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THE COSTS OF DISABILITY AND THE INCIDENCE OF POVERTY

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Bruce Bradbury, Peter Saunders and Lyn Craig
Editors

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Abstract

Although both disability and poverty have been subjected to extensive research, relatively few Australian studies have examined the relationship between these two important social issues. However, recent changes to the Disability Support Pension mean that there is an urgent need to estimate the costs of disability so that the impact of the changes on poverty can be assessed and inserted into the policy debate. This paper reviews evidence linking the presence of disability to the risk of poverty and the actual hardship using data from the 1998-99 Household Expenditure Survey (HES), and shows that where there is someone in the household with a disability, poverty rates are higher and hardship is more prevalent. It then uses the HES data to estimate the costs of disability using a method recently developed in the UK that relies upon information on household living standards. The estimates are robust and reliable, indicating that the costs of disability represent a substantial percentage of disposable income, and thus that poverty rates are much higher where there is a disability present. Estimates based on the impact of the severity of the restriction associated with the disability are also derived and make a similarly large difference to conventional poverty estimates. Overall, the estimates imply that there is an urgent need to review the adequacy of income support arrangements for those with a disability across all household types: single and married; young and old; one- and two-parent; with and without children. The size of the impact of disability on the risk of poverty and actual hardship suggests that action is required to ensure that people with a disability no longer have to confront a greatly increased risk of poverty in addition to many other challenges.

1 Introduction

Although both disability and poverty have been subjected to extensive research, relatively few Australian studies have examined the relationship between these two important social issues. One consequence has been that poverty research has had little influence on disability policy, where attention has focused on the growing numbers of Disability Support Pension (DSP) recipients and the low employment rate among people with a disability generally. These patterns have been examined in several studies, their findings prompting calls for action to cut the growth in benefit recipient numbers.¹ This has not been accompanied by any systematic assessment of the adequacy of the DSP benefit, and hence the likely impact on the living standards of those affected. The recent reforms will divert many new DSP applicants onto the lower rate of Newstart Allowance (NSA), depending on their assessed capacity to engage in paid work, bringing a new urgency to the need to consider the adequacy of income support arrangements for future cohorts of disabled people in Australia. Exploring the association between disability and poverty provides an important perspective on this issue that can contribute to a more balanced debate of policy goals and impact. But this requires estimating the costs of disability in order to ground the poverty estimates on the needs of people with a disability, and this paper contributes to that task.

Since its introduction in 1909, the basic rates and conditions applying to the DSP (formerly known as Invalid Pension) have been, with some minor exceptions, the same as those for the Age Pension. This appears to reflect the principle of equal treatment for those deemed ‘incapable of working’ due to either old-age or invalidity, irrespective of the equity of such arrangements. Invalid pension was introduced in Australia almost a century ago, at the same time (and under the same legislation) as that used to introduce the Age Pension, yet debate at the time focused almost exclusively on the new provisions for the aged, with those for people affected by invalidity ‘passed over almost without notice ... [even though the two schemes were] ... closely interwoven ... conjointly administered, and both were financed from general revenue.’ (Kewley, 1973: 90).

As a consequence, there was no discussion of whether the *additional* costs associated with invalidity warranted a *differential* rate of payment, as might have occurred if the comparison had been with other working-age people rather than with the aged.² The similarity of treatment was maintained until 1983, when a (tax-free and not income-tested) Mobility Allowance was introduced ‘for severely handicapped persons in employment or undertaking vocational training for employment and unable, because of their disability, to use public transport without substantial assistance’ (Department

¹ Recent studies have documented by the overall trend in DSP numbers (ABS, 2002a), examined the dynamics of DSP in-flows and exits (Cai and Gregory, 2003, 2004; Chalmers and Siminski, 2003) and estimated the impact of disability generally on labour force status and employment (Wilkins, 2004).

² There were, of course, no benefits for working-age people other than the Invalid Pension at the time, so the comparison was not a practical option.

of Social Security, 1983: 54).³ However, the rate at which the new Allowance was set does not appear to bear any relation to the costs of disability, mainly because so little was known about this topic at the time.

As many of the Submissions to the Senate Inquiry that preceded the passage of the recent welfare reforms noted, there is a good deal of support for the principle that the recipients of DSP should be encouraged into employment whenever this is a realistic option (Community Affairs Legislation Committee, 2005). Employment not only generates extra income and thus represents an important response to poverty, it can play an important role in raising self-esteem and improving connections into social and community networks, thereby combating social exclusion more generally. However, these impacts are not automatic, but depend on the kinds of jobs that are available to those in poverty, whether or not they have a disability, and on what assistance is provided to overcome the barriers faced by people with a disability and facilitate the welfare to work transition. The employment outcomes are, at best, uncertain - in contrast to the guaranteed loss of income that will accompany the new legislation for many people. The link between disability and poverty may become stronger as a result of these measures, as income support rates decline (in both real and nominal terms), and real wages fall at the bottom end of an increasingly deregulated labour market.

There is thus an urgent need to monitor the impact on both employment and poverty among those with a disability who will be affected by the latest wave of welfare reform and give greater attention to the adequacy of income support arrangements by examining the relationship between disability, living standards and poverty. This paper represents a step in this direction by exploring the association between poverty and disability, before and after taking account of the costs of disability. Poverty has been defined in narrow income terms, not because this framework is capable of capturing what it means to be poor in a modern society (it isn't), but because the focus is on estimating the *monetary* costs associated with disability and how this affects the relative risk of experiencing low-income. An income approach is appropriate for this task, especially since the goal is to compare poverty rates between groups rather than make a definitive assessment of how much poverty exists overall – a task that inevitably raises controversial issues about how poverty is defined and measured (Saunders, 2005b). A range of other indicators have been used to check the robustness of the poverty findings, as they relate to the living standards of those with and without a disability.

The paper is organised as follows: Section 2 provides an overview of previous Australian research on the association between disability and poverty and reviews the different methods that have been used to estimate the costs of disability. Section 3 describes the data that have been used to apply these methods to Australia, and Section 4 presents evidence on the incomes and living standards of households classified by their disability status. Section 5 presents new estimates of the costs of disability, while Section 6 shows that when these are incorporated into how poverty is measured, they make an enormous difference to how disability affects the risk of

³ Since then, indexation provisions have more or less maintained the relativity between Mobility Allowance and the standard rate of DSP, with the former currently paid at about one-seventh of the rate of the latter.

poverty, as well as on the structure of the poverty population. The main conclusions are briefly summarised in Section 7.

2 Previous Research on Disability and Poverty

When Ronald Henderson and his Melbourne colleagues undertook their original poverty survey in Melbourne in 1966, no attempt was made to incorporate the costs of disability into the poverty measure employed, or to identify the extent of poverty among people with a disability. At the time, recipients of the Invalid Pension were ‘a small group in the community, clearly identified on medical grounds and already receiving pensions’ (Henderson, Harcourt and Harper, 1970: 154) and it was not thought necessary to identify them as a separate category, even though the survey found that the numbers involved were larger than first thought, and that ‘the inadequacy of the invalid pension condemns their children to a childhood of acute poverty’ (*op. cit.*, pp. 152-4).

