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ABSTRACT

The Dynamic Effect of Disability on Work and Subjective Wellbeing in Australia*

Using longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey (2001-2013) we examine the relationship between the dynamics of work-limiting disability and employment, hours of work, earnings and life satisfaction. We employ two alternative classifications of the dynamic trajectories of disability and, in doing so, are able to explicitly consider the influence of disability exit in addition to examining onset by chronicity and severity. After controlling for unobserved individual heterogeneity, we find that the positive impact of disability exit is smaller in magnitude and shorter-lived than the negative impact of onset. Further, while individuals are found to recover from a one period disability within three years, there is no sign of adaptation even after ten years for those whose disability is chronic, defined as evident for three or more years post-onset, and severe.

JEL Classification: I10, J2, J31, J71

Keywords: disability, employment, hours of work, earnings, life satisfaction, HILDA

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1. Introduction

Most analyses of the employment experience of disabled individuals are cross-sectional in nature and implicitly assume that disability is an unchanging or permanent condition. Yet, this is far from the case in practice. As Burchardt (2000) puts it, "the perception that disabled and non-disabled people make up two entirely distinct and fixed groups in the population is misleading" (page 661-662). Using the British Household Panel Survey she shows that only a small proportion of working age individuals who become disabled remain so long-term. Recognising this, a limited number of studies have highlighted the insights afforded by using longitudinal data to explore how disadvantage develops according to the dynamic patterns of disability and the extent to which it persists (see, amongst others, Charles, 2003 and Meyer and Mok 2013).

In this paper we use the Household, Income and Labour Dynamics in Australia (HILDA) survey to examine the dynamic effect of work-limiting disability onset on employment, hours, earnings and life satisfaction. HILDA has a number of advantages in this context. The thirteen waves (2001-2013) provide a relatively long panel element over which to trace the disadvantage which accumulates pre-onset, at onset and post-onset and provides a useful contrast to the existing evidence, which is predominately based on the US Panel Study of Income Dynamics (PSID). Further, the focus on disability transitions within a contemporary panel enables us to classify disability dynamics according to alternative definitions in the literature to explicitly consider disability exit (Jones *et al*., 2013) and to consider onset by chronicity and severity (Meyer and Mok, 2013). Unlike much of the existing US literature, our analysis can be carried out for males and females and also permits explicit consideration of life satisfaction and its facets to provide a more complete picture of disadvantage than indicators relating to the labour market alone.

In addition to forming a useful comparator to existing work in the US and UK, the focus on Australia provides new and timely evidence in a key area of policy change. Indeed, in 2011 the Australian Productivity Commission reported that the disability support system was unfair, underfunded, fragmented and inefficient and, in 2013, a National Disability Insurance Scheme was introduced to provide greater choice and control for disabled individuals in receipt of benefits and better integrate disabled individuals into the mainstream of national life. In identifying the magnitude and nature of disadvantage associated with different patterns of disability onset and considering the extent of recovery at disability exit this paper provides evidence from which policy can be better tailored to support those likely to experience the most severe disadvantage.

The remainder of the paper is structured as follows. Section 2 provides a brief review of the existing evidence relating to the dynamics of disability. Section 3 introduces HILDA and the measures and methods employed in this analysis. The results are presented and discussed in Section 4 and Section 5 concludes.

2. Previous Literature

While the focus of the international evidence has been the cross sectional association between disability and labour market outcomes recent analysis, particularly in the US, has used panel data and fixed effects methods to examine the effects of disability onset and duration on employment and earnings. Charles (2003) focuses on physically impaired male heads of household who appear in at least three consecutive waves of the PSID over the period 1968 to 1993 and finds a sharp drop in annual earnings as a result of hours reductions around the date of onset. Further, drops in earnings seem to predate the recorded date of onset, consistent with declining health before the worker reports the disability. Charles reports long-run losses

in expected annual earnings amounting to about 12% per annum, with older workers, non-whites, the less educated and the more chronically disabled suffering the biggest losses. Industry affiliation after onset seems to be important, as whites and better educated disabled are more likely to switch industries and occupations, making their recovery larger and more immediate. Even more substantial effects were found by Mok *et al*. (2008) and Meyer and Mok (2013), using PSID longitudinal data up to 2009. Mok *et al*. (2008), attempted to replicate the published results of Charles (2003), but were unable to do so, finding much larger effects. Thus, it appears that the Charles (2003) earlier results should be treated with a degree of caution. Meyer and Mok (2013) examine a far broader range of outcomes including incidence of poverty, transfer income and food and housing consumption. They find evidence of a long-term decline in after tax income and consumption for those with chronic disability which is substantially greater for those who report their disability as severe. In a similar manner, Jolly (2013) uses the 1968-2007 waves of the US PSID waves to compare the income mobility patterns associated with work-limiting disability. The onset of disability is associated with an increased possibility of falling and a decreased possibility of rising in the earnings distribution; a change which occurs not just in the year of onset, but also which lasts for at least ten years afterwards.

For the UK, Jones *et al*. (2013) examine the dynamic relationship between work-limiting disability and labour market outcomes, using a dataset created by matching individuals in the Local Labour Force Survey, 2004-2010. Unlike the earlier literature they explicitly consider disability exit but are restricted by the short longitudinal element of these data and therefore examine only the period immediately before and after onset/exit. They find that disability onset has a significant negative effect on hours of work and this effect continues post-onset. However, after controlling for unobserved heterogeneity there is no evidence that disability exit improves outcomes so that the influence of onset and exit appear to be asymmetric.

Meyer and Mok (2013) note the absence of explicit consideration of life satisfaction in their analysis which Powdthavee (2009) is able to explore using data from the British Household Panel Survey, albeit using a less well established definition of disability. He reports a statistically significant decline in health satisfaction that starts at least four years prior to recorded onset but that adaptation to mild disability seems to be complete within three years. In contrast, adaptation is evident but incomplete across a range of domains for those with severe disabilities.

To our knowledge the event study methodology utilised in these papers has not been previously applied to data from Australia. Instead, the analysis of HILDA has focused on identifying the causal impact of disability onset on labour force participation and hours. Using the first five waves of HILDA Oguzoglu (2010) estimates a two equation dynamic panel model which explicitly considers past labour force participation and the endogeneity of disability. He finds that disability has a significant negative influence on participation even after taking into account persistence of labour market participation and unobserved individual heterogeneity. In extensions to this work based on the same data Oguzoglu (2011) considers the severity of work-limiting disability and Oguzoglu (2015) further disaggregates labour market status into full-time employment, part-time employment, unemployment and inactivity. Interestingly, the effect of disability on participation is found to vary substantially by the severity of disability (severe, moderate and mild and low severity are constructed from self-reported information on a 0-10 point scale) suggesting a need for a differentiated policy response. Finally, Polidano and Vu (2015), adopted a difference in differences propensity score matching approach on the first 9 waves of HILDA to examine the effects of disability onset and find negative employment effects four years post onset which are more pronounced for those with lower educational attainment. We add to this evidence by considering how the

disadvantage depends on the chronicity of disability onset and whether disability exit is associated with improvements in labour market outcomes and life satisfaction.

3. Data and Methodology

This paper uses the confidentialised unit record file from the first thirteen waves of the HILDA survey. Modelled on household panel surveys undertaken in other countries, the HILDA survey began in 2001 (Wave 1) with a large national probability sample of 7,800 Australian households and their members.[1] Our sample is restricted to an unbalanced panel of working age individuals (16-64 for males and 16-59 for females) who provide information at four or more waves in the survey.[2] Our sample covers approximately 8,900 individuals per wave over thirteen waves of data, creating a total sample of about 116,000 person-year observations.

Disability

Consistent with the previous literature (Charles, 2003, Meyer and Mok, 2013 and Jones *et al*., 2013) we focus on disability defined by work-limitation. In the HILDA survey, employees were asked: *Do you have any long-term health condition, impairment or disability* (from a list of 17 conditions) *that restricts you in your everyday activities, and has lasted or is likely to last, for 6 months or more?* Those who answer "yes" were further asked: *Does your condition limit the type of work or the amount of work you can do?* We define a person to have a work-limiting disability if he or she answers "yes" to both questions and all remaining

[1] See Watson and Wooden (2004) for a detailed description of the HILDA data.
[2] This is applied to all respondents but our results are not sensitive to this restriction. We have also experimented using the balanced panel to address the issue of attrition, and find that the results do not differ substantially from those from the unbalanced panel.

responses are referred to as non-disabled.[3] After identifying the incidence of work-limiting disability, a further question was asked regarding the extent to which the condition limits the amount of work they can do. Responses range from 0 (not at all) to 10 (unable to do any work). We define severely disabled to be those selecting 6 or higher, whereas individuals selecting 0 to 5 are classified as not severely disabled. Under these definitions, 13.3 per cent of our observations are classified as work-limiting disabled, among whom 6.2 per cent are severely disabled and 7.1 per cent are not severely disabled, as shown in Table 1. In addition, we observe no discernible gender difference.

