems of those who are disabled prior to labour market entry and those for whom disability onset is age related (Baldwin and Johnson, 2001). For the former, pre-labour market discrimination may be important, whereas for the latter the main issue is employment retention and accommodating the disability in work. Evidence also highlights the differences in labour market outcomes between physical and mental health problems, but the reasons behind this are relatively unknown. In particular, it is important to assess the differences in the impact of types of disability on productivity and also how employers perceive these differences.

It is not only the characteristics of the disability itself that have implications for productivity. An individual may be equally productive in one occupation but

totally unable to work in another. Without detailed information on the nature of the limitations and the job requirements, productivity differences will not be identified accurately from survey data. Until researchers have a better estimate on productivity it is impossible to identify accurately discrimination, and thus to assess changes in legislation.

Despite several aspects of disability research being limited by data access, it is promising to note that policymakers have recently commissioned a feasibility study of a disability survey in the UK (Purdon *et al*. 2005). In addition, for older workers, the new English Longitudinal Study of Ageing (ELSA) contains a range of more objective health information and as additional waves become available will be an important source of longitudinal data. Much of the empirical analysis has also been country-specific, yet analysis of labour market outcomes of the disabled under alternative policy regimes would be informed by cross country analysis. Data sets such as the European Community Household Panel and initiatives such as the LFS 2001 *ad hoc* module on disability may provide such an opportunity.

6. CONCLUSIONS

The UK stands out not only as having high rates of disability relative to the rest of Europe, but also a low ratio of disabled to non-disabled employment, together with considerable regional variation in both respects. The UK was early to introduce disability discrimination legislation in 1995, and this has been supplemented by a range of other policy initiatives to assist disabled people. The 1995 Disability Discrimination Act not only outlaws less favourable treatment of disabled persons by employers, but also obliges them to make reasonable changes to working arrangements to accommodate them. Though the scope of the law has been widened subsequently and the number of disability cases coming before industrial tribunals has increased over time, the success rate for claimants remains low.

There are relatively few economic analyses of disability in the UK, but studies on the measurement of disability imply that the definition of disability and the structure of survey questions could account for some of the differences in the extent of disability recorded in different countries. Estimates of the extent to which differences in employment and earnings in Britain are due to discrimination suggest this is a relatively small component and the higher incidence of self-employment and part-time work among the disabled is more likely the result of the more accommodating features of such work rather than exclusion from full-time paid employment. Most studies find that mental disabilities have a more severe effect on employability than other forms of disability and severity of disability for all types increases the likelihood of inactivity in the labour market. There are also important differences between those born with a disability and those subject to disability onset, with the latter most subject to

negative employment effects, particularly those with low levels of human capital. The negative effects of disability onset in Britain are greater than for other countries in which such data are available.

Attempts to measure the impact of the 1995 Act on employment and wage outcomes are as yet few and far between, and yield conflicting results, with some suggestion of a negative impact, but also of a positive one. In each case however, the effects appear to be quantitatively small.

Major areas for future research on disability in the UK include measurement issues, policy evaluation and the analysis of heterogeneity. Little is known about the extent of mis-reporting of disability and the extent of justification bias, which has been much more researched in the US, or on the extent to which work and health are endogenous. Isolating the impact of the DDA from other policy initiatives remains problematic, but could be assisted by analysis of firm-based data. The analysis of the effect of incapacity benefit on work incentives remains an important area in the light of current government initiatives to reduce the number of disability benefit claimants by one million over the next decade. More broadly, further research is needed to explain why disability and its impact on labour market outcomes remain so high in Britain relative to other countries.

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