

Disability, work and income: a British perspective

Elena Bardasi, Stephen P. Jenkins and John A. Rigg
(Institute for Social and Economic Research, University of Essex)

24th October 2000

Abstract

This paper analyses the economic impact of becoming disabled for British working-age men. The data is from the first eight waves (1991/8) of the British Household Panel Survey (BHPS). Cross-sectional evidence shows that the income of disabled working-age men is substantially lower than non-disabled working-age men. However, analysis of longitudinal data indicates that the majority of this disadvantage is accounted for by the low economic status of the men who become disabled. These findings for British men are consistent with similar evidence for US and German men. A major cross-national difference is that becoming disabled is associated with a much greater outflow from employment for working-age men in Britain compared to the USA or Germany.

Acknowledgements

Revised version of a paper presented at a TransCoop workshop in Washington DC. We thank the participants for their comments. ISER receives core funding from the ESRC and the University of Essex.

Correspondence

ISER, University of Essex, Wivenhoe Park, Colchester CO3 4SQ, UK. Email: ebardasi@essex.ac.uk, stephenj@essex.ac.uk, jarigg@essex.ac.uk

NON-TECHNICAL SUMMARY

Evidence from the British Household Panel Survey indicates that the post-disability income of working-age men who become disabled is on average a fifth lower than the income of working-age men without a disability. Moreover, the income of working-age men before the onset of a disability is just 10 per cent higher than working-age men who are already disabled.

Most men who become disabled are employed prior to the onset of their disability, but with relatively low earnings. Becoming disabled is associated with a large reduction in employment, from 81 per cent two years before the onset of a disability to 36 per cent two years after the onset. However, this sharp reduction in employment is not associated with a substantial reduction in net income. This falls by eight per cent over the period from two years before the onset of a disability to two years after. The loss in earnings associated with the reduction in employment is largely cushioned by increases in private pensions and benefits, and a reduction in taxes.

Comparing the results for Britain with evidence for the USA and Germany reveals that, in all three countries, becoming disabled does not significantly reduce income on average. The income of men before the onset of a disability is markedly lower than non-disabled men in all countries. However, the outflow from employment for men who become disabled is far greater in Britain.

These estimates are derived entirely from longitudinal data, i.e. repeat interviews with the same individuals carried out at approximately yearly intervals. These results create a less adverse impression of the economic impact of a disability compared to evidence derived from a cross-sectional perspective i.e. interviews with a one-off sample of individuals. Cross-sectional evidence shows, for example, that working-age men with a disability have an income between 12 per cent (Germany) and over a quarter (Britain and the USA) lower on average than non-disabled working-age men. Longitudinal evidence for all three countries indicates that most of this income gap is accounted for by factors other than the disability itself. Working-age men with low income are more likely to become disabled than those with higher income. This is an important finding and encourages caution when interpreting results from cross-sectional data.

1. INTRODUCTION

This paper analyses the economic impact of the onset of a disability on the economic well-being of working-age men in Britain using data from the first eight waves of the British Household Panel Survey. The paper provides both longitudinal and cross-national perspectives, neither of which have received much attention in the British disability literature.

Analysis of the economic well-being of disabled British people has mostly used cross-sectional data.¹ These provide information about economic well-being at a point in time for a sample of individuals or information about trends using different samples of individuals (the same set of persons is not re-interviewed). It is not possible, however, to trace for each person the changes over time in income, employment, earnings etc. that take place over the period from before the onset of disablement and sometime afterwards. To do this, one requires genuine longitudinal data (as we have).

The provision of labour market programmes and cash benefits for disabled people in Britain has developed along different lines from in other OECD countries such as Germany and the USA. Germany, for example, has a greater emphasis than Britain and the USA on rehabilitation and employment measures for disabled people. Institutional differences such as these are likely to feed through to important cross-national differences in the economic well-being of disabled people.

Despite the potential pay-off from cross-national perspectives on the economic impact of disability for working-age people, there have been few previous studies. A notable exception is the comparison of Germany and the USA by Burkhauser and Daly (1998). We have taken their analysis as a benchmark in order to compare Britain with Germany and the USA. This provides a unique cross-national perspective on the economic impact of a disability for working-age men in Britain.

Disabled people have been of increasing interest to British policy-makers in recent years. New policies have been wide-ranging in scope. They include the Disability Discrimination Act (1995) aimed at eliminating discrimination towards disabled people, and the New Deal for Disabled People introduced in 1998 which is piloting a range of initiatives to help disabled people and those with long-term illness into work and training. There is also considerable debate over the scale of spending on benefits for the disabled and long-term sick

¹ Two important recent large cross-section surveys are the Disability Follow-Up Survey to the Family Resources Survey (Grundy *et al.*, 1999) and the Baseline Survey for monitoring the employment provisions of the Disability Discrimination Act (Meager *et al.*, 1998).

which now account for approximately a quarter of all social security expenditure (Department of Social Security, 1999a). Moreover, the government has set great store by its commitment to reduce social exclusion and poverty. One of the indicators by which it intends to judge its progress is through ‘an increase in the employment rates of ... people with disabilities ... and a reduction in the difference between their employment rates and the overall rate’ (see for example Department of Social Security, 1999b: 31).