Despite its widespread use there are well-established limitations of using self-reported information on disability, including justification bias and measurement error (Bound, 1991). Similar criticisms may apply to our self-reported measure of severity, although Oguzoglu (2011) finds no evidence of justification bias in relation to self-reported severity. Further, Charles (2003) argues that such issues are likely to be less problematic in a longitudinal setting where the focus is on patterns of disability and where it is possible to control for unobserved individual heterogeneity. Following Meyer and Mok (2013) we use information on the widely used SF-36 measure of physical and mental functioning (measured on a positive scale between 0-100), as a proxy for objective health. Consistent with Meyer and Mok (2013) who argue changes in health rather than unemployment precede disability onset we find evidence that deterioration in health precedes disability onset, and that this is greater for those in the chronic severe relative to chronic non-severe group. Further, improvements in health are also found to precede disability exit.

[Table 1 about here]

[3] Since individuals are not asked to record their main health condition and, just less than 50% report multiple health problems, we do not attempt to explore the nature/type of disability.

Unlike Charles (2003) and Meyer and Mok (2013), HILDA does not contain retrospective information on the date of disability onset. Instead, like Kapteyn *et al*. (2008) and Jones *et al*. (2013) we focus on disability onset (and exit) defined during the panel as the first occurrence of reporting no disability followed by reporting disability in the subsequent year (and vice versa), and classify the dynamic patterns of onset using two alternative definitions applied in the literature to examine the sensitivity of the results.[4] The first follows Jones *et al*. (2013) who, due to their short panel element, define five mutually exclusive disability patterns and explicitly distinguish between disability onset and exit. The second follows Meyer and Mok (2013) who utilise the longer panel element of their data and distinguish between patterns of chronicity post disability onset. The Jones *et al*. (2013) categorisation runs as follows:

(i) Continuously disabled: those who always report disability in the sampling frame.

(ii) Continuously non-disabled: those who never report disability in the sampling frame.

(iii) Consistent onset: those who experience disability onset without exit within the sampling frame.

(iv) Consistent exit: those who experience disability exit without a further onset within the sampling frame.

(v) Irregular: all other patterns of disability within the sampling frame.

Whilst Meyer and Mok (2013) group those who experience disability onset as follows:

(i) One-time disabled: those who report disability onset but never subsequently report disability in the sampling frame.

(ii) Temporarily disabled: those who report a disability once or twice after disability onset, that is, a total of two or three instances in the sampling frame.

[4] Following (Charles, 2003) the robustness of the findings to a two-period definition of disability onset and exit are tested, but they are qualitatively unchanged.

(iii) Chronically disabled: those who report a disability three times or more after disability onset, that is, a total of four or more instances in the sampling frame.

By combining information on chronicity and severity a further sub-division of the chronically disabled category is created to distinguish between chronic non-severe and chronic severe disability. We define severely disabled to be those with an average severity over the post-onset 'disability' waves of 6 or more, whereas individuals with an average between 0 and 5 inclusive are classified as not severely disabled.[5] Hence, this categorisation leads to four groups of individuals with a work-limiting disability, namely, (i) one-time disability; (ii) temporary disability; (iii) chronic non-severe disability; (iv) chronic severe disability.

Table 2 below presents the prevalence of dynamic trajectories using the classification of Jones *et al*. (2013) which explicitly distinguishes between entry into and exit from disability, but does not consider severity. Relative to their analysis, which is based on 4 waves of data, the definitions of consistent onset and exit are far more stringent given the 13 waves of data available here and, hence, focus to a greater extent on permanent transitions over the lifecycle. Over the 13 year panel element, 70.6 per cent never report work-limiting disability, 4.0 per cent continuously report disability, 2.0 per cent experience consistent onset, 2.7 per cent consistent exit, and 20.7 per cent are irregular in their experience of disability. These figures indicate that just under 30 percent of the individuals experience at least one episode of work-limiting disability over a period of thirteen years and of these about two thirds are 'irregular' in nature. While the latter are not the focus of the analysis in Jones *et al*. (2013) they are examined here using our second definition (following Meyer and Mok, 2013), whose focus is heterogeneity in the patterns of onset.

[Table 2 about here]

[5] We experimented with alternative cut-off points including 5 or more and 7 or more but our main findings are not sensitive to this.

We further categorise those individuals who experience disability onset by chronicity and severity, as suggested by Meyer and Mok (2013) and the results are reported in Table 3. Among the 2,842 individuals who experience disability onset, 26.0 per cent are one-time disabled, 27.2 per cent are temporarily disabled, 20.5 per cent are chronic non-severe and 26.4 per cent chronic severe. Despite differences in the identification and definition of the groups the distribution among those who onset disability is comparable to Meyer and Mok (2013), albeit with a higher concentration in the severe relative to non-severe chronic group.

[Table 3 about here]

Dependent Variables

We explore the impact of the dynamic patterns of disability on a range of outcomes relating to both the labour market and life satisfaction. A binary measure of employment is used to capture employment status and is measured based on activity in the last week. Employment is based on the ILO definition and includes those in employment, self-employed, and on government training schemes. Non-employment is defined to include those in unemployment or inactivity. Consistent with cross sectional evidence the work-limiting disability employment gap is pronounced at 36.6 percentage points (82.0% for non-disabled compared to 45.4% for disabled).

Given the concentration of part-time work in Australia we analyse a second measure of the quantity of work, namely, usual weekly hours (in all jobs) and include zero hours for those not in employment to model adjustment at the intensive and extensive margin simultaneously.[6] On average individuals report working 29.0 hours per week and the absolute work-limiting disability gap is 15.5 hours (31.0 hours for non-disabled compared to 15.5

[6] In additional specifications we also estimate the adjustment in hours for those in work. The results are qualitatively similar but smaller in magnitude and confirm that adjustment occurs at the intensive as well as extensive margin.

hours for disabled). For those in work, we examine mean gross nominal hourly earnings in Australian dollars, which is derived using weekly gross wages from the main job divided by hours per week usually worked in main job including both paid and unpaid overtime. Average hourly earnings are $23.7 and $19.8 for non-disabled and disabled workers respectively, indicating a disability earnings gap of about 20%.

In order to capture disadvantage more broadly we analyse a measure of life satisfaction which is measured on an 11 point scale between 0 (least satisfied) and 10 (most satisfied) where individuals are asked *All things considered, how satisfied are you with your life?*. In addition to utilising the overall measure, following Powadthee (2009), we explore the following facets of life satisfaction (measured on the same scale): the home in which you live; employment opportunities; financial situation; how safe you feel; feeling part of the community; your health; the neighbourhood in which you live; the amount of free time you have. While an individual's satisfaction with his/her employment opportunities and financial situation will have direct links to the labour market the other measures capture the broader range of channels through which disability may impact on wellbeing.[7]

Methodology

Following Charles (2003) and Meyer and Mok (2013), we estimate the following equation using a fixed effects model:[8]

[7] Similarly, for those who retain work, we are able to consider the influence of disability on job satisfaction.

[8] Following Singleton (2012) we use a linear probability model for the binary measure of employment for ease of interpretation. However, the results are qualitatively similar if, instead, a conditional logit model is used. Consistent with the previous literature (Clark *et al*., 2008 and Powdthavee, 2009), our approach treats life satisfaction as cardinal rather than ordinal. Ferrer-i-Carbonell and Fritjers (2004) amongst others have previously noted the robustness of their results to this.

$$Y_{it} = \alpha_i + \gamma_t + X_{it}\beta + \sum_g \sum_k \delta_k^g A_{kit}^g + \varepsilon_{it} \quad (1)$$

Y_{it} refers to the outcome of interest for individual *i* at year *t*, including employment, weekly hours of work, earnings and life satisfaction. Time period (year) and individual fixed effects are captured by γ_t and α_i, respectively. X_{it} is a set of time-varying personal and household characteristics that are used as control variables in the estimation, including age, age-squared, education level, marital status, dependent children within the household and an indicator of urban/rural area of residence. Further details and the summary statistics for these variables are included in Appendix Table A.1. The dynamic effects of disability are captured by a set of dummy variables, A_{kit}^g, which each equal 1 if in year *t* individual *i* belongs to disability group g and he/she is *k* years from onset (or exit) (a minus indicates prior to onset/exit). ε_{it} is an idiosyncratic error. For each dependent variable we estimate the model twice, first where the 'g' groups capture consistent onset and exit following Jones *et al.* (2013) and then, distinguishing between the four onset groups following Meyer and Mok (2013). Throughout standard errors are clustered by person.

