Disability, education and the labour market: A longitudinal portrait for New Zealand

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Executive Summary

There is growing interest in the disabled population, which in most developed countries including NZ, make up a sizeable proportion of the working-age population. Accordingly, there has been a substantial amount of work undertaken from the academic and policy communities alike, internationally, in understanding the characteristics of the disabled population, as well as developing and implementing strategies to promote a more inclusive society where people with a disability (PwD) are able to participate fully in social and economic life.

From a NZ perspective, the government introduced the NZ Disability Strategy in 2000, and there were a couple of studies on the characteristics of the disabled population following that – Beynon & Tucker (2006) captured evidence on disabled peoples' attitude to work and issues faced in employment, while Jensen et al (2005) studied the effects of disability on employment and benefit incomes, utilising the 2001 wave of the Disability Survey (DS). A decade later, and two more waves of the DS prompted the call to investigate the current status of the disabled population (by employment and educational outcomes), as well as understand any persistent trends apparent. The descriptive portrait provided within this study answers this call and as such provides up to date information on the characteristics of the disabled (broken down by various disability types), relative to people without disabilities (Pw/oD), as well as indicating knowledge gaps where appropriate, and opportunities for further empirical investigation.

Using the Household Disability Survey (HDS) for the years 2001, 2006, and 2013, this study takes a descriptive and longitudinal approach to the data and provides a summary of PwD, and Pw/oD, across a range of demographic, employment, education and disability related variables.

Compared to Pw/oD the working age PwD are:

- Relatively older
- More likely to be European or Maori, and less likely to be Asian
- Marginally less likely to have a partner
- Generally less likely to have children. Although it should be noted that both groups experienced an increase of 11-12% points in their propensity to have children over the 2001 to 2013 time period.

The greatest differences between the two groups were in terms of income, employment, and educational attainment:

- Both personal and household income is lower for PwD relative to those not disabled
- There are positive trends for both groups with drops in the proportion of each group at the lower end of the income distribution and corresponding increases at the upper end (between 2001 and 2013). The percentage point changes are greater for PwD at the bottom end of the distribution, possibly signally a relative improvement in income outcomes of this group.
- Wages or salary are the most common form of income contributor for both groups, but PwD were approximately twice as likely to receive income from ACC/private insurance and/or the sickness and invalids benefit
- PwD are less likely to be employed (approximately 60% across the three surveys) compared to 75% for Pw/oD, and more likely to be unemployed or not in the labour force (NILF) (with around one-third of PwD falling into this category compared to one-fifth of Pw/oD)
- PwD are generally twice as likely to have no qualifications compared to Pw/oD, regardless of survey year

These results are then further broken down by the five high level disability types – sensory, intellectual, psychiatric/psychological, physical, and other. After which another slice of disaggregation was constructed, such that the final set of descriptive information compared a sub-group of sensory disabled individual (in particular, those vision impaired), with all other disability types, as well as Pw/oD. This analysis incorporated the level of support received (an indicator of severity of disability) to assess whether higher levels of support are associated with more disadvantageous employment outcomes for individuals that are vision impaired. Many of the results for vision disabled individuals were entirely consistent with those already found for the larger group of those with sensory disabilities. However, there are some patterns that were different and worth noting. Those with vision impairment:

- Are more likely to be female and older relative to other forms of disability
- Are more likely to be Asian (9%) compared to other types of disabilities (6%) in 2013
- Have experienced the largest personal income growth across the three survey years

- Had a mean household income of $50,001-$70,000 in 2013, compared to other disability types, where their mean household income was $40,001-$50,000
- Had the greatest growth in employment propensity, from 44% to 60%
- Had a rise in full-time employment propensity, such that they were on a par with other disabilities by 2013
- Had poorer outcomes for employment propensity as the level of support increased, and were more likely to not be in the labour force

In terms of educational attainment, it is difficult to draw strong conclusions for the vision impaired due to supressed information in the first two survey years. However, given that the reason for suppression is low numbers it is reasonable to speculate that there have been an increase in vision impaired individuals gaining university level qualifications (data not suppressed in 2013).

The longitudinal data in this study has highlighted some trends in the size and nature of the disabled population in NZ that are important for policy makers and support providers alike. Most of these trends are positive, showing greater inclusion, attainment and labour market success for PwD, but there is still room for further improvement. Suggestions provided at the end of this study for further work could aid in informing policy to narrow these gaps further. Such suggestions include primary data collection to better understand the mediating factors for different levels of support for the vision impaired, in terms of employment outcomes; and propensity score matching to allow a more sophisticated empirical analysis, such that the disabled and non-disabled outcomes are compared, while controlling for relevant observable covariates.

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List of Abbreviations

Abbreviation	Definition
AUT	Auckland University of Technology
DS	New Zealand Disability Survey
HDS	Household Disability Survey
HL	High Level
IB	Invalids Benefit
ICF	International Classification of Functioning, Disability and Health
NILF	Not in the Labour Force
NZ	New Zealand
OECD	Organisation for Economic Co-operation and Development
PALS	Participation and Activity Limitation Survey
PwD	People with Disabilities
Pw/oD	People without Disabilities
UK	United Kingdom
WHO	World Health Organisation

1 Introduction

In the developed world, the disabled population accounts for a large, and growing proportion of the working-age population (Jones, 2008). Given such consistent growth, there has been an increasing amount of interest, from both the academic and policy community alike, in understanding who PwD are, as well as what they experience in their social and economic lives. For example, past research has shown that PwD experience significant differences in labour market outcomes when compared to Pw/oD. For instance, the ratio of the employment rate for PwD to Pw/oD is 62% in the OECD (Organisation for Economic Co-operation and Development, 2003). This is quite alarming when considering that employment is not only an avenue for financial independence, but also an important means through which people develop social relationships, build support networks and develop human capital.

In terms of setting the scene for New Zealand (NZ) – there is significant growth in the number of people receiving an Invalids Benefit (IB). Between 1993 and 2003, the number of IB recipients almost doubled, from 35,000 to 69,000 (Jensen et al., 2005). Despite the growing numbers of disabled, there has been scant evidence available on disability outcomes, which could be potentially used to inform relevant policy and motivate appropriate accessibility legislation surrounding disability outcomes[1]. In particular, there is a knowledge gap in terms of how experiences in employment and education for PwD have changed in NZ over time, and how this longitudinal perspective compares with Pw/oD. This study therefore utilises an exploratory approach to provide such insights, and is intended to be of particular value in setting a strong foundation for identifying avenues needing to be explored through further research.

Acknowledgements – This work has been commissioned by the Blind Foundation, and provides empirical insight for both the overall disabled population, as well as focussing on the visually impaired.

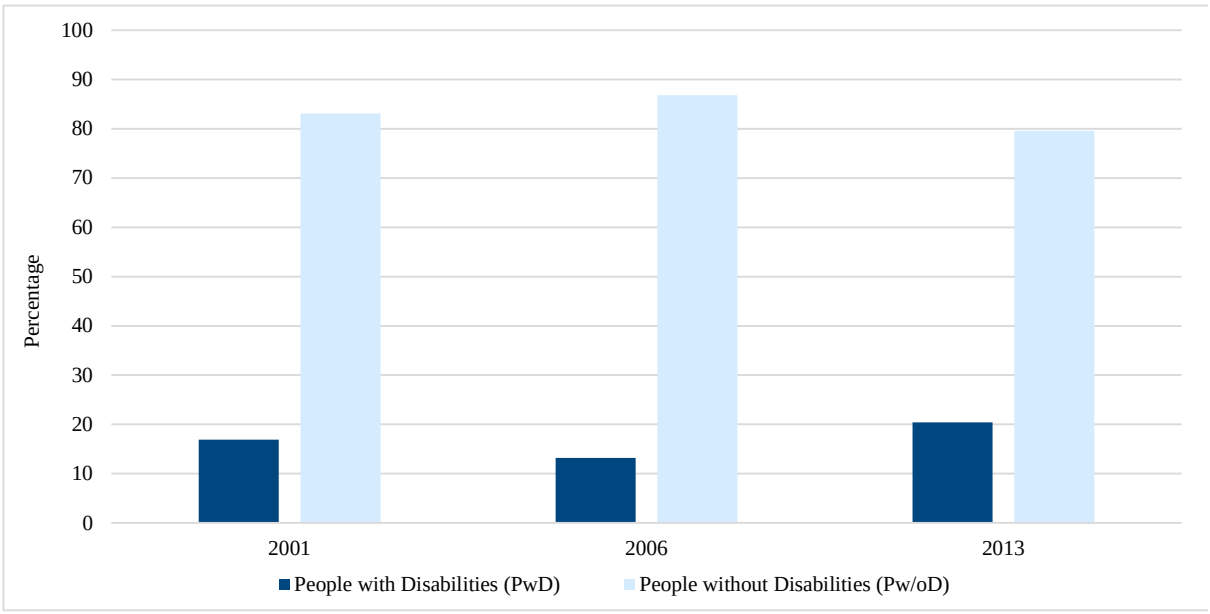
Access to the data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the author, not Statistics NZ.