2. DATA AND DEFINITIONS

2.1 Data

In order to provide results that are comparable with those of Burkhauser and Daly (1998) in their paper about Germany and the USA, we have used similar household panel data. And, as far as possible, we have also used the same definitions and sample selection criteria. Their results for the USA are based on the Panel Study of Income Dynamics (PSID), and those for Germany on the German Socio-Economic Panel (GSOEP). The period covered by the data is 1983-9 in both cases. Our data are from the first eight waves of the British household Panel Survey (BHPS), covering 1991-8.²

The different periods covered by the analysis are a potentially important factor to be borne in mind when assessing our results. The size and composition of the disabled populations in each country as well as changes in disability policy and macroeconomic factors change over time. (For illustrations, see Aarts *et al.*, 1996.)

We focus on men of working age. The experience of disability is different for men and women. Burkhauser and Daly note that for ‘both the United States and Germany, men are the primary earners in a household. Thus the economic well-being of women with disabilities is not as dependent on women’s employment and earnings and, in fact, changes very little following the onset of an impairment. In labour market effort, however, men and women are similar and, with caution, the findings for men can be generalised to women with disabilities’ (Burkhauser and Daly, 1998: 19).

2.3 The definition of disability

It is not straightforward to classify whether a person is disabled or not. From a theoretical perspective, the appropriate concept of disability varies according to whether the social or

² See Taylor *et al.*, (1998) for details.

individual model of disability is preferred (see, for example, Barnes, 1991, Nagi, 1969, and Oliver, 1996). The social model emphasises the role that society plays in creating disabling barriers. Attention should be directed not to remedying an individual's impairments, but rather to changing the physical and social environment. By contrast, the individual or medical model of disability focuses on the condition giving rise to an impairment. The impairment is seen in turn as leading directly to a functional limitation. A person with a physical impairment who uses a wheelchair, for example, is likely to be considered as disabled according to the medical model. Whether this person is considered as disabled according to the social model depends, for example, on access to buildings – the availability of ramps, lifts, etc.

This paper defines disability in terms of whether an individual has a work-limiting health condition. (Burkhauser and Daly, 1998, and a number of other authors have also used this definition.) This definition of disability is closer to the individual model than the social model given that it places individual's impairments rather than the social environment at centre stage. However it is one step removed from an extreme version of individual model in so far as it is concerned with the extent to which a person can engage in work (Burchardt, 2000).

The question in the BHPS that we used to define disability asks respondents 'Does your health keep you from doing some types of work?'.³ The corresponding PSID question is: 'Do you have any physical or nervous condition that limits the type or the amount of work that you can do?'. No similar question is regularly asked in the GSOEP. This led Burkhauser and Daly (1998) to define disability using questions about the extent to which respondents are satisfied with their health, whether they have a chronic illness and, where applicable, their officially assigned 'disability percentage'.

Because we wish to focus on the experience of men with a long-term disability, we restrict our definition of disability to refer to those men who reported a work-limiting health condition in at least two consecutive annual interviews. When we look at the onset of disability using longitudinal data, we restrict attention to men who reported at least two years without a work-limiting health condition followed by at least two years with a work-limiting health condition. We are aware that such definitions – although necessary for analytical purposes – may ignore the complex dynamics of disability and its onset.⁴

³ For analysis of alternative definitions of disability using BHPS data, see Burchardt (2000).

⁴ These issues are important subjects in their own right, not least because they have implications for the design of social security, employment policy and anti-discrimination legislation. For example, according to Burchardt,

2.4 The definition of economic well-being (income)

We measure each individual's economic well-being in terms of the income of the household to which he belongs. By 'income' we mean household net (disposable) income, adjusted for differences in size and composition using an equivalence scale. household net income is the sum of cash income from all sources: labour market earnings from employment and self-employment, investment and savings income, occupational and private pensions, plus all cash benefits from the government (including retirement pensions), minus direct income taxes and social security contributions. Household market income is defined as net income less cash benefits and direct taxes. We have used measures of annual income. In order to compare real incomes over time, incomes were adjusted to 1998 prices using a suitable price index. The equivalence scale is the semi-official 'McClements Before Housing Costs' equivalence scale (Department of Social Security, 1998). For further information about the income definitions, see Bardasi *et al.* (1999).

Our income definitions are not exactly the same as Burkhauser and Daly's. We have used a similar definition of household real net income, but they adjusted US and German using an equivalence scale based on the US official poverty line. It is possible that differences between the McClements and US poverty line equivalence scales may influence the cross-country comparisons, but we conjecture that the impact of such differences is modest.

2.5 Definitions of 'working age' and work attachment

We defined working-age men to be those aged 25-59 years inclusive (as Burkhauser and Daly, 1998, did) . The upper limit means that the focus is on genuine reductions in work or income associated with disability rather than with changes associated with retirement. (This is particularly important for cross-national comparisons. In Germany, for example, individuals may be eligible for retirement at age 60.) Use of the lower age cut-off reduces the potential impact of transitions into and out of the labour force which are related to job shopping by younger workers.

We defined working-age men to be 'employed' in a given year if they had positive earnings during that year (the same definition as Burkhauser and Daly, 1998). This is a broad

'changes included in the 1999 Welfare Reform and Pensions Bill which attempt to block routes from unemployment and early retirement onto Incapacity Benefit, depend on certain assumptions about the progression of disability which may or may not hold. Likewise, a 'welfare to work' strategy designed to assist someone who has been excluded from the labour market for a long time is likely to be very different from a policy appropriate to an employee who has recently become disabled.' (Burhardt, 2000: 1).

definition and is likely to produce considerably higher estimates of employment rates than more conventional definitions would (such as those based on ILO guidelines). We characterised a worker as being a full-time worker in a given year if he worked at least 35 hours per week on average over the year. Those working fewer hours were classified as part-time workers. Burkhauser and Daly (1998) computed average work hours for German and US men from PSID and GSOEP data about the total number of hours worked in the reference year. Corresponding information is not available in the BHPS, and so we used instead respondents' answers to questions at the annual interview about their 'Usual' number of work hours.