In the subsequent official Poverty Inquiry that Henderson headed, greater attention was given to poverty amongst those experiencing a handicap, which was defined as; ‘a long-term condition or chronic illness of such severity as to hinder a man’s work effort, *and perhaps also to occasion unusually high costs of living*’ (Commission of Inquiry into Poverty, CIP, 1975: 282; italics added). However, although no attempt was made to identify these additional costs or incorporate them into the poverty line, those with sickness or handicap (the two were combined) were shown to experience a poverty rate that was more than twice the national figure before accounting for housing costs and close to three times higher after deducting housing costs (CIP, 1975: Table 3.9).⁴

The relationship between poverty and disability was examined in greater depth in a separate report on the social and medical aspects of poverty (CIP, 1976) which found that ‘poverty is a frequent consequence of disability and that this is related to diminution of income, *the necessity for additional expenditure on health and daily living* and the absence or inadequacy of both restorative and supportive services’ (CIP, 1976: 65, italics added). The issue of additional costs was not, however, taken up in the recommendations of either report, which focused on maintaining parity between income support for those with a disability and other pensions, and on improving the quality of rehabilitative services.⁵

The impact of disability on poverty has recently been examined by the Senate Community Affairs References Committee (CARC) during the course of its *Inquiry into Poverty and Financial Hardship* (CARC, 2004). The report identified disability as a ‘close companion’ of poverty, resulting from a combination of two factors: the increased cost of living and the reduced incomes of those with a disability. As with the reports cited above, the Senate Poverty Report acknowledged that increased income alone would not overcome the many barriers facing people with a disability,

⁴ According to King (1998: Table 4.2), these relativities had narrowed by 1996, although poverty among those with a disability remained well above the overall national figure.

⁵ Even so, as Gleeson (1998) has noted, the work undertaken by the Poverty Commission was widely seen as a landmark achievement in the field of disability research.

but needs to be accompanied by changes in the areas of employment, education, housing and accommodation assistance, transport and information (CARC, *op. cit.*, 368-9). However, it recommended that the Commonwealth Government should introduce a disability allowance to meet the additional costs associated with disability. Although the report did not indicate the level at which the new allowance should be set, it cited a range of evidence presented to it by disability organisations and individuals, which supported the view that the existing level of income support was, at least in some instances, inadequate. As one person commented:

‘What I ... cannot do is live on \$400 a fortnight. Actually, I am wrong – I can exist. But I cannot live. I think I am not the only person with a disability in my circumstances who finds this ... Choice is the key to disability. We have none. We did not choose the disability, it chose us, and now it gives us no choice.’ (Quoted in CARC, 2004: 364)

Despite such evidence, the issue of the adequacy of payments was hardly discussed by the Senate Committee that reviewed the government’s proposed reforms to the DSP prior to finalisation, even though the issue was raised in a number of the submissions to that inquiry (e.g. ACOSS, 2005).

This overview of official enquiries into the impact of disability on poverty indicates that they have largely failed to take account of the extra costs associated with disability, even though the evidence shows that those with a disability face above-average poverty risks. The presence of these additional costs has been acknowledged in several reports, but lack of research into their magnitude has prevented those who study poverty from putting a figure on the impact of disability on poverty.

A number of studies have attempted to overcome this limitation by estimating the costs of disability, including those by Graham, (1987), Graham and Stapleton (1990), Wightman and Foreman (1991) and Walsh and Chappell (1999). Cost studies have also been conducted by disability organisations, these being reviewed by Frisch (2001), who also provides a useful critique of the methodology employed when using budget (expenditure) surveys to estimate the costs of disability. Graham (1987) and Graham and Stapleton (1990) conducted interviews with 60 DSS clients of workforce age who were in receipt of Invalid Pension and Mobility Allowance in an attempt to get recipients to identify the extra costs associated with their disability. The study found that costs varied considerably, although for around two-thirds of those interviewed they were less than \$20 a week. However, the authors found it difficult to restrict the analysis to ‘tangible’ costs and concluded that much of the cost information they were seeking was not quantifiable.

The study by Wightman and Foreman was based on information collected from 1400 interviews with a sample DSS clients stratified by payment type. The aim was to identify the ‘out of pocket’ costs associated with disability by separating these from those costs that were assumed would persist even in the absence of disability – a task which the authors acknowledged was ‘not easy’. The study again found that the variation in costs was considerable, ranging from zero in some cases to very high amounts in others, with over half facing additional costs of \$25 a week or less. The relationship between costs and factors such as age and the nature of the handicap was examined, but the study failed to identify any reliable causal relationships. Walsh and

Chappell (1999) studied 409 DSP recipients with musculoskeletal impairments, and found that the average annual additional costs were \$936 (around \$18 a week), although many faced low or no additional costs and a few faced very high costs. This variation in extra costs is quite a common finding and implies, as Frisch (2001) has noted, that measures of central tendency like the mean or median can be very misleading and heavily dependent on whether or not those with zero costs are included (see Frisch, 2001: Tables 1 and 2).⁶

Trying to identify extra costs by getting those affected by disability to estimate what their costs would be in the absence of disability is only one approach to cost estimation. The approach suffers from the obvious difficulties involved in asking people to compare their actual costs with what they think they would be if they were in very different circumstances: the assumed counterfactual is so far removed from reality that it is not surprising that the results produced exhibit great variation and are unreliable. This is exacerbated by the small numbers often involved in disability cost studies, which when combined with the tendency to include a broad range of disability conditions, exaggerates the variability in additional costs relative to measures of central tendency.

A number of other approaches have been used to estimate the costs of disability, as the recent review of the (mainly British) literature by Tibble (2005) indicates. He identifies four approaches:

The subjective approach – in which disabled people are asked to identify which of the costs they face are (or would be, if their needs were met to a specified degree) a consequence of their disability, and to which items those costs relate;

The comparative approach – which compares the actual spending patterns of a sample of disabled people with the patterns of a similar ('control') group who are unaffected by disability;

The standard of living approach – which incorporates information other than income to measure the standard of living directly, then relates the standard achieved to income, disability status and a range of other variables, and estimates how much income is required to raise those with a disability to the same standard of living as those without; and

The budget standards approach – which involves developing detailed budgets for households with and without a disabled person and using the difference to indicate the extra costs associated with the disability.

All four approaches have their limitations, as Tibble's detailed assessment makes clear. The subjective approach suffers from the problems already noted that relate to the difficulty of estimating what costs would be in the absence of disability, and separating these from differences in priorities (preferences) and in the ability of the household to budget its resources. The comparative approach has difficulty determining whether the observed differences in actual spending patterns reflect

⁶ Frisch also cites a study undertaken by the Australian Quadriplegic Association, which found that additional expenditures were very high in a small number of cases, but corresponded overall to around 50 per cent of income for those included in the study.