[1] See Beynon and Tucker (2006); Jensen et al. (2005) as examples.

1.1 Prevalence of disability in New Zealand

1.1.1 The New Zealand disability rate

Using data from the HDS, the following disability rates were estimated for the working-population (aged 15-64) in NZ. In 2001, the disability rate was estimated at 17% of the working age population. It fell to 13% in the subsequent survey, and has increased to 20% in the latest figures from 2013.



Note: Source: HDS. Author's compilation.

Figure 1: New Zealand disability rates, 2001, 2006 and 2013

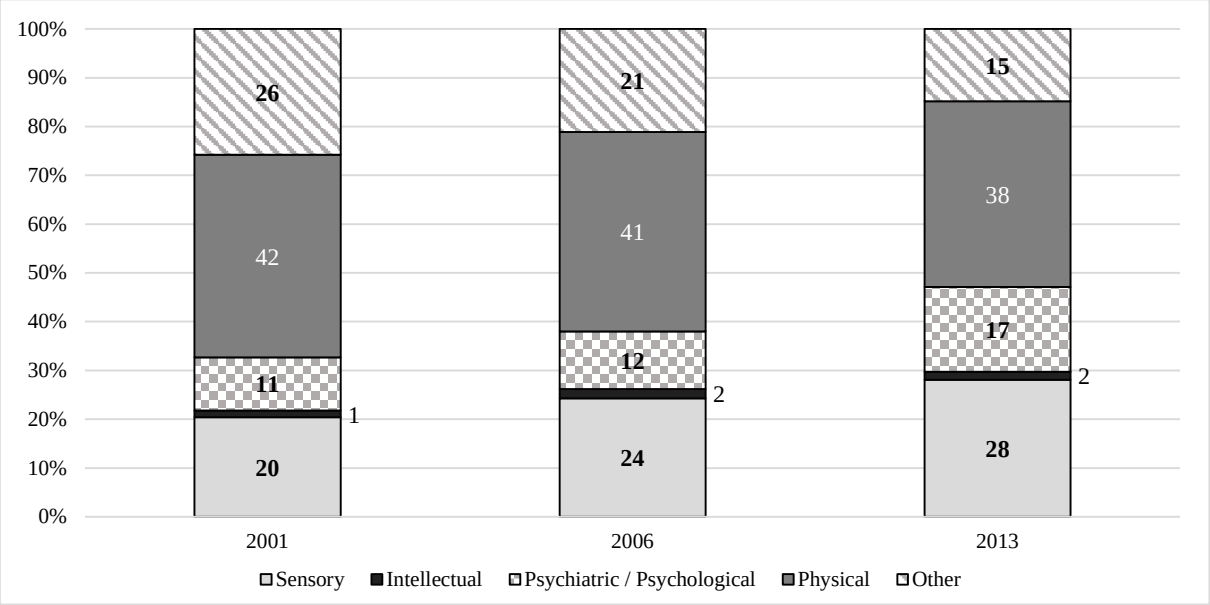
Comparing the disability rates estimated in this study to the disability rates published by Statistics NZ, some variation exists. For example, the adult disability rate (people aged 15 years and over) is 23%, 18% and 27% for the years 2001, 2006 and 2013, respectively (Statistics NZ, 2007, 2014). As can be seen, the disability rates published by Statistics NZ is consistently higher than the rates published in this study. However, there are a couple of reasons underlying this variation.

First, Statistics NZ included people living in residential facilities in their calculation of the adult disability rate. This study intentionally excluded this group from its sample given its objectives to explore employment and educational outcomes for PwD. People living in residential facilities are generally more likely to require higher levels of care and therefore less likely to be participating in employment or be enrolled in formal education. Similarly, adults aged 65 and above were also included in the adult disability rate calculated by Statistics NZ. Although upon initial inspection, the data shows that a subset of this age group is still in

employment, this study is primarily interested in the working-age population given the former objectives highlighted, and therefore adults aged 65 years and above were removed from the sample. The other main source of comparable disability prevalence rates is from Jensen et al (2005), who provide a 2001 adult disability rate of 17% (they exclude adults aged 65 years and above). Given the consistency between our 2001 estimate and that of Jensen's, coupled with the fact that the trajectory of the adult disability rate in this study is consistent with the trend calculated by Statistics NZ, this study is confident in the disability rates presented herein.

1.1.2 Main disabilities in New Zealand

Using data from the HDS, disabilities can be disaggregated by main disability using five high-level (HL) disability types (i.e., what disability respondents report as most limiting with everyday activities). See Appendix A for definitions for each HL disability type and Figure 2 for the estimated breakdown of main disability by HL disability type.



Note: Source: HDS. Author's compilation.

Figure 2: Main disabilities in 2001, 2006 and 2013 for the working-age population

The most common type of disability across all three years was physical disabilities. In 2001 and 2006, over 40% of PwD identified a physical disability as most limiting in their daily life, compared to 38% in 2013. From 2006 onwards, sensory related disabilities became the second most common disability. Approximately one quarter of the disabled population identified a sensory related disability of most limiting in their daily life. Least common, was intellectual disabilities, with only 1% to 2% of PwD identifying this as their main disability.

1.2 The current state of disability legislation in New Zealand

Given the sizable disabled population in NZ, legislative frameworks have become essential to facilitate PwD becoming more active in areas such as community and workforce participation, as well as reaching their full potential through achieving educational qualifications.

In NZ, there are two pieces of legislation that promote and protect the rights of PwD. The Human Rights Act (1993) protects all people in NZ from discrimination in a number of areas of life, including having a disability of any kind. The second piece of legislation, the New Zealand Bill of Rights Act (1990), sets out a range of civil and political rights including the right to be free from discrimination. These two pieces of legislation cover PwD rights but do not address the issue of accessibility to education and employment.

In 2000, the NZ government introduced the New Zealand Disability Strategy. This a long-term plan for reducing barriers faced by PwD in a number of areas in everyday life. The vision of this strategy is to advance NZ to become a fully inclusive society. To achieve this vision, the strategy has developed 15 objectives focussing on areas such as community awareness and education, long-term support systems for PwD, and promoting participation in the community for subgroups in the disabled population (e.g., Maori, Pacific peoples, woman) (Office for Disability Issues, 2001). The issue of accessibility to education and employment is addressed through two specific objectives[2]:

- **Objective 3: Provide the best education for disabled people.** This objective aims to provide equal opportunities for all children, youth and adults to learn and develop through education; and
- **Objective 4: Provide opportunities in employment and economic development for disabled people.** This objective aims to enable PwD to be employed in the labour market and maintain an adequate income.

During the same year, the Government introduced the New Zealand Public Health and Disability Act (2000) with the objectives of:

1. The improvement, promotion and protection of PwD health;
2. Promote the inclusion and participation in society, and independence of people with disabilities; and

[2] Source: Office for Disability Issues (2001).

3. The best care and support for those in need of services.

The current legislative frameworks and disability strategy in NZ lays a solid foundation for increasing the protection and participation of PwD. However, there is still a considerable amount of work to be done to increase participation of PwD relative to other countries. For example, the United Kingdom (UK) introduced the Equality Act in 2010 covering disability rights in relation to employment and education. The Act states that it is against the law for PwD to be treated unfavourably in education or employment (Office for Disability Issues, 2015). The Act also outlines that employers and education providers have a duty to make 'reasonable adjustments' to ensure PwD are not discriminated against. Reasonable adjustments could include allowing flexible working hours, providing special tools, equipment, or physical building features, or making extra support available (e.g., specialist teachers) (Office for Disability Issues, 2015).

1.3 Research questions

The objectives of this study are threefold. First, this study explores the characteristics of PwD across a range of demographic and disability related variables to gain insight where disabled subgroups are more prevalent and how disability rates have changed across survey years. Second, this study explores the employment and educational outcomes of PwD to determine to what extent PwD are disadvantaged in the labour market and educational sector. Third, the above analyses are repeated with a specific focus on people with vision impairments.

Based on the above objectives, the following research questions are posed:

1. What is the prevalence of disability in NZ and how does it differ across demographic and disability characteristics?
2. To what extent do the employment and educational outcomes of PwD differ to Pw/oD?
3. To what extent do the employment and educational outcomes of PwD differ across the disabled population when considering types of disabilities?
4. What are the demographic characteristics of people with vision impairments?
5. What are the employment and educational outcomes of people with vision impairments, and how do these compare against the remainder of the disabled population and Pw/oD?