3. THE ECONOMIC WELL-BEING OF DISABLED WORKING-AGE MEN: A CROSS-SECTIONAL PERSPECTIVE.

3.1 Public expenditure on labour market measures and cash benefits for the disabled

Britain, Germany and the USA have all engaged in a variety of employment policies for disabled people, through the provision of income maintenance, opportunities and incentives to work, and direct employment support (Aarts *et al.*, 1996; Thornton *et al.*, 1998). Policy in Britain and the USA concentrates on supply-side or benefit measures; rehabilitation and job programmes are secondary to cash benefits as a means of helping people with disabilities. In Germany, by contrast, the most important objectives of federal employment and labour market policy are the maintenance of a high level of employment and the reduction of unemployment. A long-standing example of German 'demand side' policy is the legal obligation on employers to fulfil an employment quota. Employers unable to meet their quota face a financial penalty, money from which is used to fund labour market programmes for disabled people (Thornton *et al.*, 1997).

Public expenditure on labour market measures and cash benefits for disabled working-age people is shown in Table 1. Spending on cash benefits considerably outweighs spending on labour market programmes in all countries. Two features of Table 1 are especially relevant to interpreting the results about Britain below. First, public spending on labour market programmes for the disabled as a share of GDP is far lower in the UK compared to Germany (0.03 and 0.22 per cent respectively). The total for Germany would be even higher if the money raised from the levy on employers for not fulfilling their quota is also included. Second, the UK spends a much higher share of GDP on disability cash benefits compared to the USA (1.90 and 0.70 per cent respectively).

<< Table 1 near here >>

Cross-national comparisons of this kind are confounded by problems of comparability. The exclusion of the employers' levy in Germany is a case in point. The evidence does not, for example, show how generous the measures are for each disabled person, let alone for each working-age man. Nonetheless, the evidence provides a flavour of the institutional settings in Britain compared to Germany and the USA.

3.2 The prevalence of disability

Our definition of a disabled person is someone who reports a work-limiting health condition for at least two consecutive annual interviews. The prevalence rates for working-age men according to this definition are reported for Britain, Germany and the USA in Table 2.⁵ The disability prevalence rate for Britain is 9.6 per cent. The most recent and reliable estimates of disability in Britain come from the 1996/7 Disability Follow-Up Survey to the Family Resources Survey. The survey uses specifically designed questions about disability and aims to capture a relatively broad concept of disability. Grundy *et al.* (1999, Table 2.1) find that 13.3 per cent of working-age men in the Follow-Up Survey are disabled. This is higher than the 9.6 per cent reported for Britain in Table 2. However, the BHPS prevalence rate rises to 11.9 per cent if the sample is restricted to wave seven only (the period that most closely corresponds with the Follow-Up Survey), and if individuals who experience a work-limiting health condition for just wave seven are included.⁶

<< Table 2 near here >>

The prevalence rate of 9.6 per cent for Britain in Table 2 is similar to the 10.2 and 9.0 per cent prevalence rates for Germany and the USA respectively. As expected, the prevalence of disability increases with age: in Britain the prevalence rate for men aged 50-59 years is three and a half times higher than the rate for men aged 25-34. In Germany, the rise in the incidence of disability with age is especially pronounced. This is consistent with the German policy of targeting rehabilitation and full-time re-employment at younger workers who

⁵ The figures for the BHPS are based on a pooled sample from waves 2-7 (1992-7). The prevalence rates for waves 1 and 8 are biased downwards and are thus excluded from the sample for Table 2. The bias arises because two consecutive years are required in order to classify a person as disabled, and only one wave of adjacent data is available for these extreme years. Pooling the data from waves 2-7 smooths out the relatively large year-to-year variations which are often associated with small samples (although the age-specific prevalence rates typically vary by less than one percentage point from the pooled figures reported for Britain in Table 2). By contrast, the results for Germany and the USA are taken from a single cross-section of data in 1988.

⁶ The authors are currently engaged in a project comparing measures of disability in the BHPS and the Disability Follow-Up Survey.

develop work limitations and targeting disability transfer benefits at older unemployed workers with health limitations (Aarts *et al.*, 1996).

3.3 The labour market

The labour market plays a central role in determining people's living standards. Labour market outcomes for working-age men with and without a disability are presented in Table 3. The adverse position of disabled men in Britain is immediately apparent: only 41.1 per cent of disabled men are in employment compared to 92.6 per cent of non-disabled men. In other words, the employment rate for disabled men is less than half (44 per cent) of that for non-disabled men. Almost sixty per cent of men with a disability are not in employment. Furthermore, men with a disability earn on average just 70 per cent of the earnings of men without a disability. This comparison takes no account of differences in the number of hours worked. However, the proportion of disabled men in part-time employment is only slightly higher than the proportion of non-disabled men, suggesting that controlling for differences in hours worked would still leave a substantial earnings gap.

<< Table 3 near here >>

On the whole, the labour market outcomes of disabled men in Britain appear particularly adverse when compared to the position of disabled men in Germany and the USA. The employment rates for men with a disability are 67.8 and 71.8 per cent in Germany and the USA respectively, around 65 to 75 per cent higher than in Britain.