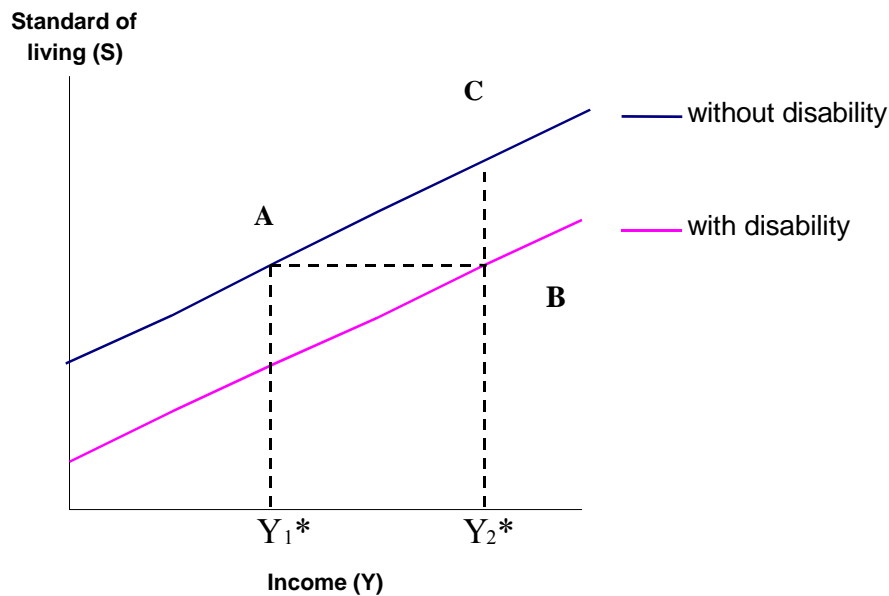
differences in the *needs* of the household, in the *resources* available to it, or in the *ability to budget* those resources in order to satisfy needs: put simply, if households affected by disability have lower incomes than other households, they may be forced to spend less even though their needs may be greater. The standard of living approach has been developed by Zaidi and Burchardt (2005) and is examined more thoroughly below. Its main limitation relates to its dependence on how the standard of living is measured, although it is possible to experiment with alternative measures and assess how sensitive the results are to each of them. The budget standards approach is restricted by its ability to capture what is required by different households to achieve a specific standard of living. Since the difference between the budgets of households with and without a disabled member is used to estimate the additional costs, it is imperative that both budgets correspond to the same standard of living, otherwise part of the difference will reflect the difference in the standard itself as opposed to the different costs of achieving a *given* standard.⁷ There is also the problem that the budgets can only be developed for very precise definitions of disability, limiting the applicability of the resulting estimates.⁸

The relationship that underlies the standard of living approach is illustrated in Figure 1. The approach assumes that there is a positive relationship between income and the standard of living, as shown by the upward sloping line AC. However, the presence of a disability results in a downward shift of this line, so that it passes through point B. The cost of disability is then represented by the income required to offset the negative impact of disability at a given standard of living, which is equal to the horizontal distance AB in Figure 1. This impact can be estimated from information about the slope of line AC and the vertical distance CB, since the slope of AC = BC/AB and it is possible to estimate both the slope and the shift in the relationship using standard regression techniques.

⁷ Tibble's assessment relies primarily on budget standards research conducted by the Centre for Research in Social Policy (CRSP) at the University of Loughborough, in which budgets are derived consensually by getting groups to come together and agree on how much is needed to achieve a pre-determined standard of living (Smith *et al.*, 2004). This approach to developing a budget standard faces many of the same problems as the subjective approach identified in the text. However, it is also possible to develop a budget standard more normatively by identifying the items that are needed to achieve the standard of living and then costing them, as other studies have done (Bradshaw, 1993; Saunders *et al.*, 1998). Even so, the problem identified by Tibble of being sure that the standard of living is the same when taking the difference between two separate budgets remains a major issue.

⁸ The original brief for the SPRC budget standard study undertaken by Saunders *et al.* (1998) included budgets for households with a disabled member, but these were not developed due to a shortage of time and resources.

Figure 1: The Relationship between Income, Standard of Living and Disability



3 Data and Methods

The *Household Expenditure Survey* (HES), conducted every five years by the Australian Bureau of Statistics (ABS, 2000), provides detailed data on the economic circumstances of a large sample of Australian households. The HES data have been used to examine a wide variety of issues relating to living standards (Bittman and Saunders, 2005), poverty (Saunders, 1997), deprivation and social exclusion (Saunders and Adelman, 2004) and economic inequality (Barrett, Crossley and Worswick, 2000). The 1998-99 HES collected information on whether any member of the household experienced a disability or long-term health condition, and the severity of the restriction associated with the condition.⁹ HES98-99 also contained for the first time a series of questions on hardship or financial stress and questions about the level of subjective well-being that can be used to identify the standard of living, as explained further below.¹⁰

⁹ The disability conditions referred to in the question are: sight problems not corrected by glasses or contact lenses; hearing problems; speech problems; blackouts, fits or loss of consciousness; slowness at learning or understanding; limited use of arms or fingers; difficulty gripping things; limited use of legs or feet; and condition that restricts physical activity or physical work (e.g. back problem); and a disfigurement or deformity. Long-term health conditions include the following (each experienced for at least six months): shortness of breath, or difficulty breathing; chronic or recurring pain; a nervous or emotional condition; and mental illness which requires help or supervision; long-term effects as a result of a head injury, stroke or other brain damage; a long-term condition that requires treatment or medication; and any other long-term condition such as arthritis, asthma, heart disease, Alzheimer's disease, dementia etc.. Details on the severity of restriction variables are discussed later in the paper.

¹⁰ Information on the disability status of the household and its members has not been collected in the most recent (2003-04) HES, while the questions on financial hardship were not asked in earlier surveys, so that HES98-99 is the only source that allows the full range of analysis reported here to be undertaken. The data produced by the new questions on hardship and financial stress is described and has been analysed by Bray (2001), McColl, Pietsch and Gatenby (2001) and Saunders (2005b).

As indicated above, the disability questions included in the HES98-99 CURF relate to the presence of disability within the household and the severity of restriction amongst its adult members.¹¹ Information is provided for the reference person in the household and for all adults, so that it is possible to identify the incidence of disability among households, as well as the severity of the associated restriction. The *incidence of disability* within the household is captured in the following two variables:

DISRP = the reference person has a disability

DISHH = at least one member of the household has a disability

These variables have been used to estimate how the incidence of disability varies between different household types (Table 1). In around one-in-eight households (12.9 per cent), the reference person has a disability, but the overall incidence of disability among *households* is much higher, at close to one-half (49.1 per cent). The incidence of multiple disabilities within the household is 13.2 per cent, indicating that 35.9 per cent of households have just one person with a disability – well above the incidence of disability based on the status of the reference person. Within household types, the incidence of disability is highest among households containing people aged 65 and over, although the incidence of disability (and multiple disability) is also high among mixed family households.¹²

Table 1: The Incidence of Disability by Household Type, 1998-99

Household Type	Total number of households:		Number of households where the reference person has a disability		Number of households with at least one person with a disability		Number of households with more than one person with a disability	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Single, non-aged	1099.2	15.4	181.1	16.5	429.7	39.1	-	-
Single, aged	621.5	8.7	148.4	23.9	403.7	65.0	-	-
Couple, non-aged	1160.1	16.3	136.9	11.8	535.8	46.2	178.9	15.4
Couple, aged	593.9	8.3	97.9	16.5	481.6	81.1	238.6	40.2
Couple with children	2373.4	33.3	206.2	8.7	1024.2	43.2	303.9	12.8
Sole parent	598.6	8.4	84.0	14.0	253.1	42.3	60.2	10.1
Mixed family household	675.1	9.5	67.2	10.0	367.5	54.4	157.8	23.4
All households	7121.8	100.0	921.6	12.9	3495.5	49.1	939.4	13.2

Notes: Aged households are defined as those where the reference person is aged 65 or over. Children are defined, following the ABS, as being under 15 years. All estimates have been weighted using household weights.

Source: Household Expenditure Survey 1998-99, confidentialised unit record file.

¹¹ The severity of disability variable is self-reported and is classified as explained later. The confidentialised unit record file (curf) based on HES98-99 (ABS, 2002b) does not include all of the information about the disability status of children, restricting the ability to examine this issue.