The remainder of the report is structured as follows. Section 2 briefly summarises past research which investigated employment and educational outcomes for PwD, both internationally and in the NZ context. Section 3 outlines the data source used in this study, as well as the methods

employed in the forthcoming exploratory analysis. Section 4 provides descriptive statistics on the demographic characteristics of PwD, with Section 5 and Section 6 providing descriptive statistics on employment and educational outcomes of PwD, respectively. The characteristics and outcomes of people with vision impairments are explored in detail in Section 7, with Section 8 concluding and providing avenues for further research.

2 Past Research on Employment and Educational Outcomes for People with Disabilities

The purpose of this section is to provide background on how PwD compare to Pw/oD in terms of employment and educational outcomes based on past empirical literature. On the international front, there appears to be a large body of literature comparing employment outcomes for PwD relative to Pw/oD, and a much smaller body of work focussing on educational outcomes. As will soon be evident, there is scant evidence on the NZ front, especially in recent years – providing a timely opportunity to explore the current portrait of the disabled population and identify relevant knowledge gaps.

2.1 International

2.1.1 Employment

The key theme that emerged from the international literature is accurately summarised by Jones (2008, p. 405), who stated "regardless of country, data source or time period disability serves to reduce labour market prospects" To gain a broad view of the international literature on employment outcomes for PwD, the forthcoming review is grouped geographically, with the focus on Canadian, European and Australian studies included.

From a Canadian perspective, there has been considerable work undertaken in comparing demographic and economic trends of the disabled community against their non-disabled counterparts. Using data from Statistics Canada's Participation and Activity Limitation Survey (PALS), a study commissioned by the Canadian Government found PwD have considerably lower levels of labour force participation compared to Pw/oD. In 2006, the employment rate for PwD was 53%, compared to 75% for Pw/oD (Employment and Social Development Canada, 2009). These findings were supported by Kemper, Stolarick, Milway, and Treviranus (2010), who found PwD had labour force participation rates 26% lower than Pw/oD. Employment stability also varied within the disabled community. Among PwD who were employed, only half were full-time and all year round, with approximately 30% being employed full-time, but for part of the year (Employment and Social Development Canada, 2009). It appears that the number and type of disabilities also plays a role, with research from Scott (2003) finding that people with multiple disabilities were less likely to be employed when compared to people with a single disability, and that people with mobility related disabilities had a reduced likelihood of employment when compared to other types of disabilities.

The general theme of PwD experiencing poorer employment outcomes when compared to Pw/oD was also evident in the European literature. Investigating the labour market situation in Denmark, Høgelund and Pedersen (2001) found that only 45% of PwD were working, compared to the 81% of Pw/oD. A study by the OECD found that for the European Union, the unemployment rate for PwD was comparatively higher against the unemployment rate for Pw/oD (18% and 11%, respectively) (OECD, 2003). Furthermore, the situation worsened with severity of disability, with 16% of people with moderate disabilities being unemployed, compared to 27% of people with severe disabilities (OECD, 2003). This negative association between severity of disability and employment has also been shown in other empirical literature focussing on the UK (Berthoud, 2003).

From an Australian perspective, key disability statistics released by the Australian Bureau of Statistics (2014) showed that in 2012, the labour force participation rate for PwD was markedly lower at 53%, compared to 83% for the non-disabled population. Furthermore, of the disabled people who were employed, 40% were employed part-time (where the respective figure for those without a disability was 30%), (Australian Bureau of Statistics, 2014). These disability statistics are supported by earlier empirical research by Wilkins (2003), who also found disability status to be significantly associated with disadvantages in the labour market. As indicated in other research (Berthoud, 2003; Scott, 2003), those with multiple disabilities had lower levels of employment, as did those with more severe levels of disability (Wilkins, 2003).

2.1.2 Education

Similar to the findings from the employment related literature, it has been shown that PwD generally have lower levels of educational attainment when compared to Pw/oD. For example, Jones (2010) found that PwD were 2.5 times more likely to have no formal qualification when compared to Pw/oD. Consistent with these findings, Kemper et al. (2010) found that only 34% of adults with disabilities (aged 15-64 years) had college or university level degrees, which was approximately 11% lower than Pw/oD.

A common theme in this line of enquiry is the discontinuation of education among PwD. The 2009 study by Employment and Social Development Canada, found that adults with disabilities were less likely to complete high school than adults without disabilities. In 2006, 25% of working-aged PwD (aged 25-64) had not received a certificate for school completion, compared with approximately 14% of Pw/oD in the same age group (Employment and Social Development Canada, 2009). Those who did not discontinue their education frequently

reported having to take fewer classes, taking longer to complete their work and course, and having their area of study or career influenced because of their disability (Kemper et al., 2010).

Furthermore, severity of disability also impacted the likelihood of completing high school, with 34% of people with severe disabilities having discontinued high school education, compared to only 18% of Pw/oD (Kemper et al., 2010). The number of disabilities a person has will also affect what level of educational attainment they are likely to achieve on average. Jones (2010) found that as the number of disabilities increased, the number of degree level qualifications decreased.

Several individual level factors play a role in explaining the strength of association between disability status and level of education achieved. This includes the age of onset, and disability characteristics at birth (Jones, 2010). In addition to these, environmental and support-level factors were also identified as relevant in explaining the full picture (Kemper et al., 2010).

2.2 New Zealand

2.2.1 Employment

Using the 2001 DS in combination with the Household Labour Force Survey with Income Supplement 2001, Jensen et al. (2005) studied the effects of disability on employment and benefit receipt outcomes. The results from their study indicated that of the six types of disability included in the analysis, all had negative impacts on employment, albeit at varying levels. For example, negative employment effects were smaller for people with hearing disabilities (Jensen et al., 2005), when compared to the other disability types. Similarly, for the hearing disability, the effect on total employment did not vary by severity type (Jensen et al., 2005). This is counter-intuitive as one would expect that employment propensity would decrease as severity of disability increases (as supported by international empirical evidence provided earlier), given more employment support mechanisms being necessary. The findings for the other disability types align with this intuition, indicating increases in severity level reduces the rate of employment (Jensen et al., 2005). Furthermore, findings by Jensen et al. (2005) suggested that many disabled people working part-time having the potential to engage in full-time work, assuming the necessary employment support mechanisms were made available.

More recently, Beynon and Tucker (2006) summarised disabled peoples' attitude to work and issues they have faced in employment. Using data from the Ministry of Social Development Centre for Social Research and Evaluation, along with data from semi-structured interviews, Beynon and Tucker (2006) proposed that while PwD generally have positive attitudes towards

participating in employment, their ability to work has largely been limited by health and disability related conditions (e.g., physical or mental impairments). Furthermore, there are other factors such as employer attitudes or reluctance to employ PwD[3], which combine with health and disability conditions that determined their employment outcomes.

2.2.2 Education

There is little existing research which exclusively examines how disability status effects educational outcomes in NZ. Nonetheless, there are some basic aggregate level descriptive statistics available which gives a sense of how PwD compare against Pw/oD in terms of levels of educational qualifications. Analysis of the Health Survey 2002/2003 found that IB recipients had lower levels of educational achievement than the working-age population in general (Beynon & Tucker, 2006). In fact, IB recipients were more than twice as likely to have had no formal education when compared to the working-age population in general (Beynon & Tucker, 2006). Similar results were shown by Jensen et al. (2005), who found that 35% of PwD in the working-age population reported no qualifications (compared to 19% for Pw/oD), with only 31% having post-school qualifications (compared to 56% for Pw/oD).

Of the disability types which had the lowest levels of educational attainment, people with disabilities relating to vision, learning, mobility and restricted co-ordination were more likely to have no formal qualification when compared to the other disability types (Jensen et al., 2005). In contrast, people with hearing disabilities were more likely to have post-school qualifications when compared to the other disability types (Jensen et al., 2005). Additionally, their research investigates the role of disability status on employment and found that the negative impact was smallest for people with disabilities, who were more likely to be employed, when compared to other disability types. This outcome, in conjunction with the evidence that those with hearing disabilities had better education outcomes supports findings by Jones (2010), which showed formal education being an important factor for PwD getting into employment.

[3] Employer reluctance to employ PwD was due to the perceived accommodations they may require (e.g., flexible working hours), financial costs due of adjustments (e.g., to building or facilities), absence and unpredictability, and diminished productivity (Beynon & Tucker, 2006).

3 Data and Methods

This section provides a summary of the data sources utilised in this study, along with a closer inspection of key measures of disability and acknowledgement of relevant data limitations. This section concludes with an outline of the methods employed as part of this exploratory study.

3.1 Data

The primary data source is the DS, which is a national survey administered by Statistics NZ following each census. It is currently the most comprehensive source of unit-level data on disabled people in NZ (Statistics NZ, 2013a). The DS was first conducted in 1996, and has subsequently been repeated in 2001, 2006 and most recently in 2013.