Average earnings among disabled men in Britain and Germany are 70 and 90 per cent of non-disabled men's earnings respectively. However, disabled men in Britain and Germany earn relatively more than disabled men in the USA, who receive just two-thirds of the earnings of non-disabled men. The low relative earnings of disabled men in the USA is at least in part accounted for by the high part-time employment rate (25.9 per cent) among disabled men.

The low employment rates among disabled men in Britain are striking compared to the much higher rates in Germany and the USA. This difference is unlikely to be accounted for by a lower capacity to work of disabled men in Britain compared to Germany and the USA. Section 3.1 drew attention to institutional differences between the countries and these undoubtedly have an important role in determining the different labour market outcomes of disabled men.

The explanation for the relatively high employment rates among disabled men in Germany and the USA is likely to stem from very different factors. Compared to Britain, the

German system has a greater emphasis on active labour market programmes aimed at securing employment for disabled people. By contrast, expenditure on such initiatives is considerably lower in the USA, providing further incentives into employment. Whilst this may produce relatively high employment rates among disabled people, it is also likely to feed through to disproportionately high rates of part-time employment and low earnings, as indicated by Table 3.

As highlighted above, spending on labour market measures in Britain is less extensive than in Germany, whilst the provision of disability benefits is more generous than in the US. Thus the employment provision for disabled people in Britain appears to fall somewhere between these extremes. The low employment rates reflect limited active labour market measures compared to Germany, and more opportunity to remain on benefit compared to the USA.

3.4 Relative incomes

Labour market outcomes are important ingredients in determining overall living standards but they are only one part of a larger picture. Account must be taken of other household income as well as household size and composition. In Britain almost 80 per cent of working-age men with a disability live in a family with at least one other person, and almost a third live with a partner and at least one dependent child.⁷

Details of market and net household income are reported in Table 4. In Britain, the average market income of men with a disability is less than half of that for men without a disability. In the USA, and especially Germany, the relative market income of disabled men is more favourable than in Britain; disabled men receive 78 and 65 per cent of the average market income of non-disabled men in Germany and the USA respectively. This is in keeping with the much higher employment rates for disabled men in Germany and the USA compared to Britain (see Table 3).

<< Table 4 near here >>

Cross-national comparisons of average net income are also shown in Table 4. As expected, state intervention in the form of the tax and benefit system redistributes income from non-disabled to disabled men, increasing the income of disabled men while decreasing

⁷ Approximately 80 per cent of non-disabled working-age men also live in a family with at least one other person. However, a higher proportion of men without a disability (43 compared to 32 per cent) live with a partner and at least one dependent child. This reflects the younger age of non-disabled working-age men (40 compared to 46 for disabled men), a time when more children are likely to be living at home (authors' calculations from the BHPS).

the income of non-disabled men. This considerably improves the relative incomes of men with a disability, although there remains a substantial gap between men with and without a disability. In Britain, the average net income of disabled men is 73 per cent of that for non-disabled men. Although this gap is much smaller than the gap for market income, the net income of disabled men is still over a quarter lower than non-disabled men.

The tax and benefit system performs reasonably well for disabled men in Britain compared to the USA. (This is consistent with Table 1.) Table 4 shows that, although British disabled men lag considerably behind their American counterparts in terms of relative market income, the net income of disabled men in both countries is 73 per cent of that for non-disabled men. Despite the redistributive impact of the tax and benefit system, the relative position of disabled men in Britain and the USA is still worse than even the relative market income of disabled men in Germany. After taxes and benefits, disabled men in Germany have just 12 per cent less income than non-disabled men.

The distribution of income for working-age men with and without a disability in Britain is shown in Figure 1. The lower average income and higher incidence of low income among disabled men is clearly evident. Among working-age men, 23 per cent of disabled men are in the poorest tenth compared to 9 per cent of non-disabled men.

<< Figure 1 near here >>

4. THE ECONOMIC WELL-BEING OF DISABLED MEN: A LONGITUDINAL PERSPECTIVE.

4.1 Introduction

The cross-sectional data highlight the adverse labour market outcomes and income of working-age men with a disability. The position of disabled men in Britain compared unfavourably with disabled German and US men, especially with respect to the low employment rates. However, as Burkhauser and Daly (1998: 23) note, cross-sectional evidence cannot reveal why these differences between men with and without a disability exist.

There are a number of alternative explanations including: the differences pre-date the disability, the differences are a direct result of the disability, and the differences are a statistical artifact arising from the fact that cross-sectional data oversample 'long-stayers'

(Bane and Ellwood, 1986).⁸ The problem of over-sampling long-stayers is mitigated in the present analysis since our definition of disability requires a person to have a work-limiting health condition for at least two consecutive years (rather than just a single year).

This section analyses the impact of becoming disabled on the economic well-being of working-age men. It thus provides important complementary longitudinal evidence to the cross-sectional results of the previous section. Longitudinal analysis is also helpful in determining the extent to which the cross-sectional differences between men with and without a disability arise from the alternative explanations listed above.

As described in Section 2.3, the onset of a disability is defined to occur when an individual has at least two consecutive annual interviews without a work-limiting health condition followed by at least two consecutive annual interviews with a work-limiting health condition. There are 109 working-age men who experience the onset of a disability in the first eight waves of the BHPS according to this definition. Unfortunately Burkhauser and Daly (1998) do not provide the corresponding information for Germany and the USA, but the figures are likely to be similar to those for the BHPS. The small sample size means that particular care must be taken when interpreting the results in this section.