¹² Information on the incidence of disability produced by the Australian Institute of Health and Welfare (AIHW) indicates that the total disability population in 1998 (the closest year to when HES 98-99 was conducted) was 3.61 million, of whom 1.23 million were aged 65 and over (AIHW, 1999: Chapter 7). These figures are not inconsistent with the numbers of individuals implied by the estimates in Table 1, despite the difficulty in identifying the individual incidence of disability accurately from the HES.

In addition to collecting information on the number of persons in the household with a disability, HES98-99 also provides information on the type of disability affecting adults and on the severity of the associated restriction, the latter classified into the following categories:

- No disability/health condition (coded = 0);
- No/not known specific restriction (code = 1);
- Schooling/employment restriction only (code = 2);
- Moderate restriction (code = 3); and
- Severe or profound restriction (code = 4).

These categories have been used to define three measures of the *severity of disability* experienced at the household level:¹³

SEVRP = the coded level of severity of the reference person

MAXSEV = the maximum level of severity experienced by an adult in the household

SUMSEV = the sum of the severity scores of all adult members of the household

A breakdown by household type of the maximum level of severity in the household is provided in Table 2. Compared with the results in Table 1, those in Table 2 show that the relativity between the maximum level of severity and age is more pronounced than that between the incidence of disability and age. Thus, Table 2 shows that the percentage of older households experiencing the highest level of severity of restriction is between two and two-and-a-half times that of the population as a whole, well above the corresponding incidence relativities shown in Table 1. Amongst non-aged households, the combined incidence of the two most severe forms of disability is highest in mixed family households and sole parent families. In both cases, it is possible that the structure of the household reflects the impact of disability on the ability of individuals to live by themselves or maintain a stable family life.

Table 2: The Incidence of Disability by Maximum Severity within the Household

Household Type	Maximum disability severity within the household = 1		Maximum disability severity within the household = 2		Maximum disability severity within the household = 3		Maximum disability severity within the household = 4	
	('000)	(%)	('000)	(%)	('000)	(%)	('000)	(%)
Single, non-aged	248.6	41.1	100.9	9.2	38.1	3.5	42.1	3.8
Single, aged	255.2	50.5	0.0	0.0	78.9	12.7	69.6	11.2
Couple, non-aged	302.3	22.6	102.9	8.9	72.9	6.3	57.6	5.0
Couple, aged	299.8	26.1	2.1	0.4	91.3	15.4	88.3	14.9
Couple with children	541.0	16.9	227.4	9.6	67.4	5.4	30.9	2.5
Sole parent	128.4	21.5	59.2	9.9	40.0	6.7	25.4	4.2
Mixed family household	179.2	28.2	68.2	10.1	168.3	9.3	109.3	6.0
All households	1954.6	27.5	560.7	7.9	557.1	7.8	423.1	5.9

Notes and Sources: See Table 1.

¹³ It should be noted that MAXSEV and SUMSEV are equal by definition when there is only one person in the household with a disability.

Table 2 also indicates that the majority (almost 2 million) of the close to 3.5 million households who have at least one member with a disability (Table 1) report experiencing no specific restriction as a consequence – although this does not imply that they do not experience any additional costs associated with that disability. The remaining 1.54 million households with some form of disability present are split roughly equally between those with a minor (schooling or employment) restriction, a moderate restriction, or a severe/profound restriction, with the latter two groups accounting for just under one million households, or almost 13 per cent of all households. It is this group where one would expect the cost issue to be most pressing and thus where the financial consequences of disability are likely to be most serious.

4 Disability and Living Standards

The comparisons shown in Table 3 have been broken down by household type to make it easier to differentiate between the impact of disability and other factors such as age and household composition that are known to vary systematically with household income (even after the equivalence adjustment). Household income has been adjusted using the modified OECD equivalence scale and the estimates refer to households rather than individuals, i.e. have been weighted by households.¹⁴ It is important to note that the equivalence adjustment takes no account of the extra costs associated with disability.

Table 3: Income Levels and Poverty Rates by Household Type Before Accounting for the Costs of Disability

Household type	Median equivalent income		Poverty rate (40% of median income)		Poverty rate (50% of median income)		Poverty rate (60% of median income)	
	No disability	With a disability	No disability	With a disability	No disability	With a disability	No disability	With a disability
Single, non-aged	496.0	217.0	6.0	8.4	11.3	21.2	17.9	49.5
Single, aged	211.0	207.0	7.0	4.6	13.2	12.4	51.9	53.8
Couple, non-aged	624.7	378.0	2.9	5.3	3.7	6.7	7.3	21.1
Couple, aged	267.3	246.0	2.4	5.1	3.6	6.2	33.8	33.4
Couple with children	432.9	377.6	3.5	3.8	4.9	6.7	8.3	13.7
Sole parent	309.4	271.0	8.0	3.6	15.8	10.3	27.1	25.1
Mixed family household	502.0	384.4	5.2	2.5	5.9	4.5	8.8	7.7
All households	444.0	298.0	4.6	4.7	7.4	9.0	15.2	26.4

Note: Incomes have been adjusted using the modified OECD equivalence scale.

¹⁴ The modified OECD scale assigns a weight of 1.0 to the first adult in the household, 0.5 to each subsequent adult, and 0.3 for each child. It is common to use person weighting when presenting these kinds of estimates but that procedure has not been followed here because of the problems described earlier associated with identifying the incidence of disability at the person level in the HES98-99 data.

There is clear evidence of an ‘income penalty’ associated with the presence of disability within the household, this penalty amounting to a one-third (32.9 per cent) reduction in overall median income. This relativity displays considerable variability across household types, ranging from less than 10 per cent for older households, to 13 per cent for households with children (couples and sole parents), over 23 per cent for mixed family households, and a staggering 56 per cent for non-aged single people.¹⁵ There is thus no straightforward relationship between the incidence of disability across household types (Table 1) and its impact on household incomes (Table 3), although the impact of disability on the ability to engage in paid work accounts for its impact on the incomes of working-age households.

The poverty rates shown in the right-hand columns of Table 3 provide the first clear evidence that there is a strong association between the presence of disability and the incidence of poverty. Using the 50 per cent of median income benchmark, the poverty rate for households with a disability is 1.6 percentage points above that of households unaffected by disability, corresponding to a 21.6 per cent higher risk of poverty. Not surprisingly, the relative poverty risks vary greatly between household types. The poverty rates are also *lower* for single older people, sole parent families and mixed family households when there is a disability present (although the underlying reasons differ greatly among those three groups are likely to differ). Of greater concern is the fact that the poverty risks facing working-age single people and couples without children increases substantially if they have a disability.

The differences in poverty rates by disability status are much smaller when the poverty line is set at 40 per cent of median income, indicating that the income penalties associated with disability, while important, are not high enough to impose the very severe living conditions that would be associated with trying to survive on such a low income. This in turn implies that it would not be prohibitively expensive to protect those with a disability from being exposed to any greater risk of income poverty than otherwise similar households. At the 60 per cent of median income poverty line, the differences by disability status disappear for most household types, the exceptions being working-age single people and childless couples, where the impact of disability becomes more pronounced. This suggests that even when these households are able to earn a modest income, their disability prevents them from moving much beyond the margins of poverty.