We examine the effects from three years before to ten or more years after the year of disability onset (exit) $k \in [-3,10]$ and the reference category is more than 3 years pre-onset (pre-exit).[9] Since the fixed effects model is used for estimation, δ_k^g measures the causal effect of group *g* disability *k* years away from onset (exit) relative to that more than three years pre-onset (pre-exit). As such we are able to distinguish the influence of disability pre-onset (pre-exit), from that at onset (exit) and post–onset (post-exit). In doing so it possible to identify the

[9] We experimented with the inclusion of additional lags up to 5 years pre-onset but these were consistently insignificant and therefore our results are robust to their exclusion. The focus on 3 years pre-onset enhances the size of the base groups. Among all the dynamic classifications the minimum sample size for onset/exit at a given lead/lag is about 60 for employment and life satisfaction; this falls to 20 for the analysis of earnings.

timing of disadvantage relative to disability onset and, where disadvantage occurs post-onset, rule out reverse causality.

4. Results

We examine the impact of the dynamics of disability on important life events and outcomes, including being in employment, hours worked, hourly wages and life satisfaction. Within each Table of results we present estimates from two models, based on the definitions applied in a UK paper by Jones *et al*. (2013) (Model I) and a US paper by Meyer and Mok (2013) (Model II).

Employment

We present results relating to each of the measures of the quantity of employment, namely employment status (Table 4) and hours of work (Table 5). Model I (columns 2 and 3) is comparable with the results in the UK study by Jones *et al*. (2013), albeit their definitions are based on a shorter panel element. As such, our consistent onset group will have longer average post-onset disability duration. Consistent with this, our results show the onset of work-limiting disability has a much stronger effect on the probability of being employed than in the UK. Disability onset reduces the probability of employment by 32 percentage points and the magnitude of the effect increases with the duration of disability, at least until six years post-onset. There is evidence of significant, but far more modest declines pre-onset consistent with a gradual decline in health. We find a significant influence of disability exit which suggest that exiting disability causes an, albeit temporary, increase in the probability of employment. That the magnitude of the increase at exit (about 9 percentage points) is smaller than the decline at onset is consistent with, although less pronounced than, the asymmetry noted by Jones *et al*. (2013).

Model II (columns 4-7) applies a similar categorisation to Meyer and Mok (2013). Chronic disability has damaging employment consequences in the Australian labour market, stronger and far more long lasting for severe cases, is very much in agreement with the results of Meyer and Mok for the US labour market and life outcomes. Indeed, despite similar chronicity among the severe and non-severe groups, ten years post-onset there is a decline in the employment of 25 percentage points for the chronic severe group compared to 7 percentage points for those whose disability is chronic but not severe. Consistent with Meyer and Mok (2013) this divergence is partly a consequence of the impact of chronic severe disability being exacerbated over time. Further, the absence of significant declines pre-onset among the chronic group supports a causal relationship, that is, disability onset causes a reduction in employment rather than vice versa. Model II suggests that the transient onset of a "one-time" disability is preceded by a negative employment effect up to two years before it gets reported, but is not evident post-onset. This suggests that people experience deterioration in health/capacity prior to reporting disability, but that post-exit the return to employment becomes probable, with recovery achieved after 1 year. For those with temporary but recurrent disability employment losses are similarly observed predominately at onset and do not persist suggesting that this group perhaps become able to manage their disability and/or what we observed is the level of employment engagement in the long-run. A similar result is reported by Meyer and Mok (2013).

[Table 4 about here]

Table 5 shows how weekly hours of work are influenced by consistent disability onset and exit. Those not in employment are included in estimation and their hours of work are defined to be 0. Results from Model I suggest that consistent disability onset leads to a 14.7 hour reduction in weekly hours of work relative to more than three years pre-onset. The decline in hours continues for a few years post-onset and the negative effect reaches the peak of 17.3

hours three years post-onset. In terms of the effect of consistent disability exit, we find that relative to more than three years prior to exit hours of work increase both at exit (3.6 hours) and post-exit (reaching 7.1 hours four years post-exit). The improvement at exit is in contrast to the analysis in the UK by Jones *et al*. (2013) and may suggest that their four year panel element is not sufficient to identify more permanent exit from disability which is associated with labour market improvement. Nevertheless, consistent with both Jones *et al*., (2013) and the analysis of employment, the absolute impact on hours at exit is of far smaller magnitude than at onset, suggesting an asymmetric response.[10]

Results from Model II distinguish between the onset groups defined by chronicity and severity. We find that for all groups of disability onset there is a significant drop of hours at onset. The magnitude of drop is smaller for the one-time and temporary group than the chronic groups and the effect for the severe group is larger than the non-severe group. That there is evidence of a more pronounced change in hours than the probability of employment among the chronic non-severe group suggests the importance of adjustment at the intensive margin.[11] For the one-time and temporary groups, the negative effect on hours is short lived, becoming insignificant two or three years after the onset. In contrast, the decline in hours at onset persists for the chronic non-severe group and continues post-onset for the chronic severe group. Indeed, weekly hours of work for the severe (non-severe) group are estimated to fall by 7.8 (4.3) at onset and 11.3 (5.5) hours ten or more years post-onset, relative to more than three years prior. Although not directly comparable, a rough annual (48 week) conversion of the estimated reduction in weekly hours suggests that annual hours decline by

[10] In similar analysis restricted to those in employment, consistent onset reduces hours of work by 4.8 and this grows to a maximum of 11.8 hours post-onset. Consistent exit is associated with an increase in 5.1 hours two years post exit and this persists.

[11] Conditional on employment there is also a limited temporary impact on hours for those with one-time or temporary disability onset. Chronic onset is associated with a reduction in hours which increases post-onset. The reduction is greater for those with severe (3.4-10.3 hours) relative to non-severe (2.7-4.6 hours).

542 (264) hours, which is substantially smaller than the corresponding figures based on US data, particularly for the severe (1,400) rather than non-severe (400) group (Meyer and Mok, 2013).

[Table 5 about here]

Earnings

Tables 4 and 5 suggest a reduction (rise) in probability of employment and hours of work following disability onset (exit) whereas Table 6 turns to focus on the effects on (log) nominal hourly earnings, conditional on being employed. We note the sample selection bias here since the employed sample is unlikely to be a random subset of the population. Results from Model I provide no significant evidence that hourly wages decline (increase) in response to consistent disability onset (exit). In Australia the awards system may limit the extent to which wages can be reduced even where workers become less productive as a consequence of disability onset. Indeed, this rigidity in wage adjustment may be one driver of the pronounced quantity adjustments. The absence of price adjustment is consistent, although more pronounced than the international evidence: wage adjustment is found to be modest in the UK (Jones *et al*., 2013) and, although evident in the US, where hourly earnings losses are estimated to reach nearly 20 percent in the long-run, wage adjustment still plays a secondary role to changes in hours in the impact of disability on annual income (Meyer and Mok, 2013).

Findings from Model II show little consistent influence of disability onset on hourly wages for the one-time and temporary groups. A more consistent pattern emerges for the chronic non-severe group, who experience a substantial and long-term decline in hourly wages. By the 6^{th} year after the onset, hourly wages drop 12 percent, relative to more than three years pre-onset. On the contrary, we find no influence of chronic severe disability onset on hourly

wages which may partly be a consequence the drastic and long lasting declines in employment among this group. Thus, it is particularly likely for the chronic severe group that it is disabled individuals who are relatively more productive who remain in the workforce.

[Table 6 about here]

Life Satisfaction

The previous analysis focuses on the impacts of disability within the labour market. Table 7 presents results relating to life satisfaction which will capture a far broader range of elements of disadvantage including in terms of pain/discomfort but also social inclusion. We are particularly interested in whether individuals tend to return to some baseline level of well-being following the onset of disability consistent with adaptation effects as suggested by Clark *et al.* (2008). Results from Model I suggest that consistent disability onset leads to a significant drop in life satisfaction equivalent to about 0.8 points at onset. From then on, the level of life satisfaction remains relatively steady throughout the next ten years and, unlike Powdthavee (2009), we do not observe a pattern of adaptation. That is, there is no clear evidence that life satisfaction improves for those who remain disabled which would be consistent with adjustment to that state. We should note, however, That Oswald and Powdthavee (2008) using waves 7-14 of the BHPS find that the disabled exhibit considerable recovery in mental well-being. Their fixed effects estimates show that adaptation for this group amounts to 30% for the severely disabled and 50% for the moderately disabled. In addition, and perhaps surprisingly, there is no evidence of a significant impact of disability exit on life satisfaction. The absence of improvement in life satisfaction both post-onset and at disability exit suggests that adaptation does not occur through either of the channels identified by Clark *et al.* (2008) in the context of unemployment, that is, because individuals adjust to and/or exit a state. Perhaps surprisingly given that changes in health that may

precede changes in disability we observe limited anticipation effects in life satisfaction to either disability onset or exit.[12]

In Model II, we find that the results vary across disability onset groups. For the one-time group, we observe a negative effect on life satisfaction only in the year of onset. For the other temporary group deteriorations in life satisfaction are evident two years prior to onset and persist virtually throughout the post-onset period, albeit being of smaller magnitude than at onset suggesting some element of adaptation. Consistent with the results relating to employment status, we find very limited impact of the onset of chronic (non-severe) disability on life satisfaction with (weakly significant) declines only evident in two years. For those with chronic severe disability declines are evident at onset and, in contrast to arguments of adaptation, the impact persists post-onset.[13] Although different in nature, the distinct patterns related to severity are consistent with Powdthavee (2009), who finds evidence of complete (incomplete) adaptation to mild (severe) onset.