4.2 Earnings and income prior to disability onset

Details of the economic circumstances of working-age men two years before becoming disabled compared to men with and without a disability are shown in Table 5. Information is reported for two years before the onset of the disability, rather than the year immediately preceding the onset of the disability, in order to ensure that pre-disability results are unaffected by the disability. Precisely when a person becomes disabled is not always apparent, especially if the disability arises from a gradual process rather than sudden event.

<< Table 5 near here >>

The evidence for Britain shows that men who are relatively less well-off are more likely to become disabled, a finding which corresponds with the health inequality literature (for evidence on the UK, see Acheson, 1998). Overall, Table 5 shows that the economic position of men prior to their disability is closer to that for disabled men as opposed to non-disabled men.

⁸ Among the cohorts of men whose spell of disability began in each year prior to the survey, the men with higher chances of leaving disability are more likely to be non-disabled by the time of the survey. If work attachment and economic well-being deteriorate as the spell of disability lengthens, then cross-sectional comparisons may exaggerate the typical experience of a worker following the onset of a disability.

The average income of British men two years before the onset of a disability is £14,775. This is a fifth lower than the average for non-disabled men (£18,470) and much closer to the average for disabled men (£13,413). As expected, the low average pre-disability income for subsequently-disabled men is reflected in the relatively high incidence of men with income in the bottom part of the income distribution. Some 38 per cent of men two years before the onset of a disability are in the poorest fifth of the distribution of working-age men, compared to 18 and 41 per cent of non-disabled and disabled men respectively.

Many of the men who become disabled are from the working poor. The majority are employed (81 per cent), but earn on average a fifth less than non-disabled men. Manual work is associated with relatively low income⁹ and this type of work is known to have greater health related risks.¹⁰ Some 21 per cent of men who become disabled are engaged in manual labour, more than twice as many as the proportion of non-disabled men.

The link between low income and subsequent disability in Germany and the USA is also evident in Table 5. The average pre-disability income of subsequently-disabled men is 12 and 32 per cent lower than the average income of non-disabled men in Germany and the USA respectively. As in Britain, the average pre-disability income is much closer to that for disabled compared to non-disabled men. However a far greater proportion of the subsequently disabled are among the poorest fifth of working-age men in Britain (38 per cent) compared to Germany (16 per cent) and the USA (25 per cent). Particularly in the USA, many of the men who become disabled were previously in employment with relatively low earnings.

4.3 Impact on employment rates

The impact on employment rates of becoming disabled is reported in Table 6. As mentioned above, 81 per cent of British men who become disabled are in employment two years before the onset of a disability. This fraction falls only slightly, to 80 per cent, at the time of the onset. Given that we define employment as having positive earnings in the current year and because there can be delays before any job losses caused by a disability to occur, there need not be a close association between measured employment rates and the year of onset. However, the employment rate falls sharply to 60 per cent in the year after becoming disabled and still further to 36 per cent in the following year.

⁹ The average income of a manual working-age man is £15,439 compared to the average income of a non-manual employed working-age man of £18,680 (author's calculations from the BHPS).

Table 6 also shows that the labour market attachment of men experiencing the onset of a disability deteriorates in Germany and the USA, although the deterioration in Britain appears to be more marked. For instance, the fall in the employment rate two years before compared to two years after the onset is 45 percentage points in Britain, 18 percentage points in the USA and 13 percentage points in Germany. This finding for Britain is the longitudinal corollary of the cross-sectional finding reported in Table 3. Employment policy towards disabled men in Britain not only produces a relatively low stock of disabled men in employment, but also produces a higher outflow from employment following the onset of a disability.

<< Table 6 near here >>

4.4 Impact on net income

The impact that becoming disabled has on average income and the incidence of low-income is summarised in Table 7. In all three countries, the onset of disability is not associated with a distinct reduction in income as might be expected from the cross-sectional results. The changes in income are in keeping with our earlier observation that becoming disabled need not have a substantial negative impact on income. In Germany and the USA, income rises following the onset of a disability on average. It is worth emphasising that these changes in income are absolute changes; they do not indicate how the position of men who become disabled changes in relation to average living standards of the population as a whole, which typically rise from year to year.

<< Table 7 near here >>

Table 7 also shows that, among men in Britain who become disabled, the proportion among the poorest fifth of working-age men rises from 38 per cent two years before the onset of the disability to 45 per cent the year after, and 47 per cent two years after the onset. The incidence of low income does not increase in Germany or the USA and the proportion among the poorest two-fifths of working-age men is higher before rather than after becoming disabled.

4.5 Impact on the composition of income

The income sources of working-age men in Britain who become disabled is shown in Table 8. The first row reproduces average net incomes shown in Table 7. All other figures show the

¹⁰ For example, the West of Scotland collaborative study (Davey Smith *et al.*, 1997), showed that a wide range of measures of health deteriorate as time spent in a manual social class group increases.

amount of a given income source expressed as a percentage of net income two years prior to the onset of a disability. For example, on average, own labour earnings in the year of disability onset are 57% of net income two years prior to disability onset.

Table 8 reveals many interesting year-on-year changes in income sources over a four year period. Over the interval from two years prior to the onset of a disability to two years after the onset of a disability, net income falls by eight percentage points. This is dominated by a large reduction (48 percentage points) in the man's own earnings, in line with the large deterioration in employment reported in Table 6. There is also a slight reduction in other household earnings by 2 percentage points. This is likely to reflect a reduction in labour force participation of the spouse of the disabled person, associated with increases in family care and retirement.