The objective of the DS is to measure the nature, extent and causes of disabilities in NZ. Rich demographic data is also captured to permit analysis of how disability varies across different population subgroups based on key demographic characteristics. The DS also incorporates data from Pw/oD allowing comparisons to be drawn on to what extent social and economic outcomes differ between the disabled and non-disabled population (Statistics NZ, 2014).

The target population of the DS are those considered to be usual residents of the NZ population staying in private dwellings or group homes on the night of the census. Consequently, individuals such as non-NZ diplomats, overseas visitors and long-term residents of non-private dwellings are excluded (Statistics NZ, 2014).

The DS consists of:

1. The HDS which surveys adults and children living in private households; and
2. The Disability Survey of Residential Facilities which surveys adults living in residential facilities.

Given the objective of this study, data for the adult population from the HDS was selected for the years 2001, 2006 and 2013. Consequently, children and people living in residential facilities have been excluded from the forthcoming analysis. This has resulted in an initial sample size of 23,232, 17,457, and 11,205 for 2001, 2006, and 2013, respectively.

3.2 Measures of disability

The HDS contains an array of questions relating to different aspects of disabilities, including disability types, main disability, number of disabilities, and causes of disabilities. There are two key disability variables which warrant closer inspection, these are: i) Screen code, and ii) Support level. For each of these variables, their definition will be outlined, as well as their objectives and how they are utilised in this study.

3.2.1 Screen code

To measure the extent of disability in NZ, a number of screening questions are asked in the HDS which act as a filtering device to determine disability status. In 2013 for example, there were 23 screening questions used to determine whether a respondent is defined as being disabled (Statistics NZ, 2015b). Statistics NZ then incorporates the responses from these questions to derive a single variable named 'Screen Code', which allows data users to differentiate between the disabled and non-disabled respondents within the HDS.

In the HDS, disability is defined as situations where an impairment "has a long-term, limiting effect on a person's ability to carry out day-to-day activities" (Statistics NZ, 2014, p. 13). Long-term refers to a period spanning six months or longer, with 'limiting effect' meaning a restriction or lack of ability to perform (Statistics NZ, 2014). People who used assistive devices to eliminate the effects of their impairments (e.g., using glasses) were not deemed as disabled in the HDS. This definition was further developed for the 2013 HDS to more closely align with standards introduced in the International Classification of Functioning, Disability and Health (ICF) by the World Health Organisation (WHO)[4]. These standards provide a more coherent view of disability, incorporating biological, individual and social elements (Statistics NZ, 2015b).

In this study, screen code is primarily used to compare the characteristics and outcomes of PwD relative to Pw/oD across a range of variables. The intent of using the screen code in this manner is to examine whether the characteristics of the disabled population have changed significantly over the three HDS used in this study, and whether there have been improvements in outcomes such as labour force participation or qualifications gained, relative to their non-disabled counterparts.

[4] The definition of disability in 2001 HDS and 2006 HDS followed the functional concept of disability, which defines disability as "any restriction or lack (resulting from impairment) of ability to perform an activity in the manner or within the normal range considered normal for a human being" (Statistics NZ, 2014, p. 20).

3.2.2 Support level

Support level provides an additional dimension upon which to measure the extent and nature of disabilities in NZ. Theoretically, one would expect that those with higher support needs experience greater levels of disadvantage with regards to participation in the educational sector and labour market, relative to those with low to medium support needs. This variable enables such a theoretical notion to be examined. In the DS, respondents are classified into three groups[5]: i) Low support needs, ii) Medium support needs, and iii) High support needs. See Table 1 below for the definition of each level of support for adult respondents in the DS.

Table 1: Support level definitions for adult respondents

Support Level	Definition
Low support needs	• Identified as disabled • No need for assistive equipment or support from other people
Medium support needs	• Identified as disabled • Need for assistive equipment • Need occasional help with everyday activities (i.e., less than daily)
High support needs	• Identified as disabled • Need for assistive equipment • Need daily help with everyday activities

Note: Source: Office for Disability Issues (n.d.). Authors' compilation.

It must be noted that there has been some changes in the 2013 DS which have affected the support level variable. The criteria for what constitutes each support level is set by the Ministry of Health. Between the 2001 DS and the 2006 DS there was little change, resulting in a variable that was apparently derived consistently for these two surveys[6]. Changes to the DS questionnaire in 2013 required Statistics NZ to re-examine the support level criteria and create a 'best-match' to maintain, where possible, consistency over time in identifying different levels of support requirements. Further information on comparability of the support level variable is provided in Section 3.3.2.

In this study, support level is primarily used to compare employment outcomes of people with vision impairments, at varying levels of support needs, against the remainder of the disabled population. The intent of using the support level variable in this manner is to examine whether higher levels of support needs have disadvantageous effects on employment outcomes for

[5] These classifications are relevant to the 2006 and 2013 HDS. The variable which measures the same concept is also available in the 2001 HDS and is named 'Severity Level', and classified as: i) Mild, ii) Moderate, and iii) Severe.

[6] See section 7.2 for further information on support level results with the 2006 data.

people with vision impairments, and whether these effects are better or worse when compared to the remainder of the disabled population.

3.3 Data limitations

Since its conception in 1996, different drivers have influenced data collection in the DS in terms of focus areas. For example, in 1996 the DS was primarily focussed on measuring the prevalence and causes of disabilities in NZ, along with support service needs (Statistics NZ, 2015b). However, with domestic drivers such as the introduction of the New Zealand Disability Strategy in 2001, and international drivers such as the UN Convention of the Rights of Persons with Disabilities, the focus of the DS has needed to change. Accounting for these drivers, along with other factors such as definitional changes (e.g., the ICF standards of disability), modernisation of the DS has resulted in some data inconsistencies over time. Consequently, there are several comparability issues which must be acknowledged and noted when interpreting the results from this descriptive study.

3.3.1 Comparability of surveys

The DS in 2001 and 2006 were conducted using the same methodology and with minimal change to survey content. Consequently, there should be minimal comparability issues between these two surveys. However, Statistics NZ have cautioned data users with drawing direct comparisons to the 2006 disability rate due to an observed decreased disability rate stemming from various statistical and non-statistical factors (Statistics NZ, 2007). The disability rate for 2006 may be underestimated and must be observed as an indicative rather than absolute value. Nonetheless, Statistics NZ conducted a thorough review of the survey design and manner in which the survey was administered and found no evidence of any major factors that might explain the apparent decrease in disability rate (Statistics NZ, 2014).

Redevelopment of the DS took place in 2013, with the intention being to produce estimates of disability prevalence and related outcomes which are fit-for-purpose when accounting for current and emerging needs, as well as developments relating to disability internationally (Statistics NZ, 2014). For example, the NZ government ratified the United Nations Convention on the Rights of Persons with Disabilities in 2008, which gave rise to obligations to report against this convention, requiring changes in content on the 2013 DS (Statistics NZ, 2014). Amongst these changes is the definition of disability, which changed from a functional concept of disability to one more in line with the ICF standards of disability. Although not directly comparable in terms of definition, Statistics NZ has not advised of any concerns relating to

comparability of disability rate due to change in definition over time, and have compared the 2001 with 2013 disability rates in their DS information releases[7].

3.3.2 Comparability of variables

Table 2 provides an overview of the comparability issues and what actions were taken to address, or rectify where possible, the issues identified.

[7] See Statistics NZ (2014).

Table 2: Data comparability issues and remedial actions taken

Variable	Comparability Issue	Remedial Actions Taken
Support Level	• 2013 HDS support level not available in the data	• 2013 support level generated using coding provided by Statistics NZ
Total Work Hours	• Census variable not available in the 2001 HDS • Alternative variables available in 2001 HDS are inconsistent in definition and calculation	• Total work hours excluded from 2001 outputs
Work Status	• This variable is generated using total work hours (not available in 2001) • Alternative variables available in 2001 HDS are inconsistent in definition and calculation	• Work status excluded from 2001 outputs
Ethnicity	• Changed from a prioritised ethnic group method variable to a total response method variable[a] • With the exception of the Maori population, ethnicity data for 2013 HDS is not comparable to previous years	• No direct comparisons drawn to / with 2013 ethnicity data
Marital Status	• 2006 and 2013 HDS coding had to be updated to accommodate legalisation of civil union partnerships in 2005	• Generated a binary variable coded as 0 for 'Non-partnered' and 1 for 'Partnered'
Family Type	• 2001 and 2006 HDS variable coded as family type (3 response options) • 2013 HDS variable coded as family type by child dependency status – level 2 (15 response options)	• Generated a binary variable coded as 0 for 'Without children' and 1 for 'With children'
Disability Type 'Deaf'	• 2013 deaf disability type (detailed level) not available in the data	• Captured under the hearing disability type in 2013
Disability Type 'Blind'	• 2013 blind disability (detailed level) type not available in the data	• Captured under the sight disability type in 2013
Disability Type 'Other'	• 2013 other (detailed level) disability type not available in the data	• Only captured at the 'higher-order' level in 2013 under 'Other'
Highest qualification	• 2001 HDS coded differently due to changes in national qualification standards by 2004 (introduction of NCEA)	• Generated a variable and aggregated by level of qualification • Followed qualification standards (Statistics NZ, n.d.)
Vision Impairment	• 2013 HDS rates of vision impairment have significantly increased relative to 2001 and 2006 HDS • No definitive cause identified	• No remedial actions taken as Statistics NZ have confirmed that there are no data quality issues due to their thorough data assurance / validation processes

Notes: [a] The prioritised ethnic group method categorises the ethnicity of a person who identified with more than one ethnic group to a single group, the total response method does not (i.e., a person can select more than one ethnic group) (Statistics NZ, 2014).