[Table 7 about here]

We attempt to identify the key drivers of the change in overall life satisfaction by examining the facets separately. A full set of results are reported in Appendix B but we highlight the key features here. We separate our discussion of the eight facets into four themes (1) health; (2) economic circumstances; (3) free time and (4) housing/local area. As may be expected the influence of disability onset/exit (Model I) on satisfaction with health is pronounced (Table B.6). Declines in satisfaction with health are evident immediately prior to onset, increase at onset to -2.3 points and persist post-onset. Similar consistent patterns are evident for exit

[12] In similar analysis of job satisfaction we find no evidence of an influence of consistent onset or exit which, in line with our analysis of hourly wages, suggest a limited impact of disability for those who are able to retain work.

[13] In similar analysis of job satisfaction we find a short-lived negative impact of one-time and temporary disability, where the effects of the latter are evident even prior to onset. In contrast to our analysis of earnings, there is no influence of chronic non-severe onset but chronic severe onset has a significant impact on job satisfaction.

where satisfaction increases by a maximum of 1.3 points eight years post-exit. In terms of Model II, there is a one period decline in satisfaction with health for one-time disability and the impact of temporary disability is also temporary (significant at the 5% level until four years post-onset). Chronic non-severe onset leads to a decline of about 1 point but there is evidence of adaptation, with the impact falling to -0.4 by ten or more years post-onset. In contrast, the decline at onset among the chronic severe group, which is greater at onset (-1.4), largely persists.

Consistent with the earlier analysis of objective labour market indicators, both satisfaction with employment opportunities (Table B.2) and financial situation (Table B.3) are affected by changes in disability status. In terms of employment opportunities there is a sizeable negative impact of onset which reaches a maximum of 1.7 points three years post-onset but no evidence of an influence of exit. Disability onset effects are pronounced and persist for the chronic severe group. In terms of satisfaction with financial situation, a negative effect of onset is evident but diminishes and becomes insignificant nine years post-onset, perhaps reflecting adjustment within the household and/or receipt of government support (Meyer and Mok, 2013), in addition to adaptation. There is no influence of disability exit.

The influence of disability on satisfaction with free time (Table B.8) is ambiguous a priori since disability onset may have a direct negative effect due to the additional time taken to perform daily activities. Changes in labour market attachment, however, may have the opposite influence. Consistent with the latter, disability onset has a positive (1.1 point) impact, although this diminishes post-onset. This is consistent with Powdthavee (2009) who finds a positive influence of onset on satisfaction with the amount (but not use) of leisure time in the UK. The negative influence of disability exit on free time is evident one period before exit and persists post-exit.

Consistent with Powdthavee (2009) we find much more limited effects of changes in disability status on the facets relating to housing and the local area. We find no significant patterns of consistent onset and exit on satisfaction with the home in which you live (Table B.1). Negative onset effects are, however, evident in terms of satisfaction with the local community (Table B.5) and how safe you feel (Table B.4). Consistent with the previous analysis, where onset effects are evident they are most pronounced for the chronic severe group and persist or widen post-onset. Overall, the analysis of facets confirms that both the size and direction of the influence of disability onset differs depending on the facet of life satisfaction considered, suggesting that individuals are able to consider each facet separately and identify the channels through which disability affects subjective wellbeing.

5. Conclusion

This paper uses the first thirteen waves of the HILDA survey (2001-2013) to investigate the dynamic effect of work-limiting disability on employment, hours of work, earnings and life satisfaction. We categorise the dynamic patterns of disability according to two methods (Jones *et al*. 2013; Meyer and Mok 2013). In doing so, we are able to explicitly consider the impact of disability exit and contribute new evidence relating to the influence of chronicity and severity on the disadvantage associated with disability onset. We also utilise multiple measures of economic and subjective wellbeing to capture a wide range of dimensions through which disadvantage accumulates.

Using our first approach we find a significant and long lasting decline in the probability of employment and hours of work following consistent disability onset and a smaller and shorter-lived rise in employment following consistent disability exit. Consistent disability onset also leads to a significant drop in life satisfaction and, in contrast to arguments and evidence of adaptation in response to many life shocks (Clark *et al*., 2008), the level of life satisfaction shows no signs of recovering post disability onset. Overall, the persistence of the

onset effect accentuates the asymmetry noted above since, where it exists, the impact of exit tends to diminishes over time. The latter has important implications for policy since it suggests that exiting disability is associated with a temporary reduction in disadvantage even for those with no further spells of disability, and that these individuals may therefore continue to need support post-exit. Future work could usefully consider onset and exit for the same individual to explore further the apparent asymmetric effects.

Using our second approach we distinguish temporary patterns from chronic disability, and within the latter are able to consider severity. One-time disability is found to have a negative but relatively short-lived impact on both employment and life satisfaction. Indeed, three years post-onset there is no significant impact suggesting full recovery. In contrast, the impact of chronic severe disability remains even 10 years post disability onset and since, for this group, there is no evidence that outcomes deteriorate in the three years preceding disability onset, the results are consistent with a causal influence of disability. The persistence of the impact of disability among this group is in contrast to arguments and previous evidence of adaptation (Powdthavee, 2009) and raises important questions as to how policy can be better tailored to support this group both in the period with disability and post-exit. In terms of employment and life-satisfaction the pronounced and long-lasting impact of chronic severe disability onset contrasts to the smaller, and sometimes absent, impact of chronic non-severe disability. Indeed, among the latter, adjustment to disability onset appears to primarily operate through a reduction in hours of work. Our findings reinforce the importance of chronicity and severity as key drivers of the extent and persistence of disadvantage and dimensions on which policy support should be tailored.

Consistent with previous longitudinal analysis of hourly earnings in Australia (Jones *et al*., 2014), we find little influence of consistent disability onset and exit. Notwithstanding the important selection effect associated with focusing only on those who retain employment,

this suggests labour market adjustment in response to disability onset and exit primarily occurs via the quantity, rather than the price, of work. Although the estimates are not directly comparable across countries the absence of a significant effect on hourly earnings in Australia is in contrast to the negative effects identified in the UK and US.

In a similar manner to Charles (2003) and Meyer and Mok (2013) our analysis is able to capture heterogeneity in terms of the chronicity and severity of disability. Nevertheless we are unable to clearly distinguish between the type of disability and future research which is able to separate onset arising from physical and mental health conditions is likely to capture an additional determinant of disadvantage. The interesting findings which emerge in terms of the differential impact on facets of life satisfaction highlight the broader implications of disability and provide useful insights for identifying priority areas in terms of policy. However, they also raise important questions for future research as to the role of the household and government policy in dampening the disadvantage associated with disability onset.

References

Bound, J., (1991), Self-reported versus objective measures of health in retirement models, *Journal of Human Resources,* 26(1), 106-138.

Burchardt T., (2000), The Dynamics of Being Disabled, *Journal of Social Policy,* 29(4), 645-668.

Charles K. K., (2003), The Longitudinal Structure of Earnings Losses among Work-limited Disabled Workers, *Journal of Human Resources,* 38(3), 618-646.

Clark, A. E., Diener, E., Georgellis, Y. and Lucas, R. E. (2008), Lags And Leads in Life Satisfaction: a Test of the Baseline Hypothesis, *The Economic Journal,* 118, F222–F243.

Ferrer-i-Carbonell, A. and Frijters, P. (2004) How important is methodology for the estimates of the determinants of happiness? *The Economic Journal*, 114, 641-659.

Jolly N. A., (2013), The Impact of Work-Limiting Disabilities on Earnings and Income Mobility, *Applied Economics*, 45(36), 5104-5118.

Jones M. K., Davies R. and Drinkwater S., (2013), The Dynamics of Disability and Work in Britain, *mimeo,* Swansea University.

Jones M. K., Mavromaras, K., Sloane, P and Wei, Z. (2014), Disability, job mismatch, earnings and job satisfaction in Australia, *Cambridge Journal of Economics*, 38, 1221-1246.

Kapteyn A., Smith J.P. and van Soest A., (2008), Dynamics of Work Disability and Pain, *Journal of Health Economics*, 27, 469-509.

Longhi S., Nicoletti C. and Platt L., (2012), Interpreting Wage Gaps of Disabled Men: The Roles of Productivity and Discrimination, *Southern Economic Journal*, 78(3), 931-953.

Mavromaras, K., Cai, L. and Oguzoglu, U. (2014), The Effects of Health and Health Shocks on Hours Worked, *Health Economics*, 23(5), 516-528.

Meyer B. D. and Mok W. K. C., (2013), Disability, Earnings, Income and Consumption, *mimeo*, University of Chicago.