As noted, the costs of disability are not captured in the equivalence scale used to produce the estimates shown in Table 3. However, this limitation does not apply to the indicators that are more directly linked to actual living standards, since these automatically capture the impact of disability without the need to capture it in an equivalence adjustment. Given that the current focus is on the poverty inducing impacts of disability, the HES questions on hardship provide a useful basis in which to examine this issue more directly.¹⁶ The hardship indicators in Table 4 are designed

¹⁵ The fact that the equivalised incomes of couples exceed those of single people in part reflects the difference in the married/single person payment relativity (which is around 1.7) and the couple/single person needs ratio implicit in the modified OECD scale (which is equal to 1.5).

¹⁶ The selection of indicators was based on earlier work undertaken for the (then) Department of Social Security by Travers and Robertson (1996). Information on these indicators has been included in the most recent (2003-04) HES (ABS, 2005), as well as in the *General Social Survey*

to capture aspects of living standards that people had to forego for reasons of affordability ('I could not afford it') as opposed to choice ('I did not want it'). The emphasis on the impact of the former is intended to make the link with a deprivation approach to poverty (Townsend, 1979) more concrete.¹⁷ Although it is not the intention here to develop a new poverty index derived from the hardship indicators, but to examine how their incidence varies with disability status as a way of reinforcing the results on income levels and poverty risks just described, it is important to try to differentiate between the role of constraints and choice as determining factors if possible.

Table 4: Indicators of Hardship or Financial Stress

Indicator	Definition
<i>In the last year, could not afford:</i>	
H ₁	A week's holiday away from home each year
H ₂	A night out once a fortnight
H ₃	To have friends/family over for a meal once a month
H ₄	A special meal once a week
H ₅	Brand new clothes (usually buy second-hand)
H ₆	A leisure or hobby activities
<i>Due to shortage of money, could not pay:</i>	
H ₇	Gas, electricity or telephone on time
H ₈	Car registration or insurance on time
H ₉	Pawned or sold something
H ₁₀	Went without meals
H ₁₁	Unable to heat home
H ₁₂	Sought assistance from a welfare or community agency
H ₁₃	Sought financial help from friends or family
H ₁₄	Could not raise \$2000 in a week if had to

Source: Household Expenditure Survey 1998-99.

A series of composite indicators of hardship have been derived from those shown in Table 4. These are defined in Table 5 and used to derive the living standard comparisons shown in Tables 6 and 7. The first two indicators provide information on the overall incidence and severity of hardship, while the other composite indicators capture the different elements of deprivation and social exclusion that have emerged in the poverty literature (Saunders, 2003; 2005b).

(ABS, 2003) and the *Household Income and Labour Dynamics in Australia* (HILDA) survey (Headey, Warren and Harding, 2006).

¹⁷ The need to distinguish between these competing explanations has important implications for whether one can describe the lack of these items as indicative of poverty, and this has been a major theme of the poverty literature (e.g. Mack and Lansley, 1985; Gordon et al., 2000). However, whether the way the questions are formulated actually achieves this separation between the impact of constraints and differences in preferences (choice) remains a controversial issue – see McKay (2004) and the response by Pantazis, Gordon and Townsend (2006: 112-7).

Table 5: Overall and Composite Indicators of Hardship in Actual Living Standards

Indicator	Definition
Incidence of hardship	Mean number of indicators (out of 14)
Severity of hardship	Experienced at least 5 indicators (out of 14)
Restricted social participation	Experienced at least two of indicators H ₁ to H ₆
Severe financial stress	Experienced at least two of indicators H ₇ , H ₈ , H ₁₀ or H ₁₁
Expressed need	Experienced at least one of indicators H ₉ , H ₁₂ or H ₁₃
Lacks a support network	Experienced H ₁₄

Source: See Table 4.

The estimates in Table 6 show the incidence and severity of hardship across the whole population as well as separately for those with and without a disability within each household type. The variations between household types are substantial, and broadly consistent with the income poverty rates implied by Table 3, with two main exceptions. The first is that the relative position of the aged compared with other households improves considerably when the direct hardship indicators are used, compared with their (equivalised) income ranking.¹⁸ The second is that the differences between household types are magnified somewhat when the direct indicators are used, particularly for the severity of hardship indicator, which implies that many sole parent households are far more likely to face a cumulative set of problems than all other household types.

Both the incidence and severity of hardship increase with disability within all household types and the differences between households are larger than those shown for the income poverty rates in Table 3 (which confirms that the costs of disability are not adequately captured in the equivalence adjustment used to derive the poverty estimates). In overall terms, the mean number of hardships experienced by households with a disability is almost two-thirds (64 per cent) higher than that experienced by other households, while the severity of hardship is more than twice as high (113 per cent).

Table 6: The Overall Incidence and Severity of Hardship by Household Type and Disability Status

Household type:	Incidence of hardship (n):			Severity of hardship (%):		
	Total	No disability	With a disability	Total	No disability	With a disability
Single, non-aged	1.83	1.28	2.69	13.1	7.5	21.9
Single, aged	1.05	0.77	1.21	5.6	3.6	6.7
Couple, non-aged	0.91	0.59	1.29	3.8	1.8	6.1
Couple, aged	0.70	0.55	0.72	2.5	2.9	2.4
Couple with children	1.45	1.03	1.92	8.6	4.2	13.4
Sole parent	3.20	2.80	3.62	24.9	21.1	28.9
Mixed family household	1.63	1.03	2.11	9.3	3.3	14.2
All households	1.49	1.12	1.84	9.2	5.8	12.4

Notes and Sources: See Table 1.

¹⁸ It is possible that the differences for the aged (and, in some instances for other household types too) may reflect a difference in their perceived importance or relevance of the activities addressed in the hardship questions rather than a difference in the standard of living actually achieved, although it is not possible to explore this issue further without additional data.

The incidence of the four composite hardship indicators shown in Table 7 provides further confirmation that disability is accompanied by a variety of different forms of hardship.¹⁹ There is only one instance (severe financial stress among aged couples) where the incidence is lower among those with a disability, while many of the differences are substantial. The high incidence of restricted participation, expressed need and lacking a support network among households with a disability suggest that they face a range of more severe, inter-connected problems than just low-income or greater exposure to poverty. In relation to the incidence of severe financial stress, the overall incidence implied by Table 7 is 7.3 per cent, slightly below the (50 per cent of median income) poverty rate implied by Table 3, yet the relativity between those with and without a disability is much greater, at 1.74 on the basis of severe financial stress, compared with 1.22 on the basis of income poverty.

In summary, the estimates of hardship presented in Tables 6 and 7 confirm the adverse effects associated with disability revealed by the earlier income comparisons, while suggesting that the income comparisons understate the true effects. The extent to which these patterns and differences change once account is taken of the costs of disability is now examined.

Table 7: Incidence of Composite Hardship Indicators by Household Type and Disability Status (percentages)

Household Type	Restricted social participation:		Severe financial stress:		Expressed need:		Lacks a support network:	
	No disab.	With a disab.	No disab.	With a disab.	No disab.	With a disab.	No disab.	With a disab.
Single, non-aged	16.3	36.2	7.0	15.9	11.8	23.6	20.1	38.5
Single, aged	15.1	18.3	0.5	2.0	1.1	6.7	12.9	19.5
Couple, non-aged	8.3	21.7	2.3	6.1	6.0	8.9	8.8	15.7
Couple, aged	10.8	15.7	1.4	0.5	1.7	2.4	6.3	6.4
Couple with children	17.4	29.1	7.6	24.6	7.1	16.1	11.4	20.8
Sole parent	37.7	46.5	13.8	22.1	29.4	36.3	35.9	46.0
Mixed family household	10.1	26.4	2.5	4.2	14.4	21.6	13.1	31.1
All households	16.4	27.0	5.3	9.2	9.8	15.2	14.9	23.2

Notes and Source: See Table 1.