3.4 Methods

This section provides a brief discussion of the methods used in this study. As part of the discussion, a summary will be provided on the procedures followed for accessing the data, what actions were taken as part of the data preparation phase, and factors which must be kept in mind when interpreting the results from the forthcoming analysis.

3.4.1 Data preparation

The first step in this empirical endeavour involved data cleaning, such as aligning definitions of variables across years (as shown in Table 2), removing unusable cases, and excluding adults aged 65 and over. Table 3 illustrates the initial and final sample size post-data cleaning.

Table 3: Sample sizes following data cleaning [8]

HDS Year	Initial Sample Size	Final Sample Size
2001	23,232	12,402
2006	17,457	13,524
2013	11,205	9,282

Note: Source: Statistics NZ (2014). Author's compilation.

3.4.2 Descriptive analysis

This study takes a descriptive approach to the data. It provides a summary of the basic trends in the data across a number of demographic, economic, educational and disability measures. It is important to emphasise that this study is of an exploratory nature, and is therefore of particular value in providing insights into what association disability status may have with employment and educational outcomes. Consequently, this study will also set a strong foundation for identifying issues needing to be addressed through further and more sophisticated analysis.

3.4.3 Interpreting the results

There are a couple of factors to keep in mind when interpreting the descriptive results of this study. First, results are perception based. The HDS is based on respondents' perception of their situation and experiences. Consequently, there is a subjective element to the data as it is not based on assessments undertaken by trained professionals using objective measures and tools.

Second, in calculating percentages, unrounded estimates have been used. Application of Statistics NZ confidentially rules have resulted in the percentages being rounded to the nearest whole number. Consequently, in some cases, the sum of individual percentages may not total exactly 100%. Furthermore, estimates with few contributors are deemed a risk to respondents' confidentiality, and therefore percentages calculated from these estimates have been supressed[9].

[8] Sample sizes required rounding to base 3 to comply with Statistics NZ confidentiality requirements.

[9] Estimates based on a population less than 1,000 are suppressed (Statistics NZ, 2014).

4 Demographic Characteristics of the Disabled and Non-disabled

This section compares demographic characteristics of PwD against the same characteristics for Pw/oD, and then repeats this descriptive portrait for each of the five HL disability types. All comparisons are conducted across three years of the HDS (2001, 2006 & 2013).

4.1 Comparison of the disabled and non-disabled population

Looking at the gender characteristics across the disabled and non-disabled populations in Table 4, it appears that there is a relatively even split between males and females in both groups across the survey years. With respect to the age profile of these sub-populations, it is clear that PwD are relatively older when compared to Pw/oD across all survey years. Generally, over 50% of PwD were aged 45-64 years, compared to only 30-35% of Pw/oD. In the most recent HDS in 2013, the mean age for PwD was 43 years of age, which is 6 years older than Pw/oD.

Table 4 indicates that the majority of the sample in the HDS is either of European or Maori ethnic origin. Combined, these two ethnic groups comprise 90% of PwD in 2001, and 82% of Pw/oD in that same year. It is also clear from the table that the disabled population is more likely to be of European or Maori ethnicity, and much less likely to be Asian when compared to Pw/oD. For example, in both 2006 and 2013, 18% of PwD identified themselves as Maori, with this being the case for only 14% and 12% of Pw/oD, respectively. In comparison, 2% and 7% of PwD identified as Asian in 2006 and 2003, with 10% and 12% of Pw/oD, respectively.

Table 4 also highlights that PwD are less likely have a partner when compared to Pw/oD. In both 2001 and 2006, 58% of Pw/oD had a partner, compared to 55% and 57% of PwD, respectively. The situation was the same in 2013, with 62% of Pw/oD having had a partner, compared to 55% of PwD.

Table 4: Individual-level demographic characteristics of PwD and Pw/oD by survey year

Variables	PwD			Pw/oD		
	2001	2006	2013	2001	2006	2013
Gender	(%)	(%)	(%)	(%)	(%)	(%)
Male	50	51	48	49	49	49
Female	50	49	52	51	51	51
Age Groups	(%)	(%)	(%)	(%)	(%)	(%)
Age 15-44	50	44	48	70	67	65
Age 45-64	50	56	52	30	33	35
Mean age **(years)**	43	45	43	36	37	37
Ethnicity[a]	(%)	(%)	(%)	(%)	(%)	(%)
European	73	62	68	69	60	68
Maori	18	18	18	13	14	12
Pacific	5	4	5	5	5	5
Asian	2	2	7	7	10	12
Other	1	14	3	1	11	2
Not specified	1	S	S	6	S	S
Partnership Status	(%)	(%)	(%)	(%)	(%)	(%)
Partnered	55	57	55	58	58	62
Non-partnered	45	43	45	42	42	38
Personal Income	(%)	(%)	(%)	(%)	(%)	(%)
Loss	0	1	0	1	1	1
Zero income	5	4	9	5	6	9
$1-$5,000	8	7	6	11	9	7
$5,001-$10,000	19	11	7	11	7	5
$10,001-$15,000	16	17	11	9	6	7
$15,001-$20,000	9	10	9	9	7	6
$20,001-$25,000	8	7	7	8	7	5
$25,001-$30,000	8	8	7	9	7	6
$30,001-$40,000	12	14	12	15	17	11
$40,001-$50,000	7	9	9	8	11	11
$50,001-$70,000	6	9	14	8	12	16
$70,001-$100,000	2	2	7	3	5	9
$100,001 or more	1	1	3	3	5	7
Mean income bracket **($)**	15-20k	20-25k	20-25k	20-25k	25-30k	25-30k
Sources of Income						
Wages or salary	35	38	41	47	53	53
Self-employment	11	13	11	13	14	13
Interest/investments	14	14	11	18	16	14
ACC/private insurance payments	4	4	3	1	1	1
New Zealand superannuation	2	1	1	1	0	0
Other superannuation	2	1	1	1	0	0
Unemployment benefit	6	3	3	5	2	2
Sickness benefit	4	6	5	1	1	1
Domestic purposes benefit	4	3	4	3	2	2
Invalids benefit	8	10	7	1	0	0
Student allowance	2	1	2	3	2	3
Other government benefit	4	2	4	3	3	3
Other source of income	2	1	2	2	2	2
No source of income	4	3	6	5	5	7

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

[a] In 2013, ethnicity changed from a prioritised ethnic group method variable to a total response method variable. With the exception of the Maori population, ethnicity data for 2013 DS is not comparable to previous years.

In terms of comparing the income distribution for PwD relative to Pw/oD, personal income levels are lower for the former of these groups. For example, in 2001 and 2006, 52% and 45% of PwD had a personal income between $1 and $20,000, respectively. This compares to 40% in 2001, and 29% in 2006 for Pw/oD. This observation is also supported when looking at the mean income bracket, where PwD were consistently in a lower mean income bracket compared to Pw/oD. It should also be noted here that unfortunately the DS does not provide continuous personal income information, only categories, as reflected in Table 4.

There is evidence of positive trends for both subgroups in the table above with drops in the proportion of each sample at the lower end of the income distribution and corresponding increases in the proportion of each group at the upper end of the distribution. It should however be noted that it appears the percentage point changes between 2001 and 2013 are greater for PwD, and more substantial at the lower end. For instance, there was a 12% point drop in PwD earning between $5,001-$10,000, where the comparable drop for Pw/oD was 6% points. There was also a 5% point drop for PwD earning between $10,001-$15,000, and the comparable drop for Pw/oD was 2% points. At the upper end, the changes are similar with for example a 8% point rise for PwD earning between $50,001-$70,000, and Pw/oD also experiencing an 8% point rise in the proportion of their sample featuring in this income bracket.