Mok W. K. C., Meyer B. D., Charles K.K. and Achen A. C., (2008), A Note on 'the Longitudinal Structure of Earnings Losses among Work-Limited Disabled Workers, *Journal of Human Resources*, 43(3), 721-728.

Oguzoglu U., (2010), Dynamics of Work Limitation and Work in Australia, *Health Economics*, 19(6), 656-669.

Oguzoglu, U. (2011), Severity of work disability and work, *Economic Record*. 87 (278), 370–383.

Oguzoglu, U., (2012), Dynamics of Disability and Work in Canada, IZA Discussion Paper No. 6603.

Oguzoglu, U. (2015), Dynamics and multi-state labour force choices with state dependence, *Economic Record*, forthcoming.

Oswald A. J. and Powdthavee N. (2008), Does Happiness Adapt? A Longitudinal Study of Disability with Implications for Economists and Judges, *Journal of Public Economics*, 92 (5/6), 1061-1077.

Polidano, C. and Vu, H. (2015), Differential Labour Market Impacts from Disability Onset, *Health Economics*, 24, 302-317.

Powdthavee N., (2009), What Happens to People before and after Disability? Focusing Effects, Lead Effects, and Adaptation in Different Areas of Life, *Social Science and Medicine*, 69, 1834-1844.

Singleton, P. (2012), Insult to injury: disability, earnings, and divorce, *Journal of Human Resources*, 47(4), 972-990.

Stephens, M. (2001), The long-run consumption effects of earnings shocks, *Review of Economics and Statistics*, 83(1), 28-36.

Watson, N. and Wooden, M., (2004), The HILDA Survey Four Years On, *Australian Economic Review*, 37, 343-349.

Table 1: Disability status of working age population in Australia

	Males		Females		Total	
	Cases	%	Cases	%	Cases	%
No work-limiting disability	50,004	86.8	50,734	86.6	100,738	86.7
Non-severe disability	3,982	6.9	4,265	7.3	8,247	7.1
Severe disability	3,621	6.3	3,577	6.1	7,198	6.2
Total	57,607	100.0	58,576	100.0	116,183	100.0

Note: HILDA waves 2001-2013. Unit of observation is person-years.

Table 2: Dynamic patterns of work limiting disability I

	Males		Females		Total	
	Cases	%	Cases	%	Cases	%
Continuously disabled	284	4.6	222	3.5	506	4.0
Continuously non-disabled	4,418	71.1	4,405	70.0	8,823	70.6
Consistent onset	107	1.7	143	2.3	250	2.0
Consistent exit	180	2.9	153	2.4	333	2.7
Irregular	1,223	19.7	1,369	21.8	2,592	20.7
Total	6,212	100.0	6,292	100.0	12,504	100.0

Note: HILDA waves 2001-2013. Unit of observation is persons.

Table 3: Dynamic patterns of work-limiting disability II

	Males		Females		Total	
	Cases	%	Cases	%	Cases	%
One-time disabled	359	27.0	379	25.1	738	26.0
Temporarily disabled	363	27.3	410	27.1	773	27.2
Chronically disabled (not severe)	273	20.5	309	20.4	582	20.5
Chronically disabled (severe)	335	25.2	414	27.4	749	26.4
All onset	1,330	100.0	1,512	100.0	2,842	100.0

Note: HILDA waves 2001-2013. Unit of observation is persons.

Table 4: The dynamic effect of work-limiting disability on being in employment

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.069*	(0.04)	0.049	(0.05)	-0.028*	(0.02)	-0.011	(0.02)	-0.012	(0.02)	-0.019	(0.02)
-2	-0.039	(0.04)	-0.032	(0.05)	-0.047***	(0.02)	-0.013	(0.02)	-0.022	(0.03)	-0.009	(0.02)
-1	-0.088**	(0.04)	0.015	(0.04)	-0.049***	(0.02)	-0.015	(0.02)	0.000	(0.03)	-0.009	(0.03)
0	-0.315***	(0.05)	0.089**	(0.04)	-0.064***	(0.02)	-0.045**	(0.02)	-0.056**	(0.03)	-0.163***	(0.03)
1	-0.321***	(0.05)	0.083*	(0.04)	-0.020	(0.02)	-0.041*	(0.02)	-0.062**	(0.03)	-0.168***	(0.03)
2	-0.354***	(0.05)	0.102**	(0.04)	-0.028	(0.02)	-0.027	(0.02)	-0.044	(0.03)	-0.194***	(0.03)
3	-0.377***	(0.05)	0.098**	(0.05)	-0.012	(0.02)	-0.002	(0.02)	-0.043	(0.03)	-0.205***	(0.03)
4	-0.347***	(0.05)	0.090*	(0.05)	-0.013	(0.02)	-0.021	(0.02)	-0.044	(0.03)	-0.176***	(0.03)
5	-0.381***	(0.06)	0.106**	(0.05)	0.002	(0.02)	0.001	(0.03)	-0.029	(0.03)	-0.200***	(0.03)
6	-0.398***	(0.06)	0.085	(0.05)	-0.016	(0.02)	-0.002	(0.03)	-0.037	(0.03)	-0.224***	(0.03)
7	-0.377***	(0.06)	0.066	(0.06)	-0.005	(0.02)	0.005	(0.03)	-0.052	(0.03)	-0.226***	(0.03)
8	-0.397***	(0.06)	0.057	(0.06)	-0.032	(0.03)	0.020	(0.03)	-0.060*	(0.03)	-0.228***	(0.03)
9	-0.350***	(0.06)	0.036	(0.06)	-0.013	(0.03)	0.037	(0.03)	-0.075**	(0.04)	-0.225***	(0.04)
10+	-0.324***	(0.07)	0.054	(0.06)	0.053	(0.03)	-0.030	(0.04)	-0.074*	(0.04)	-0.250***	(0.04)
No. of observations	116,003				116,003							

Note: Coefficient estimates are from the fixed effects model described in equation (1). Standard errors are clustered by person and are reported in parenthesis. *, **, *** denote significance at the 10, 5 and 1% level respectively. The reference category is those in the disability group with more than 3 years prior to their disability onset (or exit for the second component of Model I). Controls for age, age squared, education, marital status, the presence of dependent children, an indicator of urban/rural area of residence and a set of time period fixed effects are included in all specifications but are not reported.

Table 5: The dynamic effect of work-limiting disability on weekly hours of work

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-3.913**	(1.74)	-0.735	(1.98)	-1.084	(0.77)	-1.320*	(0.77)	-0.917	(1.11)	-0.802	(0.96)
-2	-1.979	(2.10)	-0.566	(2.28)	-2.004**	(0.78)	-1.042	(0.85)	-2.038*	(1.21)	-0.896	(1.03)
-1	-3.732*	(2.05)	0.888	(1.99)	-1.517*	(0.81)	-0.558	(0.88)	-1.118	(1.27)	-1.122	(1.02)
0	-14.660***	(2.21)	3.584*	(2.12)	-3.120***	(0.84)	-2.854***	(0.92)	-4.314***	(1.30)	-7.820***	(1.15)
1	-14.719***	(2.31)	4.768**	(2.12)	-1.707**	(0.86)	-2.134**	(0.96)	-4.591***	(1.36)	-7.801***	(1.16)
2	-16.051***	(2.29)	6.610***	(2.12)	-2.088**	(0.90)	-1.504	(1.00)	-4.569***	(1.35)	-9.018***	(1.17)
3	-17.285***	(2.27)	6.833***	(2.24)	-1.224	(0.91)	-1.121	(1.00)	-4.333***	(1.37)	-10.121***	(1.18)
4	-16.165***	(2.42)	7.101***	(2.25)	-0.740	(0.93)	-0.994	(1.05)	-4.367***	(1.41)	-9.048***	(1.19)
5	-16.037***	(2.45)	6.077**	(2.37)	-0.145	(0.98)	-0.428	(1.15)	-4.560***	(1.40)	-9.853***	(1.24)
6	-17.260***	(2.44)	5.384**	(2.40)	-0.608	(1.09)	-0.742	(1.21)	-4.460***	(1.42)	-10.999***	(1.28)
7	-15.954***	(2.61)	4.323*	(2.62)	0.267	(1.23)	-0.658	(1.24)	-3.865**	(1.52)	-11.033***	(1.36)
8	-16.614***	(2.72)	4.552	(2.79)	-0.691	(1.29)	-0.510	(1.23)	-5.328***	(1.55)	-11.540***	(1.39)
9	-16.073***	(2.62)	3.516	(2.72)	-1.799	(1.57)	-1.149	(1.39)	-5.305***	(1.59)	-10.656***	(1.47)
10+	-12.934***	(2.70)	4.598*	(2.73)	3.847**	(1.56)	-1.864	(1.71)	-5.446***	(1.78)	-11.282***	(1.58)
No. of observations	115,949				115,949							

Note: See notes to Table 4. Individuals who are not employed are recorded as having zero hours.