¹⁹ The relationship between disability and the incidence of some or multiple forms of hardship is examined by Bray (2001: Tables 9–11).

5 Estimating the Costs of Disability

Although Zaidi and Burchardt (2005) had access to a richer set of UK data than is available for Australia, it is possible to replicate the basic approach using data from HES98-99.²⁰ The key variable is that used to identify the standard of living, and three alternatives were examined in the UK study: whether the household has any savings; an index of possession of consumer durables; and a subjective assessment of the household's financial situation.²¹ Of these, HES98-99 only includes reliable information on the third variable, based on responses to a question on the household's ability to manage on its income over the previous year.²²

With the responses to this 'income managing' providing an indicator of the standard of living, ordered logit regression models were estimated that included as explanatory variables equivalised income, the presence of disability and a range of other variables that control for differences in household characteristics.²³ (The specifications of the dependent and independent variables are provided in the Appendix; most of the independent variables were entered in the model as single categorical variables). The relationship between the standard of living indicator and income is assumed to be log-linear, implying that the estimate of the costs of disability is expressed as a percentage of (equivalised, disposable) income.²⁴ The two sets of results shown for the HES98-99 data in Table 8 differ in how the incidence of disability in the household is defined (as explained above). In order to assess the robustness of the results, the model was also estimated using data from the *Coping with Economic and Social Change* (CESC)

²⁰ The data sources used by Zaidi and Burchardt are the 1996-97 *Family Resources Survey*, which includes a special section on disability (including a series of detailed questions on the severity of disability that are regarded as producing the best available data of this kind in the UK), and the 1999-2000 (ninth) wave of the *British Household Panel Survey*, which also includes questions on disability in relation to restrictions on social and economic activities (Zaidi and Burchardt, 2005: 96-7).

²¹ In principle, it would be possible to investigate using the hardship variables defined earlier as indicators of the standard of living. However, this approach was rejected in favour of that used by Zaidi and Burchardt.

²² It is possible to estimate 'savings' using the HES as the difference between reported income and expenditure although incomplete accounting for all items leads the ABS to emphasise that 'the difference between income and expenditure cannot be considered to be a measure of saving' (ABS, 2000: 13).

²³ Income is defined after tax and has been adjusted for differences in household size and composition using the modified OECD scale. Zaidi and Burchardt also included variables for the numbers of adults and children in the household into the regression model along with unadjusted income rather than using equivalised income. However, consistency requires that the equivalence adjustment for household size and composition should be based on the regression estimates rather than use of the modified OECD scale, making it harder to relate the results to other studies in the literature. For this reason, income has been equivalised in the regression model and the same scale has been used when applying the equivalence adjustment in order to derive the poverty estimates presented later.

²⁴ This is consistent with the treatment of the costs of adults and children in the equivalence scale, which, since it is used to deflate original income, implies that the costs are a fixed percentage of total income.

survey, which was conducted by the SPRC in 1999.²⁵ The CESC data includes information on whether or not the respondent has a disability or on-going medical condition that interferes with their ability to work, as well as information on the household's ability to manage on their current income and a variety of other information about the characteristics and circumstances of the household.²⁶

It is difficult to draw firm conclusions about the stability of the individual parameter estimates in Table 8 because of differences in how the variables are defined, although the two variants of the model that use the HES data produce very similar results.²⁷ Although the explanatory power of all three models is low, most parameter estimates are statistically significant, including those on the key income and disability variables. Most importantly, the two estimates of the costs of disability based on the disability status of the reference person (HES) or the respondent (CESC) are virtually identical, which suggests that the cost estimates are robust and reliable. These estimates imply that the costs of disability correspond to 29 per cent of equivalised disposable income.²⁸ When the more extensive disability incidence variable (DISHH) is used, the estimate of the costs of disability increases to just over 37 per cent of disposable income. The increase reflects the fact that many households counted as not having a disability on the basis of the status of the reference person variable (DISRP) are now included in the disability group, widening the gap between those with and without a disability and producing a more differentiated cost estimate.

²⁵ The CESC survey is described and analysed in Eardley, Saunders and Evans (2000), Saunders, Thompson and Evans (2001) and Saunders (2002).

²⁶ The CESC survey was a random sample drawn from the electoral roll and most of the information collected (including whether or not they have a disability) refers to the circumstances of the individual selected for inclusion rather than to the household as a whole. It should be noted that the wording of the CESC disability question was far simpler than that included in the HES. The CESC 'income managing' question is described in the Appendix: the CESC income variable is only available in ranges, which have been set at their mid-points, from which an estimate of tax liability has been deducted and the equivalence adjustment applied). In contrast, the HES disposable variable is continuous (but tax payable has been modelled by ABS).

²⁷ Variables have been omitted from the regressions reported in Table 8 either because they are not available in one of the two data sets, or because of problems associated with specifying the variable in a comparable manner across both data sets. The independent variables included are defined in the Appendix.

²⁸ This estimate cannot be directly compared with that derived for the UK by Zaidi and Burchardt (2005: Table 3) because their access to more sophisticated data allows them to develop a more complex model in which costs vary with household type and the severity of disability. However, for a non-pensioner couple, one of whom has a disability at the medium level of severity (assumed to correspond to a disability score of 9 out of a maximum of 23), the corresponding UK estimate is equal to 27 per cent of income, quite close to that estimated for Australia in Table 8.

Table 8: Estimating the Costs Associated with the Incidence of Disability Using Ordered Logit Models

Intercepts/Independent variables	Parameter estimates:		
	HES – based on disability status of the reference person (DISRP)	HES – based on at least one adult with a disability in the household (DISHH)	CESC – based on the disability status of the respondent
Income managing = 1	2.927 ***	2.832 ***	13.015 ***
Income managing = 2	5.666 ***	5.581 ***	16.017 ***
Income managing = 3	-	-	20.201 ***
Age	0.037 ***	0.049 ***	0.015 ***
Educational qualifications	- 0.055 ***	- 0.054 ***	0.117 ***
Housing tenure	- 0.105 ***	- 0.107 ***	- 0.363 ***
Household/family type	- 0.083 ***	- 0.074 ***	0.374 ***
Marital status	-	-	0.152 ***
Age of youngest child	-	-	- 0.153 ***
Socioeconomic disadvantage	0.013 *	0.011	-
Country of birth	- 0.045 **	- 0.045 **	-
Recent arrival	0.074 **	0.065 *	-
Labour force status	- 0.046 **	- 0.043 **	-
Location	-	-	0.004 **
Non-government secondary school	- 0.261 ***	- 0.260 ***	-
Equivalent disposable income (log)	0.949 ***	0.937 ***	1.582 ***
DISRP	- 0.274 ***	-	-
DISHH	-	- 0.348 ***	-
DISRESP	-	-	- 0.457 ***
Sample size	6,611	6,611	1,784
McFadden R ²	0.070	0.072	0.134
χ^2	911.6***	943.3***	476.6***
<i>Implied cost estimate:</i>	0.274/0.949 = 0.289	0.348/0.937 = 0.371	0.457/1.582 = 0.289

Notes and Sources: See text and Appendix. ***/**/* = Statistically significant ($p=0.01/0.05/0.10$)

To put these estimates into perspective, the modified OECD equivalence scale (which adjusts for the costs of additional household members that are assumed *not* to have a disability) implies that the cost of the second adult corresponds to 33.3 per cent of household income, while the cost of the first child in a couple represents a further 11 per cent of income. Having someone with a disability in the household is thus estimated to impose a similar financial burden on the household budget to the amount required to support the second adult in a couple.