<< Table 8 near here >>

Most of the decline in earnings is cushioned by changes in the level of taxes and benefits as well as increases in private pensions. Taxes and benefits together raise income by 30 percentage points in the four year period from two years prior to disability to two years after. This is equivalent to almost two thirds of the 48 percentage point decline in individual earnings. Taxes and benefits cushion the fall in earnings by similar amounts, the tax burden falling by 14 percentage points and benefits rising by 16 percentage points.

Income from private and occupational pensions is the only market-based income source to rise substantially, increasing by 12 percentage points. This is consistent, for example, with the onset of a disability encouraging early retirement, characterised by withdrawal from the labour market and receipt of advanced payments of private pensions on the grounds of ill health.

5. CONCLUSIONS

This paper provides a new longitudinal perspective on the economic impact of a disability for working-age men in Britain. The results provide an important complement to the growing body of British evidence from recent cross-sectional surveys (Grundy *et al.*, 1999; Meager *et al.*, 1998).

The longitudinal evidence for Britain indicates that the income of men who become disabled is on average considerably lower than the income of men without a disability and much closer to the income of men who are already disabled. Most men who become disabled are employed but with relatively low earnings. Becoming disabled is associated with a large

reduction in employment. However, this does not feed through to a substantial reduction in income since the loss of earnings is offset by increases in private pensions and benefits, and a reduction in taxes.

Comparing these findings for Britain with similar longitudinal evidence for working-age men in Germany and the USA reveals that in all three countries, becoming disabled does not significantly reduce income on average. The income of men before the onset of a disability is markedly lower than non-disabled men in all countries. The outflow from employment for men who become disabled is far greater in Britain. These cross-country differences are likely to be accounted for by institutional factors. The relatively high employment retention rates in Germany are likely to reflect the German emphasis on the state support for disabled people in securing and retaining employment. By contrast, the high employment retention rate in the USA is likely to stem from a more limited state involvement in the provision of labour market programmes and cash benefits for disabled people. Compared to Britain, the relatively limited provision of disability benefits in the USA places a greater emphasis on employment for men who become disabled.

The longitudinal evidence creates a more favourable impression of the economic impact of a disability compared to cross-sectional evidence. The cross-sectional evidence shows, for example, that working-age men with a disability have between 12 per cent (Germany) and over a quarter (Britain and the US) less income on average than non-disabled working-age men. The longitudinal evidence for all three countries indicates that most of this income gap is accounted for by the type of men who become disabled as opposed to the disability itself. This is an important finding and encourages caution when interpreting results from cross-sectional data.

6. REFERENCES

- Aarts, L., Burkhauser, R., and De Jong, P., (1996) *Curing the Dutch Disease: An International Perspective on Disability Policy Reform*, Aldershot: Avebury.
- Acheson, D., (Chairman, 1998), *Inequalities in Health*, London: The Stationery Office.
- Bane, M., and Ellwood, D., (1986), 'Slipping into and out of poverty', *Journal of Human Resources*, Vol. 21, No.1., pp. 1-23.
- Bardasi, E., Jenkins, S., and Rigg, J., (1999), 'Documentation for derived current and annual net household income variables, BHPS Waves 1-7', Working Paper No. 99-2, Colchester: Institute for Social and Economic Research, University of Essex.

- Barnes, C., (1991), *Disabled People in Britain and Discrimination: a Case for Anti-Discrimination Legislation*, London: Hurst & Co.
- Burchardt, T., (2000), 'The dynamics of being disabled', CASE Paper 36, Centre for the Analysis of Social Exclusion, London School of Economics, (Journal of Social Policy forthcoming.)
- Burkhauser, R., and Daly, M., (1998), 'Disability and work: the experiences of American and German men', *Economic Review*, No. 2., Federal Reserve Bank of San Francisco, pp.17-29.
- Davey Smith, G., Hart, C., Blane, D., Gillis, C., and Hawthorne, V., (1997), 'Lifetime socioeconomic position and mortality: prospective observational study', *British Medical Journal*, Vol. 314, pp. 547-52.
- Department of Social Security, (1998), *Households Below Average Income, 1979-1996/7*, London: Corporate Document Services.
- Department of Social Security, (1999a), *Social Security Statistics, 1999*, London: The Stationery Office.
- Department of Social Security, (1999b), *The Changing Welfare State: Opportunity for All. Tackling Poverty and Social Exclusion*, First Annual Report, London: HMSO.
- Grundy, E., Ahlburg, D., Ali, M., Breeze, E., and Sloggett, A., (1999), *Disability in Great Britain: Results from the 1996/7 Disability Follow-Up to the Family Resources Survey*, DSS Research Report No. 94, London: HMSO.
- Meager, N., Bates, P., Dench, S., Honey, S., and Williams, M., (1998), *Employment of Disabled People: Assessing the Extent of Participation*, Department For Education and Employment Research Report No. 69, London: HMSO.
- Nagi, S., (1969), *Disability and Rehabilitation: Legal, Clinical and Self-Concepts of Measurement*, Columbus: Ohio State University Press.
- Oliver, M., (1996), *Understanding Disability: From Theory to Practice*, Basingstoke: Macmillan.
- Taylor, M., (ed) (1998), *British household Panel Survey, User Manual: Introduction, Technical Reports and Appendices*, Colchester: ESRC Research Centre on Micro-Social Change, University of Essex.
- Thornton, P., Sainsbury, R., and Barnes, H., (1997), 'Helping disabled people to work: a cross national study of social security and employment provisions', Social Security Advisory Committee, Research paper No. 8, London: The Stationery Office.