Table 6: The dynamic effect of work-limiting disability on hourly wages

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	0.047	(0.06)	-0.055	(0.08)	0.052**	(0.02)	0.017	(0.03)	-0.022	(0.03)	-0.030	(0.04)
-2	0.067	(0.05)	-0.049	(0.07)	0.020	(0.02)	0.004	(0.02)	-0.042	(0.04)	0.032	(0.03)
-1	0.040	(0.06)	-0.006	(0.06)	-0.008	(0.02)	-0.011	(0.03)	-0.076*	(0.04)	0.045	(0.04)
0	0.029	(0.06)	-0.071	(0.06)	-0.020	(0.02)	-0.008	(0.03)	-0.085**	(0.04)	-0.007	(0.05)
1	0.004	(0.06)	0.028	(0.06)	-0.015	(0.02)	-0.013	(0.03)	-0.099**	(0.04)	-0.010	(0.04)
2	0.078	(0.07)	-0.010	(0.06)	-0.019	(0.03)	-0.014	(0.03)	-0.050	(0.04)	0.029	(0.04)
3	0.074	(0.07)	-0.019	(0.06)	-0.006	(0.02)	-0.003	(0.03)	-0.074*	(0.04)	0.023	(0.04)
4	0.088	(0.07)	0.009	(0.06)	-0.022	(0.03)	-0.034	(0.03)	-0.064	(0.04)	0.000	(0.05)
5	0.011	(0.06)	0.013	(0.06)	-0.022	(0.03)	0.012	(0.03)	-0.093**	(0.04)	0.001	(0.07)
6	-0.006	(0.10)	0.078	(0.07)	-0.025	(0.03)	-0.055	(0.04)	-0.124***	(0.04)	-0.003	(0.06)
7	-0.112	(0.10)	0.007	(0.07)	-0.022	(0.03)	-0.039	(0.03)	-0.115***	(0.04)	-0.019	(0.06)
8	0.051	(0.10)	0.029	(0.07)	-0.018	(0.03)	-0.083**	(0.04)	-0.093**	(0.04)	0.034	(0.08)
9	-0.013	(0.11)	-0.047	(0.08)	0.005	(0.05)	-0.048	(0.04)	-0.095**	(0.05)	-0.020	(0.08)
10+	-0.120	(0.10)	-0.008	(0.07)	-0.114**	(0.05)	-0.085**	(0.04)	-0.089*	(0.05)	-0.044	(0.07)
No. of observations	78,935				78,935							

Note: See notes to Table 4. The dependent variable is the log of hourly wages.

Table 7: The dynamic effect of work-limiting disability on overall life satisfaction

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.126	(0.15)	-0.175	(0.23)	0.014	(0.06)	-0.095	(0.06)	0.032	(0.10)	0.091	(0.10)
-2	-0.159	(0.14)	-0.172	(0.20)	-0.080	(0.06)	-0.175***	(0.06)	0.015	(0.09)	0.014	(0.10)
-1	-0.129	(0.15)	-0.369**	(0.18)	-0.052	(0.06)	-0.149**	(0.07)	-0.049	(0.09)	0.100	(0.10)
0	-0.825***	(0.19)	-0.115	(0.16)	-0.273***	(0.06)	-0.316***	(0.07)	-0.187*	(0.10)	-0.380***	(0.11)
1	-0.674***	(0.18)	-0.145	(0.17)	-0.066	(0.06)	-0.262***	(0.07)	-0.058	(0.10)	-0.374***	(0.11)
2	-0.753***	(0.17)	-0.031	(0.16)	0.004	(0.06)	-0.183**	(0.07)	-0.011	(0.10)	-0.365***	(0.10)
3	-0.852***	(0.18)	-0.277	(0.19)	-0.005	(0.06)	-0.180**	(0.07)	-0.115	(0.11)	-0.403***	(0.11)
4	-0.739***	(0.18)	-0.056	(0.19)	0.023	(0.06)	-0.207***	(0.07)	-0.141	(0.10)	-0.423***	(0.11)
5	-0.743***	(0.21)	-0.264	(0.19)	0.085	(0.07)	-0.127	(0.08)	-0.035	(0.11)	-0.442***	(0.12)
6	-0.767***	(0.21)	-0.204	(0.20)	0.020	(0.08)	-0.176**	(0.09)	-0.059	(0.11)	-0.426***	(0.12)
7	-0.813***	(0.22)	-0.265	(0.20)	0.071	(0.08)	-0.211**	(0.09)	-0.128	(0.11)	-0.477***	(0.13)
8	-1.288***	(0.26)	-0.057	(0.21)	0.011	(0.09)	-0.096	(0.10)	-0.177	(0.11)	-0.656***	(0.14)
9	-0.938***	(0.24)	-0.171	(0.20)	0.123	(0.09)	-0.242**	(0.12)	-0.230*	(0.12)	-0.451***	(0.14)
10+	-0.604**	(0.29)	-0.158	(0.21)	-0.041	(0.13)	0.086	(0.11)	-0.167	(0.12)	-0.427***	(0.16)
No. of observations	116,023				116,023							

Note: See notes to Table 4.

Appendix Table A.1: Details and Summary Statistics for Explanatory Variables

	Mean					
	I		II			
Explanatory variable	**Consistent Onset**	**Consistent Exit**	**One-time**	**Temporary**	**Chronic not severe**	**Chronic severe**
Age	44.90 (12.02)	36.83 (13.47)	39.83 (12.47)	41.78 (12.60)	42.88 (12.33)	46.58 (11.33)
Completed school	0.14	0.17	0.18	0.17	0.12	0.13
Certificate III/IV	0.24	0.25	0.23	0.22	0.22	0.24
Advanced diploma or diploma	0.08	0.05	0.09	0.09	0.09	0.07
University degrees	0.19	0.20	0.24	0.22	0.22	0.12
Married	0.59	0.56	0.70	0.67	0.64	0.62
Have children aged between 5 and 14	0.05	0.12	0.15	0.13	0.09	0.08
Have children aged under 5	0.19	0.20	0.27	0.26	0.23	0.22
Urban	0.88	0.85	0.84	0.85	0.86	0.84

Note: Mean (standard deviation). The sample consists of all working age individuals from HILDA 2001-2013, and includes 34,262 person-wave observations.

Appendix Table B.1: The dynamic effect of work-limiting disability on life satisfaction with home

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	0.171	(0.21)	0.255	(0.21)	0.159*	(0.08)	-0.001	(0.09)	0.024	(0.13)	-0.188	(0.12)
-2	0.134	(0.20)	-0.294	(0.24)	0.114	(0.08)	-0.068	(0.10)	-0.081	(0.12)	-0.145	(0.12)
-1	0.040	(0.20)	-0.243	(0.21)	-0.053	(0.09)	-0.006	(0.10)	-0.019	(0.12)	-0.090	(0.13)
0	0.227	(0.21)	-0.314	(0.21)	0.003	(0.09)	-0.051	(0.10)	0.050	(0.12)	-0.002	(0.12)
1	-0.031	(0.22)	-0.189	(0.21)	0.027	(0.09)	-0.067	(0.10)	0.027	(0.12)	-0.089	(0.13)
2	0.091	(0.23)	-0.273	(0.21)	-0.039	(0.09)	-0.045	(0.10)	-0.010	(0.13)	-0.188	(0.13)
3	-0.250	(0.23)	-0.210	(0.21)	-0.063	(0.09)	-0.136	(0.10)	0.029	(0.13)	-0.321**	(0.13)
4	-0.075	(0.23)	-0.285	(0.23)	-0.014	(0.10)	-0.163	(0.11)	0.009	(0.13)	-0.315**	(0.13)
5	-0.311	(0.25)	-0.238	(0.23)	0.060	(0.11)	-0.210*	(0.12)	0.009	(0.13)	-0.390***	(0.14)
6	-0.146	(0.25)	-0.451*	(0.24)	0.111	(0.11)	-0.181	(0.13)	-0.083	(0.14)	-0.350**	(0.15)
7	-0.348	(0.25)	-0.385	(0.26)	0.058	(0.12)	-0.224*	(0.13)	-0.066	(0.14)	-0.283*	(0.15)
8	-0.704**	(0.31)	-0.186	(0.27)	-0.019	(0.13)	-0.189	(0.14)	-0.256*	(0.15)	-0.392**	(0.16)
9	-0.338	(0.29)	-0.101	(0.26)	0.041	(0.15)	-0.135	(0.15)	-0.238	(0.16)	-0.360**	(0.17)
10+	-0.533*	(0.29)	-0.363	(0.28)	0.037	(0.23)	0.025	(0.17)	-0.356**	(0.17)	-0.382**	(0.18)
No. of observations	115,982				115,982							

Note: See notes to Table 4.