The estimates of the costs of disability shown in Table 8 take no account of the severity of disability, yet one would expect costs to vary systematically with the restriction associated with a disability. Table 9 takes account of the severity of restriction using the three variables described earlier, all of which are based on a severity score ranging from 0 (no disability or restriction) to 4 (severe or profound restriction). All three sets of estimates have been derived from the HES98-99 data, and the parameter estimates are generally well determined and exhibit considerable stability across the alternative model specifications. The first and third specifications produce very similar results, and although this implies that relatively little is gained by using the more complex SUMSEV variable, it has been preferred to the disability

status of the reference person (DISRP) variable because of the limited disability coverage of the latter variable (see Table 1).

On the basis of the first and third specifications shown in Table 9, the estimated cost associated with each point on the severity scale is just below 10 per cent of income, while this increases to just over 12 per cent when the second specification is employed. These estimates imply that where someone in the household has a moderate restriction (severity of index = 3), the cost is equivalent to between 30 and 37 per cent of income, while the costs of a severe or profound restriction (severity index = 4) vary between 40 and 49 per cent of income. The former range encompasses the single incidence of disability estimate of 37.1 per cent shown in Table 8, and reflects the fact that the median reported maximum severity of restriction falls in the moderate category (Table 2). By any standard, these cost estimates are large enough to make a very substantial difference to the association between disability and poverty, and this issue is now examined.

6 New Estimates of the Impact of Disability on Poverty

It has already been noted that the recent Senate Committee remarked on the fact that disability is a close companion of poverty. This comment was based on evidence presented to the Committee by people with a disability and by some of the organisations that represent those interests and advocate on their behalf. Much of that evidence drew on the actual experience of people with a disability, but was not underpinned by any rigorous statistical examination of the issue, in part because the data were not available to support this. However, it is now possible to use the estimates presented in the previous section to explore this issue more systematically. In doing this, the focus is on the *relative* risks of poverty facing those with and without a disability in the household by comparing the poverty rates facing these two groups. Poverty is measured using a poverty line set equal to one-half of median income, after adjusting for equivalence using the modified OECD scale.

Table 9: Estimating the Costs Associated with the Severity of Restriction Using Ordered Logit Models

Intercepts/Independent variables	Parameter estimates:		
	Based on the severity of restriction of the reference person (SEVRP)	Based on the maximum level of restriction among adults within the household (MAXSEV)	Based on the sum of the adult severity scores within the household (SUMSEV)
Income managing = 1	2.936 ***	2.905 ***	2.939 ***
Income managing = 2	5.675 ***	5.649 ***	5.684 ***
Age (years)	0.041 ***	0.044 ***	0.045 ***
Educational qualifications	- 0.055 ***	- 0.054 ***	- 0.053 ***
Housing tenure	- 0.104 ***	- 0.107 ***	- 0.109 ***
Household type	- 0.083 ***	- 0.077 ***	- 0.074 ***
Socioeconomic disadvantage	0.013 *	0.011	0.011
Country of birth	- 0.045 **	- 0.045 **	- 0.044 **
Recent arrival	0.073 **	0.070 **	0.069 **
Labour force status	- 0.043 **	- 0.043 **	- 0.043 **
Non-government secondary school	- 0.262 ***	- 0.267 ***	- 0.270 ***
Equivalent disposable income (log)	0.947 ***	0.944 ***	0.946 ***
SEVRP	- 0.093 ***		
MAXSEV		- 0.115 ***	
SUMSEV			- 0.092 ***
McFadden R ²	0.070	0.071	0.071
χ^2	911.8***	926.7***	929.3***
<i>Implied cost estimate per unit of restriction</i>	0.093/0.947 = 0.0982	0.115/0.944 = 0.1218	0.092/0.946 = 0.0973

Notes and Sources: See Table 8.

Previous research has shown that poverty rates vary systematically across household types as a consequence of differences in labour force participation rates, reliance on income support, and the adequacy of payment levels (Harding, Lloyd and Greenwell, 2001), while Table 1 indicates that the incidence of disability varies with a similar set of household characteristics. This suggests that it is important to present results disaggregated by household type in order to identify the independent role played by the costs of disability. With this in mind, three sets of poverty comparisons are presented below: the first compares poverty rates by the incidence of disability within household types *before any adjustment is made for the costs of disability* (these reproduce the estimates presented in Table 3); the second presents the same comparisons *after adjusting for the costs of disability* estimated according to *the incidence of disability* (as shown in Table 8); and the third *adjusts for the costs of disability at different levels of restriction* (as shown in the estimates in Table 9). In all cases, households with a disability have been identified on the basis of whether there is at least one person in the household with a disability (DISHH). Two alternative versions of the severity of restriction estimates are presented, based on cost estimates using the MAXSEV and SUMSEV variables.²⁹

²⁹ It is clear from Table 9 that use of the third severity variables (based on the status of the reference person, SEVRP) would produce very similar estimates to those based on the SUMSEV variable, and these estimates have not been presented.

The estimates in the first two columns of Table 10 show that even *before* any adjustment is made for the extra costs of disability, poverty rates are higher among households who have someone with a disability than among otherwise similar households. When the estimates shown in Table 8 are used to adjust for the costs of disability, this picture becomes markedly worse *after* adjusting for the costs of disability, because poverty rates among those without a disability decline considerably, while those among households with a disability increase sharply.³⁰

Table 10: Poverty Rates by Household Type and Disability Status, Before and After Adjusting for the Costs of Disability (percentages)

Household Type	Poverty rate <i>before</i> adjusting for the costs of disability		Poverty rate <i>after</i> adjusting for the costs associated with the <i>incidence of disability</i> (DISHH)		Poverty rate <i>after</i> adjusting for the costs associated with different levels of <i>severity of restriction</i> (MAXSEV)		Poverty rate <i>after</i> adjusting for the costs associated with different levels of <i>severity of restriction</i> (SUMSEV)	
	No disability	With a disability	No disability	With a disability	No disability	With a disability	No disability	With a disability
Single, non-aged	11.3	21.2	5.7	53.7	6.7	32.0	8.1	33.1
Single, aged	13.2	12.4	7.0	59.1	8.4	33.4	8.9	33.6
Couple, non-aged	3.7	6.7	2.9	24.5	2.9	17.2	2.9	21.5
Couple, aged	3.6	6.2	2.4	39.5	2.4	26.8	2.4	29.6
Couple with children	4.9	6.7	3.3	15.4	3.8	12.3	4.3	16.3
Sole parent	15.8	10.3	8.0	29.6	8.2	22.1	9.7	23.9
Mixed family household	5.9	4.5	5.2	8.5	5.3	10.2	5.6	18.0
All households	7.4	9.0	4.5	29.7	5.0	20.4	5.6	23.7

Notes and Sources: See earlier tables and main text.