Table 1
Public expenditure on labour market measures and cash benefits
for disabled working-age people as a percentage of GDP (1991)

Country	Expenditure on labour market measures	Expenditure on transfer benefits
Britain	0.03	1.90
Germany	0.22	2.00
United States	0.05	0.70

Source: Aarts *et al.* (1996, Table 1.2).

Table 2
Disability prevalence rates for working-age men,
by age and country

Age (years)	Britain ^a 1990s	Germany 1988	United States 1988
25-34	5.4	3.7	6.5
35-49	7.5	8.0	8.5
50-59	19.2	22.2	15.0
25-29	9.6	10.2	9.0

^a: Figures for Britain derived from pooled data, BHPS waves 2-7 (1992-7). Number of observations is 1,378 (disabled) plus 13,048 (not disabled). Source: authors' calculations (Britain) and Burkhauser and Daly (1998).

Table 3
Labour market outcomes for working-age men with and without a disability

Country	Disabled / Not-disabled	Employment rate (%):			Average annual gross earnings ^a	
		All	Full-time	Part-time		Not employed
Britain (1990s)	Disabled	41.10	36.70	4.40	58.90	13,821
	Not disabled	92.60	89.40	3.20	7.40	19,637
	Ratio (disabled /not disabled)	0.44	0.41	1.38	7.96	0.7
Germany (1988)	Disabled	67.80	58.20	9.60	32.20	50,544
	Not disabled	95.00	81.40	13.60	5.00	56,027
	Ratio (disabled /not disabled)	0.71	0.71	0.71	6.44	0.9
United States (1988)	Disabled	71.80	45.90	25.90	28.20	26,976
	Not disabled	97.80	84.20	13.60	2.20	40,715
	Ratio (disabled /not disabled)	0.73	0.55	1.90	12.82	0.66

^a: Figures for Britain are derived from pooled data, BHPS waves 1-8 (1991-8), and are expressed in 1998 pounds. Figures for Germany and the USA are in 1991 DM and Dollars respectively. Source: authors' calculations (Britain) and Burkhauser and Daly (1998).

Table 4
Market and net income for working-age men with and without a disability

Country	Disabled / Not disabled	Market income	Net Income
Britain (1990s)	Disabled	11,100	13,41
	Not disabled	23,149	18,470
	(Disabled income as % of not disabled)	(48)	(73)
Germany (1988)	Disabled	40,562	34,382
	Not disabled	51,789	39,186
	(Disabled income as % of not disabled)	(78)	(88)
United States (1988)	Disabled	25,419	23,968
	Not disabled	38,851	32,434
	(Disabled income as % of not disabled)	(65)	(73)

NB. Figures for Britain are derived from pooled data, BHPS waves 1-8 (1991-8). All incomes are needs adjusted household income in 1998 pounds per year for Britain, and 1991 DM and Dollars for Germany and the USA respectively. Source: authors' calculations (Britain) and Burkhauser and Daly (1998).

Table 5
The economic well-being of working-age men two years before the onset of a disability,
compared to working-age men with and without a disability

Country	Economic Indicator	2 years before onset of disability	Not disabled	Disabled
Britain (1990s)	Net income (£ p.a.)	14,775	18,470	13,413
	Proportion in poorest fifth (%) ^a	38	18	41
	Proportion in second poorest fifth (%)	18	20	23
	Employment rates (%)	81	93	41
	Average annual gross-earnings (£ p.a.)	16,058	19,637	13,821
	% with degree	12	18	8
	% manual occupation ^b	21	12	9
Germany (1988)	Net income (DM p.a.)	34,733	39,186	34,382
	Proportion in poorest fifth (%)	16	{20} ^c	
	Proportion in second poorest fifth (%)	24	{20}	
	Employment rates (%)	96	95	68
	Average annual gross-earnings (DM p.a.)	54,792	56,027	50,519
United States (1988)	Net income (\$ p.a.)	22,196	32,434	23,968
	Proportion in poorest fifth (%)	25	{20}	
	Proportion in second poorest fifth (%)	20	{20}	
	Employment rates	96	98	72
	Average annual gross-earnings (\$ p.a.)	29,736	40,715	26,976

^a: 'Poorest' and 'second poorest' fifth refer to fifths of the sample of working-age men at each wave.

^b: Figures refer to the % employed as plant or machine operatives.

^c: Separate figures for the proportion of disabled and non-disabled working-age men are unavailable.

Figures for Britain are derived from pooled data, BHPS waves 1-8 (1991-8). All incomes are needs adjusted household income in 1998 pounds per year for Britain, and 1991 DM and Dollars for Germany and the USA respectively. Source: authors' calculations (Britain) and Burkhauser and Daly (1998).