Appendix Table B.2: The dynamic effect of work-limiting disability on life satisfaction with employment opportunities

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	0.231	(0.24)	-0.481	(0.35)	-0.225**	(0.10)	-0.051	(0.12)	-0.113	(0.17)	0.066	(0.18)
-2	-0.097	(0.28)	-0.939***	(0.35)	-0.198**	(0.10)	-0.093	(0.12)	-0.066	(0.16)	-0.030	(0.17)
-1	0.234	(0.27)	-0.382	(0.29)	-0.231**	(0.10)	0.105	(0.12)	0.135	(0.17)	-0.191	(0.17)
0	-0.945***	(0.36)	0.113	(0.27)	-0.380***	(0.10)	-0.370***	(0.12)	-0.192	(0.18)	-0.843***	(0.19)
1	-1.412***	(0.37)	-0.023	(0.30)	-0.171*	(0.10)	-0.086	(0.12)	-0.038	(0.17)	-1.006***	(0.20)
2	-1.688***	(0.37)	0.063	(0.28)	-0.078	(0.10)	-0.111	(0.13)	-0.133	(0.17)	-1.186***	(0.20)
3	-1.713***	(0.35)	0.104	(0.29)	-0.000	(0.10)	0.084	(0.12)	0.105	(0.18)	-1.224***	(0.20)
4	-1.324***	(0.39)	0.047	(0.29)	-0.029	(0.11)	-0.029	(0.13)	-0.003	(0.17)	-1.047***	(0.21)
5	-1.774***	(0.41)	-0.003	(0.31)	0.025	(0.12)	0.075	(0.14)	0.082	(0.18)	-1.113***	(0.22)
6	-1.414***	(0.40)	-0.182	(0.32)	-0.007	(0.13)	-0.087	(0.15)	0.126	(0.19)	-1.188***	(0.23)
7	-1.148***	(0.40)	-0.188	(0.32)	-0.014	(0.13)	0.083	(0.15)	-0.021	(0.20)	-0.894***	(0.23)
8	-1.240***	(0.45)	0.277	(0.33)	0.166	(0.15)	0.041	(0.18)	-0.234	(0.20)	-0.956***	(0.24)
9	-1.563***	(0.46)	0.221	(0.33)	0.270	(0.17)	0.209	(0.20)	-0.341	(0.22)	-1.030***	(0.26)
10+	-1.009**	(0.50)	0.013	(0.34)	0.075	(0.22)	0.292	(0.22)	-0.234	(0.21)	-1.025***	(0.27)
No. of observations	107,289				107,289							

Note: See notes to Table 4.

Appendix Table B.3: The dynamic effect of work-limiting disability on life satisfaction with financial situation

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.339	(0.21)	0.119	(0.26)	0.108	(0.10)	-0.276***	(0.10)	-0.020	(0.13)	0.099	(0.14)
-2	-0.063	(0.20)	-0.142	(0.31)	-0.008	(0.10)	-0.308***	(0.10)	-0.119	(0.13)	0.061	(0.12)
-1	-0.079	(0.21)	-0.118	(0.25)	-0.131	(0.10)	-0.160	(0.10)	0.020	(0.14)	0.033	(0.13)
0	-0.798***	(0.22)	0.289	(0.25)	-0.291***	(0.10)	-0.382***	(0.10)	-0.209	(0.15)	-0.466***	(0.14)
1	-0.448*	(0.23)	0.108	(0.26)	0.033	(0.10)	-0.432***	(0.11)	-0.080	(0.15)	-0.309**	(0.14)
2	-0.904***	(0.23)	0.290	(0.26)	0.035	(0.10)	-0.303***	(0.11)	-0.064	(0.14)	-0.476***	(0.14)
3	-1.009***	(0.22)	0.338	(0.28)	-0.009	(0.11)	-0.239**	(0.12)	0.027	(0.15)	-0.544***	(0.14)
4	-0.887***	(0.22)	0.308	(0.28)	0.096	(0.11)	-0.210*	(0.12)	-0.153	(0.15)	-0.476***	(0.14)
5	-0.998***	(0.25)	0.289	(0.28)	0.229**	(0.11)	-0.157	(0.13)	-0.077	(0.15)	-0.442***	(0.15)
6	-0.728***	(0.27)	0.267	(0.30)	0.165	(0.13)	-0.309**	(0.14)	-0.092	(0.16)	-0.431***	(0.15)
7	-0.588**	(0.28)	0.095	(0.30)	0.052	(0.13)	-0.187	(0.14)	-0.044	(0.17)	-0.351**	(0.17)
8	-0.568*	(0.31)	0.650**	(0.31)	0.258*	(0.14)	-0.085	(0.16)	-0.016	(0.17)	-0.320*	(0.17)
9	-0.245	(0.30)	0.231	(0.33)	0.022	(0.17)	-0.171	(0.18)	-0.288	(0.19)	-0.358**	(0.18)
10+	0.004	(0.30)	0.122	(0.33)	-0.009	(0.23)	-0.180	(0.21)	-0.231	(0.19)	-0.201	(0.19)
No. of observations	116,011				116,011							

Note: See notes to Table 4.

Appendix Table B.4: The dynamic effect of work-limiting disability on life satisfaction with safety feeling

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.225	(0.18)	-0.309	(0.22)	0.126*	(0.07)	0.005	(0.08)	0.127	(0.11)	-0.065	(0.12)
-2	-0.360**	(0.16)	-0.329	(0.23)	0.110*	(0.07)	-0.114	(0.09)	0.047	(0.11)	-0.069	(0.11)
-1	-0.319*	(0.17)	-0.269	(0.21)	-0.000	(0.07)	-0.041	(0.08)	0.120	(0.11)	-0.129	(0.11)
0	-0.484***	(0.18)	-0.053	(0.19)	0.029	(0.07)	-0.201**	(0.09)	0.042	(0.10)	-0.430***	(0.11)
1	-0.494***	(0.18)	-0.009	(0.21)	0.035	(0.07)	-0.077	(0.08)	0.090	(0.10)	-0.310***	(0.11)
2	-0.526***	(0.20)	0.099	(0.21)	0.090	(0.07)	-0.071	(0.09)	0.067	(0.11)	-0.292**	(0.12)
3	-0.660***	(0.21)	0.057	(0.23)	0.123*	(0.07)	-0.077	(0.09)	-0.028	(0.11)	-0.370***	(0.13)
4	-0.510**	(0.21)	-0.070	(0.24)	0.024	(0.07)	-0.059	(0.09)	0.048	(0.11)	-0.305**	(0.12)
5	-0.404*	(0.22)	-0.022	(0.23)	0.116	(0.08)	-0.036	(0.10)	0.128	(0.11)	-0.379***	(0.13)
6	-0.562**	(0.23)	-0.169	(0.24)	0.142*	(0.08)	-0.101	(0.10)	0.017	(0.12)	-0.433***	(0.14)
7	-0.377	(0.24)	-0.025	(0.26)	0.052	(0.09)	-0.066	(0.11)	0.050	(0.12)	-0.330**	(0.14)
8	-0.778***	(0.26)	0.124	(0.25)	0.110	(0.10)	-0.032	(0.12)	0.005	(0.12)	-0.536***	(0.16)
9	-0.513**	(0.25)	-0.078	(0.26)	0.198*	(0.12)	0.143	(0.14)	0.118	(0.14)	-0.400**	(0.16)
10+	-0.285	(0.28)	-0.061	(0.26)	0.126	(0.16)	0.037	(0.15)	0.170	(0.15)	-0.433**	(0.18)
No. of observations	116,005				116,005							

Note: See notes to Table 4.

Appendix Table B.5: The dynamic effect of work-limiting disability on life satisfaction with feeling part of local community

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.268	(0.18)	-0.258	(0.23)	0.086	(0.09)	0.010	(0.10)	0.193	(0.13)	-0.100	(0.13)
-2	-0.373	(0.24)	-0.142	(0.23)	0.074	(0.09)	-0.076	(0.10)	0.091	(0.13)	-0.054	(0.14)
-1	-0.477**	(0.23)	-0.140	(0.20)	0.013	(0.09)	0.038	(0.10)	-0.010	(0.12)	-0.072	(0.14)
0	-0.553**	(0.23)	0.223	(0.19)	-0.038	(0.09)	-0.194*	(0.10)	-0.048	(0.12)	-0.198	(0.14)
1	-0.492**	(0.23)	0.091	(0.22)	0.073	(0.09)	-0.017	(0.10)	0.012	(0.13)	-0.258*	(0.14)
2	-0.638**	(0.25)	0.171	(0.22)	0.004	(0.09)	-0.212**	(0.11)	-0.018	(0.12)	-0.209	(0.15)
3	-0.626***	(0.24)	0.423*	(0.23)	-0.016	(0.10)	-0.104	(0.11)	-0.031	(0.13)	-0.308**	(0.15)
4	-0.640***	(0.25)	0.250	(0.24)	0.104	(0.10)	-0.129	(0.12)	-0.016	(0.13)	-0.351**	(0.15)
5	-0.586**	(0.25)	0.265	(0.25)	0.171	(0.11)	-0.105	(0.12)	0.092	(0.14)	-0.304*	(0.16)
6	-0.557**	(0.27)	0.117	(0.26)	-0.085	(0.12)	-0.226*	(0.13)	0.009	(0.15)	-0.365**	(0.16)
7	-0.506*	(0.28)	0.140	(0.27)	0.029	(0.13)	-0.285**	(0.14)	-0.069	(0.16)	-0.350**	(0.17)
8	-0.999***	(0.30)	0.331	(0.28)	0.018	(0.14)	-0.182	(0.15)	-0.132	(0.15)	-0.636***	(0.18)
9	-0.500	(0.31)	0.196	(0.29)	-0.255	(0.17)	0.298*	(0.18)	-0.166	(0.17)	-0.380**	(0.19)
10+	-0.525	(0.33)	0.416	(0.29)	-0.345	(0.24)	0.146	(0.21)	-0.089	(0.17)	-0.439**	(0.21)
No. of observations	115,928				115,928							

Note: See notes to Table 4.