In terms of the most likely source of personal income, wages or salary was signalled as the most likely contributor, regardless of disability status. For instance, in 2013, 41% (53%) of PwD (Pw/oD) indicated receiving income from wages and salary. The next two most likely sources of income were self-employment, and interest/investments. It is useful to note that the upward trend in individuals receiving wages and salary as a source of income is of a similar magnitude in both groups, with both PwD and Pw/oD experiencing a 6% point increase on this front.

As expected, PwD were more likely to receive income from ACC/private insurance payments, and sickness and invalids benefits. Of particular interest is comparing the level of benefit dependency between PwD and Pw/oD. In each survey year, a larger percentage of PwD were on a benefit when compared to Pw/oD[10]. In 2001, 28% of PwD were on a benefit compared to only 16% of Pw/oD, and by 2013, 25% of PwD were on benefit, compared to 11% of Pw/oD. Not surprisingly, the IB was the most common benefit type amongst PwD in each survey year, with 8%, 10%, and 7% of disabled people receiving the IB in 2001, 2006, and 2013, respectively.

[10] The following benefits were included in this percentage: i) unemployment benefit, ii) sickness benefit, iii) domestic purposes benefit, iv) invalids benefit, student allowance, and v) Other government benefit.

Table 5: Household-level demographic characteristics of PwD and Pw/oD by survey year

	PwD			Pw/oD		
Variables	**2001**	**2006**	**2013**	**2001**	**2006**	**2013**
Parental Status	(%)	(%)	(%)	(%)	(%)	(%)
With children	43	42	55	50	56	61
Without children	57	58	45	50	44	39
Household Income	(%)	(%)	(%)	(%)	(%)	(%)
Loss	S	S	0	0	0	0
Zero income	1	1	0	0	0	0
$1-$5,000	2	1	1	1	1	1
$5,001-$10,000	4	2	1	2	1	0
$10,001-$15,000	6	5	3	4	1	1
$15,001-$20,000	7	6	4	5	2	1
$20,001-$25,000	6	9	2	5	3	2
$25,001-$30,000	10	5	5	7	3	3
$30,001-$40,000	12	11	8	11	8	5
$40,001-$50,000	12	11	7	11	8	6
$50,001-$70,000	17	17	16	21	19	14
$70,001-$100,000	13	18	21	16	21	22
$100,001 or more	11	15	31	18	31	46
Mean income bracket **($)**	30-40k	40-50k	50-70k	40-50k	50-70k	70-100k

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

Table 5 compares the disabled population with the non-disabled in terms of household level demographic information. It appears that PwD are generally less likely to have children when compared to Pw/oD. In 2001, 2006 and 2013, there were 57%, 55% and 45% of PwD without children, respectively. This compares to 50%, 44% and 39% of Pw/oD with no children for the years 2001, 2006 and 2013, respectively. As these figures illustrate it is becoming more common for both groups to have children over the sample time frame, with PwD experiencing a 12% point increase in propensity to have children, and Pw/oD experiencing a similar 11% point increase.

In terms of household income, the descriptive statistics illustrates a comparatively different income distribution for PwD compared to Pw/oD. The former are generally part of households with lower income levels when compared to Pw/oD. For example, in 2013, 32% of PwD were part of a household where the combined income was between $1 and $50,000. This compares to 18% of Pw/oD for the same year. With the exception of 2013, PwD were also generally more likely to be part of a household with zero income when compared to Pw/oD.

Similar to the trend in personal income, household income is also increasing for PwD. In 2001, only 42% of PwD were part of a household where the combined income was greater than $50,000. This percentage increased to 50% in 2006, and to 68% in 2013. This change in income distribution is also highlighted in the mean household income bracket, with an increase between each survey year.

4.2 Comparison of the disabled population by disability type

Table 6 repeats the demographic information provided in Table 4, but instead of comparing PwD with Pw/oD, the data is disaggregated by disability type. The first part of the table shows a number of differences with respect to gender. People with sensory, intellectual or 'other' disabilities were generally more likely to be male. This is particularly prominent in the categories of sensory and intellectual disabilities, with over 50% being male across all three survey years. When looking at psychiatric/psychological and physical disability types however, the gender characteristics were reversed, with a relatively higher percentage of females to males. With both of these disability types, the percentage of females range between 55-60%.

With some disability types, the distribution of males to females is changing. For example, males have been increasingly represented in the group with intellectual disabilities. In 2001, 2006 and 2013, 51%, 59% and 63% of people with intellectual disabilities were male, respectively. Similarly, the percentage of males with psychiatric/psychological disabilities have increased to 44% in 2013 from 40% in 2001. The proportion of each subgroup shown in Table 6 that are female is increasing in only two categories – sensory and physical disabilities.

The age distributions indicate that those with sensory or physical disabilities tend to be older, while those with intellectual or psychiatric/psychological disabilities tend to be younger. For example, 38% of those with a sensory disability were aged 15-44 in 2013; and the comparable number for intellectual disabilities was 72%.

Ethnic characteristics when broken down by disability type are largely similar to that of the disabled population as a whole. Europeans represent the highest percentage of PwD across all disability types and across all survey years, with Maori making up the second largest ethnic group. One noteworthy trend is that the percentage of each sub-sample that is European appears to be decreasing across all disability types. In a similar fashion to the disabled population as a whole, there has also been a relatively small percentage of people from an Asian ethnic origin, with Asians generally more likely to have physical disabilities, compared to any other disability types.

In terms of partnership status, the descriptive statistics indicate that partnership status varies significantly by HL disability type. For example, people with sensory and physical disabilities were generally more likely to be in a partnership when compared to the other disability types. For those with sensory related disabilities, over 60% had a partner across each of the three survey years. The situation was similar for people with physical disabilities, with over 50% having a partner across each survey year.

Table 6: Individual-level demographic characteristics of PwD by disability type and survey year

	Sensory			Intellectual			Psychiatric / Psychological			Physical			Other		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Gender	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	56	61	53	51	59	63	40	43	44	45	43	41	53	41	56
Female	44	39	47	49	41	37	60	57	56	55	57	59	47	49	44
Age Groups	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Age 15-44	39	38	38	77	68	72	66	65	61	42	37	39	58	50	53
Age 45-64	61	62	62	23	32	28	34	35	39	58	63	61	42	50	47
Mean age **(years)**	46	47	46	34	36	34	37	39	39	46	47	46	40	42	40
Ethnicity[a]	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
European	73	64	68	69	57	62	71	61	69	71	59	66	73	57	64
Maori	20	17	18	24	28	20	21	24	16	19	20	19	19	20	20
Pacific	5	3	5	5	4	10	4	3	5	5	5	6	4	4	6
Asian	1	2	6	S	S	5	2	S	6	3	3	7	1	3	6
Other	S	13	3	S	9	3	S	11	4	S	13	2	2	15	3
Not specified	2	S	S	S	S	S	S	S	S	1	S	S	1	S	S
Partnership Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Partnered	61	65	62	26	21	25	38	34	38	56	55	56	51	47	42
Non-partnered	39	35	38	74	79	75	62	66	62	44	45	44	49	53	58
Personal Income	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Loss	S	S	S	S	S	S	S	2	S	1	1	S	S	S	S
Zero income	5	3	7	16	10	11	7	6	8	4	5	8	6	5	12
$1-$5,000	5	4	5	13	10	11	11	9	6	8	6	6	7	7	7
$5,001-$10,000	20	9	6	26	21	12	24	16	10	22	14	7	22	12	9
$10,001-$15,000	12	16	9	19	27	21	23	26	17	20	21	14	17	21	16
$15,001-$20,000	10	10	7	7	15	13	9	12	13	10	11	11	8	11	12
$20,001-$25,000	6	6	6	3	S	7	11	6	10	7	9	8	8	7	6
$25,001-$30,000	8	7	7	6	S	3	3	8	8	7	7	7	9	11	6
$30,001-$40,000	15	17	13	4	7	7	5	8	10	9	11	11	10	10	11
$40,001-$50,000	7	14	10	S	S	6	3	3	6	7	6	7	6	5	7
$50,001-$70,000	8	9	16	5	S	7	S	3	8	3	7	12	4	8	9
$70,001-$100,000	2	3	9	S	S	S	S	S	3	1	1	6	3	2	2
$100,001 or more	S	2	5	S	S	S	S	S	S	1	1	2	S	1	1
Mean income bracket **($)**	20-25k	20-25k	25-30k	10-15k	15-20k	15-20k	10-15k	15-20k	20-25k	15-20k	15-20k	20-25k	15-20k	20-25k	20-25k
Sources of Income	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Wages or salary	35	39	44	23	21	29	27	28	35	30	33	37	34	34	35
Self-employment	15	16	12	7	S	4	8	5	6	11	10	10	8	11	7
Interest/investments	14	17	13	12	5	7	10	6	7	13	12	11	12	13	7
ACC/private insurance payments	3	2	2	S	5	5	4	6	3	6	6	4	4	4	4
New Zealand superannuation	2	1	1	S	S	S	1	S	S	2	2	2	1	1	1
Other superannuation	1	1	1	S	S	S	1	S	S	2	0	1	2	S	1
Unemployment benefit	6	3	2	6	S	3	7	5	3	6	3	3	7	3	4
Sickness benefit	4	4	4	6	12	8	7	14	11	5	7	7	5	8	7
Domestic purposes benefit	4	3	3	S	S	3	5	6	6	4	4	4	5	3	4
Invalids benefit	8	8	7	25	37	27	16	21	13	11	16	11	12	15	15
Student allowance	1	S	2	5	S	2	2	S	3	1	S	1	2	S	3
Other government benefit	3	1	3	S	5	3	4	3	6	5	3	4	4	3	3
Other source of income	2	1	1	4	S	2	4	S	2	1	0	2	1	1	1
No source of income	3	3	5	8	9	7	4	4	6	3	4	6	4	3	9

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

[a] In 2013, ethnicity changed from a prioritised ethnic group method variable to a total response method variable. With the exception of the Maori population, ethnicity data for 2013 DS is not comparable to previous years.