In aggregate terms, the disability/no disability poverty rate differential increases more than five-fold, from just over 1.2 to 6.6 – a change that highlights dramatically the impact of disability on poverty.³¹ Within all household types, the risk of poverty increases when there is a disability present by *between four and sixteen times*, the only exception being mixed family households, where the relative risk is below two. It is notable that aged households, whose exposure to poverty appeared relatively unrelated to their disability status according to the unadjusted results (Table 3), are now shown to face a far greater exposure to poverty if they have a disability. This suggests that the age pension (the main source of income for the majority of older people) may be adequate to meet basic costs of living, but not the additional costs associated with a disability.

³⁰ The decline in poverty among households without a disability reflects the fact that the equivalent incomes of those with a disability are reduced by the costs adjustment and this results in a reduction in median equivalent income and hence a lower poverty line.

³¹ The overall poverty rate almost doubles, from 8.3 per cent to 17.4 per cent after controlling for the costs of disability, despite the reduction in the poverty line.

When the costs of disability take account of the severity of the restrictions associated with disability as well as its incidence using either the MAXSEV or SUMSEV variables, poverty rates fall somewhat, as does the relativity between the poverty rates of those with and without a disability. For example, using MAXSEV, the overall poverty rate declines to 12.5 per cent although the rate for those with a disability is over four times greater than those without a disability, while the pattern of relative poverty rates within household types is broadly similar to that produced using the incidence of disability variable (DISHH). Again, aged households with a disability are seen to have much higher poverty rates than aged households that are unaffected by disability. Of particular significance is the finding that the variation in poverty rates by disability status *within* household types is greater than the variability *between* household types prior to the disability cost adjustment. This implies that standard representations of poverty rates by household type (which reflect differences in age, parental status and numbers of children) are somewhat misleading, in that they conceal the larger variations that reflect the presence or absence of disability.

It might seem somewhat surprising that taking account of the severity restrictions associated with having a disability produces results showing that the impact of disability is *lower* than when account is taken only of the incidence of disability. However, this can be explained by the fact that many of those who report a disability, indicate that the level of restriction associated with it is rather low (Table 2). This implies that assigning everyone an average cost (which is what happens when only the incidence is recognised when estimating costs) produces an upwards bias for many households, leading to an over-estimate of costs and hence of poverty rates. Once the level of restriction is incorporated into the methodology used to estimate costs, this bias disappears, causing poverty rates to decline somewhat (while remaining well above those based on taking no account of the costs of disability).

7 Summary and Conclusions

This paper has used data collected in the *1998-99 Household Expenditure Survey* to examine the relationship between disability and poverty - two issues that have been examined independently in previous research on both poverty and disability. The lack of overlap between research on these two important topics has been to the detriment of both, since those who have studied disability have been unable to provide a quantitative estimate of its impact on the economic dimension of living standards, while those who have studied poverty (including the current author) have not recognised the important role that disability plays in producing the observed patterns. The analysis reported here overcomes this limitation by combining the methodologies used in living standards and poverty research to estimate the costs of disability and their impact on the incidence of poverty. It needs to be acknowledged that the approach focuses on the *economic* costs of disability and how these affect estimates of *economic* poverty, but there is no suggestion that this is the most important aspect of disability, nor that other aspects of disability do not that warrant separate examination.

The ways in which empirical results are presented can have a major impact on how they are interpreted and what consequences they are seen to have for policy. Nowhere is this more evident than in relation to mainstream poverty research, where it is common to present results classified by household type, drawing attention to the adequacy of social security payments that vary with factors such as age, the presence

of children and sole parenthood. The results presented here show that these results fail to reveal the strong relationship between disability status and poverty that is evident in the data. Even before any adjustment is made to reflect the costs of disability, there are major differences in the income levels, and hence poverty risks facing households with and without a disability, whatever the composition of the household. These differential risks are reflected in differences in patterns of hardship, which confirm the disadvantaged position facing those who have a disability.

The method used to estimate the costs of disability replicates a standard of living approach recently developed in the UK. The approach is shown to produce estimates of the costs of disability that are robust in terms of their statistical properties and alarming in terms of their magnitude. Broadly speaking, having an adult member of the household with a disability is estimated to add about the same to the household budget as the cost of the second adult in couples that do not have a disability. (Data limitations have prevented the method being used to estimate the costs of child disability). In income terms, the costs of disability are estimated to average around 29 per cent of (equivalised) household income, rising to between 40 per cent and 49 per cent of income for those with a severe or profound restriction.

Once account is taken of the costs of disability, the differential in poverty rates between those with and without a disability increases substantially, with the poverty rate among those with a disability exceeding that of those without a disability by more than six-fold. This differential declines somewhat when account is taken of the level of restriction associated with the disability, but remains substantial at more than four-fold. These latter estimates highlight the impact of disability among older households more starkly than the alternative approaches.

The paper began by noting that debate on the setting of income support payment rates for people with a disability has failed to take account of the extra costs associated with disability. Previous research has also failed to produce robust and stable estimates of the additional costs, showing instead that costs vary greatly with the type of disability and how they are derived. If the estimates presented here are anywhere near close to accurate, they imply that there is an urgent need to review the adequacy of income support arrangements for those with a disability across all household types: single and married; young and old; one- and two-parent; with and without children. The estimated impact of disability on the risk of poverty and actual hardship is shown to be very high. This suggests that urgent action is required to ensure that people with a disability no longer have to confront a greatly increased risk of poverty in addition to many other challenges.

Appendix: Definition of Variables Used in Logit Regression Models

Variable Name	Definition (HES)	Definition (SESC)
Income managing	Spending more money than the household receives; breaking even most weeks; being able to save money most weeks	Has much more income than necessary; Has just enough income to get by on as well and for a few extras; Has just enough income to get by on; Has not got enough income to get by on'
Age	Age of the reference person in years	Age of the respondent in years
Educational qualification/studying	Still attending school; without post-school qualifications; basic vocational qualification; skilled vocational qualification; Associate diploma; undergraduate diploma; bachelor degree; postgraduate diploma; higher degree	Primary school or less; some secondary/high school; completed secondary/high school/matriculation; trade certificate, apprenticeship or similar; bachelor degree; post-graduate degree
Housing tenure	Owned outright; being bought; renting from government housing authority; renting – other – furnished; renting – other – unfurnished; other tenures	Owned outright; being bought; renting; other
Household/family type	Living alone; couple – no other usual resident(s); couple with children aged 15 and over only; couple with children aged 0-14 only; couple with children aged 0-14 and children aged 15 and over; lone parent with children aged 15 and over; lone parent with children aged 0-14 only; lone parent with children aged 0-14 and children aged 15 and over; mixed family household	Living alone; couple with no children; couple with children; sole parent; other
Marital status	-	Married (or living with de facto partner); separated, divorced or widowed; never married
Age of youngest child	-	Less than 5 years; 5-9 years; 10-14 years; 15-19 years; 20 years and over
Socioeconomic disadvantage	Index of relative socio-economic disadvantage, in deciles	-

Definition of Variables Used in Logit Regression Models (Continued)

Country of birth	Australia; other Oceania and Antarctica; North-West Europe; Southern and Eastern Europe; North Africa and Middle East; South-East Asia; North-East Asia; Southern and Central Asia; Americas; Sub-Saharan Africa	-
Recent arrival	Year of arrival in Australia: before 1981; 1981-1985; 1986-1990; 1991-1995; 1996-1999	-
Labour force status	Full-time employee; part-time employee; self-employed; unemployed; not in the labour force	-
Location	-	An index of Australian localities separated into 78 different city and regional based on geographical areas
Non-government secondary school	Number of people in the household attending non-government secondary school: zero; one student; two or more students	-

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