Appendix Table B.6: The dynamic effect of work-limiting disability on life satisfaction with health

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	0.010	(0.17)	-0.074	(0.23)	0.039	(0.07)	-0.137	(0.08)	-0.074	(0.12)	0.091	(0.13)
-2	-0.144	(0.18)	-0.470*	(0.27)	0.038	(0.08)	-0.193**	(0.09)	-0.239**	(0.12)	-0.034	(0.13)
-1	-0.753***	(0.18)	-0.030	(0.24)	-0.079	(0.08)	-0.136	(0.09)	-0.300**	(0.13)	-0.124	(0.13)
0	-2.333***	(0.22)	0.884***	(0.24)	-0.873***	(0.09)	-1.146***	(0.11)	-1.077***	(0.14)	-1.425***	(0.15)
1	-2.475***	(0.22)	1.087***	(0.24)	-0.064	(0.08)	-0.506***	(0.10)	-0.863***	(0.14)	-1.366***	(0.15)
2	-2.369***	(0.24)	1.116***	(0.24)	0.073	(0.08)	-0.380***	(0.10)	-0.783***	(0.14)	-1.265***	(0.16)
3	-2.570***	(0.22)	1.111***	(0.25)	0.051	(0.08)	-0.283***	(0.10)	-0.706***	(0.14)	-1.318***	(0.16)
4	-2.339***	(0.24)	1.133***	(0.26)	0.158*	(0.08)	-0.243**	(0.10)	-0.682***	(0.14)	-1.238***	(0.16)
5	-2.199***	(0.24)	1.118***	(0.26)	0.176**	(0.09)	-0.197*	(0.11)	-0.623***	(0.14)	-1.298***	(0.16)
6	-2.366***	(0.27)	1.082***	(0.28)	0.273***	(0.09)	-0.131	(0.12)	-0.540***	(0.15)	-1.463***	(0.17)
7	-2.101***	(0.27)	1.260***	(0.27)	0.253**	(0.10)	-0.149	(0.12)	-0.568***	(0.16)	-1.450***	(0.17)
8	-2.334***	(0.27)	1.308***	(0.27)	0.172	(0.11)	-0.041	(0.13)	-0.557***	(0.16)	-1.484***	(0.18)
9	-2.192***	(0.31)	1.123***	(0.28)	0.424***	(0.14)	-0.007	(0.14)	-0.555***	(0.17)	-1.407***	(0.19)
10+	-2.005***	(0.33)	1.239***	(0.28)	0.302*	(0.16)	0.039	(0.17)	-0.404**	(0.18)	-1.278***	(0.21)
No. of observations	116,036				116,036							

Note: See notes to Table 4.

Appendix Table B.7: The dynamic effect of work-limiting disability on life satisfaction with neighbourhood

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	-0.067	(0.17)	-0.074	(0.17)	0.163**	(0.08)	0.051	(0.09)	-0.025	(0.10)	-0.070	(0.11)
-2	0.039	(0.19)	0.077	(0.21)	0.084	(0.08)	-0.108	(0.09)	-0.038	(0.11)	-0.021	(0.10)
-1	0.048	(0.16)	-0.229	(0.20)	0.067	(0.08)	-0.109	(0.09)	-0.140	(0.11)	-0.038	(0.11)
0	-0.279	(0.17)	-0.138	(0.21)	0.003	(0.08)	-0.221**	(0.09)	-0.181*	(0.11)	-0.216*	(0.11)
1	-0.203	(0.18)	0.138	(0.21)	0.072	(0.08)	-0.106	(0.09)	-0.178	(0.11)	-0.240**	(0.11)
2	-0.117	(0.17)	0.128	(0.22)	0.076	(0.09)	-0.060	(0.10)	-0.178	(0.11)	-0.239**	(0.12)
3	-0.380**	(0.18)	0.147	(0.24)	0.081	(0.08)	-0.167*	(0.10)	-0.131	(0.11)	-0.260**	(0.12)
4	-0.357*	(0.20)	0.066	(0.23)	0.170*	(0.09)	-0.027	(0.10)	-0.021	(0.11)	-0.280**	(0.12)
5	-0.244	(0.22)	-0.006	(0.24)	0.265***	(0.10)	-0.010	(0.10)	0.024	(0.12)	-0.384***	(0.13)
6	-0.229	(0.24)	-0.080	(0.25)	0.220**	(0.11)	-0.265**	(0.11)	-0.121	(0.12)	-0.348**	(0.14)
7	0.060	(0.22)	0.210	(0.25)	0.306***	(0.11)	-0.204*	(0.11)	-0.176	(0.13)	-0.361**	(0.14)
8	-0.340	(0.27)	0.216	(0.27)	0.091	(0.12)	-0.253*	(0.14)	-0.279**	(0.13)	-0.477***	(0.16)
9	-0.286	(0.23)	0.304	(0.26)	0.226	(0.15)	-0.110	(0.14)	-0.314**	(0.15)	-0.374**	(0.15)
10+	-0.414	(0.29)	0.136	(0.27)	0.154	(0.20)	0.008	(0.14)	-0.035	(0.15)	-0.649***	(0.19)
No. of observations	115,980				115,980							

Note: See notes to Table 4.

Appendix Table B.8: The dynamic effect of work-limiting disability on life satisfaction with the amount of free time

Year from onset/exit	**MODEL I**				**MODEL II**							
	Consistent onset		**Consistent exit**		**One-time**		**Temporary**		**Chronic not severe**		**Chronic severe**	
	Coef.	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*	*Coef.*	*S.E.*
-3	0.395	(0.26)	-0.309	(0.33)	0.127	(0.12)	-0.137	(0.12)	0.044	(0.16)	0.162	(0.15)
-2	0.375	(0.26)	-0.424	(0.32)	0.120	(0.12)	-0.126	(0.12)	0.050	(0.16)	0.049	(0.16)
-1	0.495*	(0.26)	-0.747***	(0.28)	0.036	(0.12)	-0.168	(0.12)	-0.132	(0.17)	0.017	(0.16)
0	1.104***	(0.27)	-0.488*	(0.27)	0.014	(0.12)	0.011	(0.13)	0.110	(0.17)	0.196	(0.16)
1	0.562**	(0.27)	-0.532*	(0.29)	0.110	(0.12)	0.001	(0.13)	0.137	(0.17)	0.146	(0.17)
2	0.798***	(0.28)	-0.581**	(0.29)	0.087	(0.12)	-0.226*	(0.13)	0.084	(0.17)	0.095	(0.16)
3	0.576**	(0.28)	-0.827**	(0.32)	0.032	(0.12)	-0.202	(0.13)	0.020	(0.18)	0.059	(0.17)
4	0.509*	(0.29)	-0.901***	(0.31)	0.189	(0.13)	-0.324**	(0.14)	0.073	(0.18)	0.025	(0.17)
5	0.517	(0.32)	-1.101***	(0.32)	0.167	(0.15)	-0.239	(0.15)	0.136	(0.18)	0.066	(0.19)
6	0.599**	(0.30)	-0.962***	(0.31)	0.043	(0.14)	-0.077	(0.15)	-0.048	(0.18)	0.110	(0.19)
7	0.618*	(0.32)	-0.806**	(0.32)	0.044	(0.15)	-0.460***	(0.16)	-0.043	(0.19)	0.136	(0.19)
8	0.002	(0.35)	-0.826**	(0.34)	0.047	(0.17)	-0.344*	(0.19)	-0.120	(0.20)	-0.191	(0.21)
9	0.291	(0.34)	-0.593*	(0.36)	-0.083	(0.21)	-0.046	(0.20)	-0.084	(0.21)	-0.225	(0.22)
10+	0.895***	(0.35)	-0.853**	(0.35)	-0.120	(0.24)	0.115	(0.23)	-0.026	(0.23)	0.101	(0.22)
No. of observations	116,001				116,001							

Note: See notes to Table 4.