In contrast, people with intellectual or psychiatric/psychological related disabilities were generally less likely to have a positive partnership status. For the intellectual disability type, over 70% of people were non-partnered across each of the three survey years, with 2006 being the highest at 79%. Similarly, for psychiatric/psychological disabilities, over 60% of people were non-partnered across each of the three survey years.

The personal income descriptive statistics in Table 6 show a comparatively similar income distribution for people across the different types of disabilities. For example, with the exception of people with sensory related disabilities, PwD were generally likely to have personal income under $20,000 in 2001 and 2006. This distribution was particularly evident for people with intellectual disabilities, with 65% having personal income between $1-$20,000 in 2001, 73% in 2006, and 68% in 2013. In a similar fashion, it also appears that those with intellectual disabilities are more likely to receive zero income, with 16%, 10%, and 11% of this disability category receiving no income in 2001, 2006, and 2013 respectively.

Most HL disability types saw a rise in the proportion of individuals earning between $50,001-$70,000, and the most pronounced jumps was for those with sensory disabilities, who experienced an 8% point rise in this income bracket between 2001 and 2013.

Looking at the income sources by HL disability type, it is clear that the most common form of income for disabled people has generally been wages and salary. The exception to this is for people with intellectual disabilities, for whom the IB has been the most common source of income (27% in 2013). For people with sensory related disabilities, a large majority of their income has been through wages or salary, self-employment, or interest and investments (over 60% combined) in each survey year.

When examining the descriptive statistics on benefit income, people with intellectual disabilities appear to have had the highest level of benefit dependency when compared to the other HL disability types. For example, by 2013, 46% of all income for people with intellectual disabilities were sourced through some form of government benefit. People with psychiatric/psychological disabilities appeared to have had the second highest level of benefit dependency in 2013 at 41%. Similar to those with intellectual disabilities, the most common form of benefit for people with psychiatric/psychological disabilities was the IB (13%), closely followed by the sickness benefit (11%). People with sensory related disabilities appeared to have had the lowest level of benefit dependency in 2013, with only 22% receiving income through some form of government benefit.

Table 7: Household-level demographic characteristics of PwD by disability type and survey year

	Sensory			Intellectual			Psychiatric / Psychological			Physical			Other		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Parental Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With children	38	39	52	45	51	58	39	51	56	42	41	49	46	45	54
Without children	62	61	48	55	49	52	61	49	44	58	59	51	54	55	46
Household Income	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Loss	S	S	S	S	S	S	S	S	1	S	S	0	S	S	1
Zero income	S	S	S	S	S	S	S	S	S	S	1	S	1	S	S
$1-$5,000	1	S	1	S	S	S	3	S	S	2	1	1	1	1	S
$5,001-$10,000	4	2	1	S	5	S	6	5	1	5	2	1	4	3	2
$10,001-$15,000	4	4	3	8	6	4	10	10	5	7	7	4	8	6	5
$15,001-$20,000	8	6	4	8	8	9	7	8	6	9	7	6	7	8	6
$20,001-$25,000	4	8	2	S	9	S	11	11	4	6	10	2	7	10	3
$25,001-$30,000	9	4	5	11	5	S	12	4	5	12	5	5	10	5	5
$30,001-$40,000	14	11	8	12	16	16	12	13	12	12	12	9	11	11	10
$40,001-$50,000	11	12	7	9	11	6	8	10	8	13	10	8	11	12	9
$50,001-$70,000	16	18	16	20	11	12	15	11	16	15	16	16	17	14	15
$70,001-$100,000	14	19	19	12	9	20	12	14	19	11	15	20	14	14	20
$100,001 or more	15	13	34	9	18	27	6	13	23	8	14	27	9	15	24
Mean income bracket **($)**	40-50k	40-50k	50-70k	30-40k	30-40k	40-50k	30-40k	30-40k	40-50k	30-40k	30-40k	40-50k	30-40k	30-40k	40-50k

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

Table 7 illustrates that all disability types experienced an increasing likelihood of having children between 2001 and 2013. By the final survey, between 49% and 58% of each disability category reported a positive parental status.

In terms of household income, the descriptive statistics provide a number of observations worth noting. First, in 2001, the majority of PwD were living in households where the household income was less than $50,000 regardless of disability type. This was particularly strong for people with psychiatric/psychological or physical related disabilities. For both these disability types, 66% of PwD were part of households with income between $1 and $50,000.

Similar to the trend in personal income, household income has been increasing across all disability types. In contrast to 2001, by 2013, the majority of PwD were living in households where the household income was more than $50,000 regardless of disability type. This observation is also evident when looking at changes in the mean household income brackets. For each HL disability type, the mean income bracket increased in 2013, compared to 2001. People with sensory related disabilities saw the biggest change, with the mean income range increasing from $40,001-$50,000 in 2001, to $50,001-$70,000 in 2013.

5 Employment Characteristics of People with and without Disabilities

While Section 4 provided a useful portrait of the changes in the demographic landscape of PwD relative to those without disability, a key aim of this project was to focus on labour and educational outcomes. As such, this section will compare employment characteristics of PwD against Pw/oD, while the section following will then repeat this analysis with respect to educational attainment. Comparisons on labour force status are drawn across three years of the HDS (2001, 2006, & 2013). Due to data limitations with respect to total work hours (see Table 2), comparisons on work status and total work hours are only drawn across 2006 and 2013. The descriptive statistics are summarised below in Table 8.

5.1 Comparison of the disabled and non-disabled population

Table 8: Employment characteristics of the disabled and non-disabled population by survey year

	PwD			Pw/oD		
Variables	**2001**	**2006**	**2013**	**2001**	**2006**	**2013**
Labour Force Status	(%)	(%)	(%)	(%)	(%)	(%)
Employed	58	58	60	76	79	75
Unemployed	6	5	7	5	4	5
Not in the labour force	36	37	33	19	18	20
Work Status	(%)	(%)	(%)	(%)	(%)	(%)
Full-time		78	74		81	79
Part-time		22	26		19	21
Total Work Hours	(%)	(%)	(%)	(%)	(%)	(%)
1-9 hours		5	7		5	5
10-19 hours		8	9		7	6
20-29 hours		9	10		7	9
30-39 hours		12	14		13	13
40-49 hours		41	40		44	46
50-69 hours		12	12		12	12
70 hours or more		13	9		11	8
Mean work hours **(hours per week)**		39	37		40	39

Notes: 2001 columns for 'Work Status' and 'Total Work Hours' is grey due to the unavailability of required variables in the 2001 HDS.

PwD are at a clear disadvantage with respect to employment outcomes when compared to Pw/oD. As shown in Table 8, in 2001 and 2006, 58% of PwD were employed compared to 76% and 79% of Pw/oD, respectively. The employment rate for 2013 showed a similar outcome, with 60% of PwD employed, compared to 75% Pw/oD. Furthermore, PwD were more likely to be unemployed when compared to Pw/oD. In 2013, 7% of PwD were unemployed, compared to 5% of Pw/oD.

Table 8 also indicates that disabled people are far more likely to be NILF when compared to Pw/oD. In each of the survey years, over one-third of the disabled population were NILF, compared to approximately one-fifth of the non-disabled population.

In terms of work status, PwD in employment were less likely to be in full-time work when compared to Pw/oD across both 2006 and 2013. For example, in 2006, 78% of PwD employed had full-time status, compared to 81% of Pw/oD in the same year. Furthermore, in 2013, 26% of disabled people in employment situations had part-time status, which was 5% more than their non-disabled counterparts in the same year. Disaggregating work status information by total hours worked[11], the majority of individuals report working more than 40 hours, regardless of disability status. Yet, the mean number of hours appears to be dropping (by 2 hours for PwD between 2006 and 2013, and by 1 hour for those without a disability). Focussing on PwD independently, it appears that between 2006 and 2013, many disabled people were working fewer hours per week, with the proportion working less than 40 hours increasing from 34% to 40%.