Table 6
Employment rates (%) for working-age men in years prior to
and after onset of disability

Country	2 years before onset	1 year before onset	Year of onset of disability	1 year after onset	2 years after onset
Britain (1990s)	81	84	80	60	36
Germany (1988)	96	96	95	90	83
United States (1988)	96	97	90	80	78

NB. Figures for Britain are derived from pooled data, BHPS waves 1-8 (1991-8). Source: authors' calculations (Britain) and Burkhauser and Daly (1998)

Table 7
Net income and incidence of low income among working-age men
who become disabled

Country		2 years before onset	1 year before onset	Year of onset of disability	1 year after onset	2 years after onset
Britain (1990s)	Average annual net income (£)	14,775	15,610	14,659	14,762	13,539
	Proportion in poorest fifth (%)	38	34	34	45	47
	Proportion in second poorest fifth (%)	18	21	31	15	16
Germany (1988)	Average annual net income (DM)	34,733	33,739	34,867	35,014	39,464
	Proportion in poorest fifth (%)	16	20	18	18	17
	Proportion in second poorest fifth (%)	24	22	17	24	17
United States (1988)	Average annual net income (\$)	22,196	24,066	24,191	25,028	25,273
	Proportion in poorest fifth (%)	25	23	24	23	20
	Proportion in second poorest fifth (%)	20	16	19	21	21

NB. All incomes are needs adjusted household income in 1998 pounds per year for Britain, and 1991 DM and Dollars for Germany and the USA respectively. Income groups are computed for all working-age men for each wave of the BHPS, (1991-8) and are weighted with the wave specific cross-sectional individual respondent weights. Source: authors' calculations (Britain) and Burkhauser and Daly (1998).

Table 8
Income sources for working-age men who
become disabled, Britain 1990s

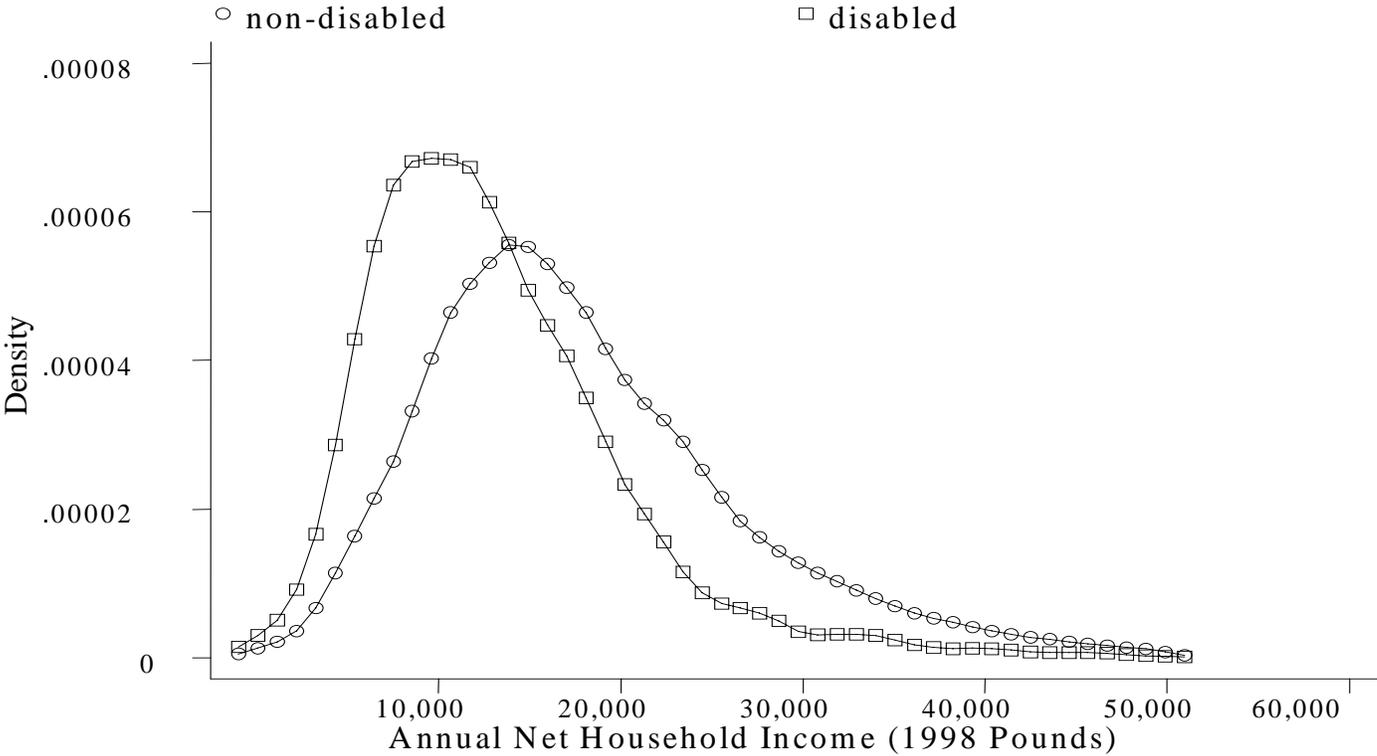
Income source ^a	2 years before onset	1 year before onset	Year of onset of disability	1 year after onset	2 years after onset
Net income (£)	14,775	15,610	14,659	14,762	13,539
Net income (%)	100	106	99	100	92
Own labour earnings	74	67	57	45	26
Other household earnings	36	49	40	37	34
Investment income	4	3	4	6	4
Pensions ^b	2	3	7	9	14
Benefits	11	12	14	21	27
Taxes	-27	-28	-23	-20	-13

^a: Table entries (excluding row 1) show amounts of a given income source expressed as a percentage of net income two years prior to the onset of a disability. For example, on average, own labour earnings in the year of disability onset are 57% of net income two years prior to disability onset.

^b: includes private and occupational pensions, not state retirement pension.

Estimates for Britain are derived from pooled data, BHPS waves 1-8 (1991-8), all statistics are rounded to nearest percent. Private transfers round to 0% and therefore are omitted from the table. Source: authors' calculations from the BHPS.

Figure 1
Distribution of income for working-age men, Britain 1990s



Estimates for Britain are derived from pooled data, BHPS waves 1-8 (1991-8).