5.2 Comparison of the disabled population by disability type

Table 9: Employment characteristics of PwD by disability type and survey year

	Sensory			Intellectual			Psychiatric / Psychological			Physical			Other		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Labour Force Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Employed	61	68	65	42	32	36	43	35	48	50	47	53	54	52	46
Unemployed	6	3	6	7	9	9	8	9	8	7	5	5	6	5	8
Not in the labour force	33	28	29	51	59	55	49	56	44	44	48	42	40	43	45
Work Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Full-time		83	78		60	72		64	63		74	73		69	71
Part-time		17	22		40	28		36	37		26	27		31	29
Total Work Hours	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1-9 hours		3	5		S	13		15	11		6	6		9	9
10-19 hours		6	7		18	7		11	14		10	10		12	11
20-29 hours		7	10		S	9		10	12		9	11		10	9
30-39 hours		12	13		S	13		11	14		15	15		10	13
40-49 hours		44	42		27	45		39	36		37	39		35	39
50-69 hours		14	14		S	S		7	6		10	11		10	10
70 hours or more		13	9		S	9		6	7		13	8		14	9
Mean work hours **(hours per week)**		41	39		32	35		33	32		38	38		37	36

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ. 2001 columns for 'Work Status' and 'Total Work Hours' is grey due to the unavailability of required variables in the 2001 HDS.

The descriptive statistics summarised in Table 9 indicate that people with sensory related disabilities perform the best in terms of employment outcomes when compared to the other HL disability types. In 2001, 61% of people with sensory disabilities were employed, with 68% in 2006 and 65% in 2013. In contrast, people with intellectual disabilities appear to have been at the greatest disadvantage when compared to the other HL disability types, with only 42% having been employed in 2001, 32% in 2006, and 36% in 2013.

[11] Total hours worked refers to the total number of hours usually worked in employment by a person (Statistics NZ, n.d.b).

The percentage of disabled people unemployed is relatively high across all HL disability types, remembering that the proportion of Pw/oD classed as unemployed ranged between 4-5% (as shown in Table 8). In particular, people with intellectual disabilities, and those with psychiatric/psychological related disabilities displayed the highest propensity to be unemployed, relative to other disability types (with psychiatric/psychological disabilities following close behind).

Individuals with sensory related disabilities were the least likely to be classed as NILF. In 2001, only 33% were NILF, compared to 28% in 2006 and 29% in 2013. In contrast, people with intellectual disabilities had the highest level of non-participation in the labour market, with 51%, 55% and 59% not being NILF in 2001, 2006 and 2013, respectively.

PwD in employment, regardless of disability type, were generally more likely to be employed full-time, rather than part-time. For both 2006 and 2013, over 60% of PwD in employment were full-time – for all disability types. In 2013, individuals with sensory disabilities were the most likely to be employed full-time, while individuals with psychiatric/psychological disabilities were the least likely (78% versus 72%). People with intellectual disabilities stand out as a group with marked changes in work status between the last two DS – there was a pronounced increase in the likelihood of this group working full-time (rising from 60% to 72%) and a similar drop in their likelihood to be working part-time (decreasing from 40% to 28%).

Disaggregating work status into finer detail in terms of total hours worked, we find that for all disability types (bar those with intellectual disabilities and those with psychiatric/psychological disabilities) mean work hours have dropped between 2006 and 2013. This finding is in general, mirrored with a lower proportion of each disability group working more than 40 hours a week in 2013, relative to 2006.

Furthermore, although difficult to draw observations from the data for people with intellectual disabilities due to suppression of some of the data output for 2006, there are some interesting trends. For example, between 2006 and 2013 the percentage of people with intellectual disabilities in employment working between 40-49 hours per week increased from 27% in 2006 to 45% in 2013. This could potentially explain the increase in the mean work hours for this group, as well as the increase in percentage working full-time in 2013, compared to 2006.

6 Educational Characteristics of People with and without Disabilities

6.1 Comparison of the disabled and non-disabled population

This section compares educational characteristics of PwD against the same characteristics for Pw/oD. These comparisons are drawn across three years of the HDS (2001, 2006, & 2013) and are summarised in below.

Table 10: Educational characteristics of the disabled and non-disabled population by survey year

	PwD			Pw/oD		
Variables	**2001**	**2006**	**2013**	**2001**	**2006**	**2013**
Highest Qualification	(%)	(%)	(%)	(%)	(%)	(%)
No qualification	36	40	27	22	19	13
Certificate (Level 1-3)	37	28	35	41	38	36
Certificate (Level 4)	8	12	12	6	10	9
Diploma (Level 5-6)	9	8	8	11	10	10
Bachelor Degree	5	6	9	10	13	18
Postgraduate Degree	2	3	5	4	5	8
Overseas secondary school qualification	4	4	4	6	5	6

As Table 10 indicates, PwD are at a disadvantage with regard to educational outcomes when compared to Pw/oD. In each of the three survey years, there was a substantially higher percentage of PwD with no qualification when compared to Pw/oD. This was particularly evident in 2006 and 2013, where 40% and 27% of PwD had no qualification, respectively. These proportions are more than double that of Pw/oD for the same time period. In 2006 there were 19% of Pw/oD with no qualification, and 13% in 2013.

Furthermore, PwD were also generally less likely to achieve university level qualifications when compared to Pw/oD. Looking at diploma and degree level qualifications, in each of the three survey years, PwD had lower levels of attainment when compared to Pw/oD. In 2001, 16%[12] of PwD had diploma or degree level qualification, with 17% in 2006 and 22% in 2013. This compares to 25% in 2001, 28% in 2006 and 36% in 2013 of the non-disabled population achieving the same level qualifications.

[12] Included in this percentage are the following qualifications: i) Diploma (Level 5-6), ii) Bachelor Degree, and iii) Postgraduate Degree.

6.2 Comparison of the disabled population by disability type

Table 11: Educational characteristics of PwD by disability type and survey year

	Sensory			Intellectual			Psychiatric / Psychological			Physical			Other		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Highest Qualification	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
No qualification	39	42	28	62	65	47	38	42	29	43	45	32	37	38	36
Certificate (Level 1-3)	32	26	33	29	20	31	40	30	36	33	28	33	38	29	32
Certificate (Level 4)	11	13	13	S	7	9	4	11	9	6	10	11	9	11	11
Diploma (Level 5-6)	9	8	8	6	6	3	9	6	10	7	6	8	6	10	6
Bachelor Degree	5	3	10	S	S	4	4	7	7	5	6	8	5	5	6
Postgraduate Degree	S	3	5	S	S	3	2	2	4	1	1	4	2	4	4
Overseas secondary school qualification	5	5	3	S	S	S	2	3	4	5	4	3	3	3	4

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

Looking at highest qualification by HL disability type, there are several observations that stand out. On average, there were more than 30% of disabled people, in each HL disability group, that had no qualification. People with intellectual disabilities were generally more likely to have no qualification in each of the survey years when compared to people with any of the other disability types. The descriptive statistics also indicate that between 2001 and 2013, the number of people with no qualification increased across all HL disability types.

Furthermore, of those with qualifications, PwD were more likely to attain a Certificate (Level 1-3) qualification, when compared to other qualifications. This is particularly evident for people with psychiatric/psychological disabilities, where 40% in 2001, 30% in 2006, and 36% in 2013 had a Certificate (Level 1-3) qualification.

7 Characteristics of People with Vision Impairments

As shown in Appendix A, individuals with a sensory disability have either hearing or vision impairments. The latter of these is the focus of this section of the report. All demographic, employment, and education characteristics of the disabled population with vision impairments are compared against the same characteristics for people with other types of disabilities, as well as Pw/oD.

Results are also disaggregated by the severity level for the disability. In particular, support level is primarily used to compare employment outcomes of people with vision impairments, at varying levels of support needs, against the remainder of the disabled population. The intention being to examine whether higher levels of support are associated with more disadvantageous employment outcomes for people with vision impairments, and how these trends (if any) compare to the remainder of the disabled population.

7.1 Demographic characteristics of people with vision impairments

As portrayed in Table 12, the proportion of individuals with vision disabilities are much more likely to be female, and older, relative to other forms of disability. For instance, in each of the three surveys, over 60% of people with vision disabilities were between 44-64 years of age, with 2013 showing the highest proportion at two thirds. This compares to 50% of people with other types of disabilities who were aged 44-64 years in 2013, and 37% of Pw/oD.

The ethnic characteristics when broken down by vision impairments, other types of disabilities, and the non-disabled population are largely similar. Europeans represented the highest percentage of both disability groups and the non-disabled population in 2001, 2006, and 2013. It also appears that between 2001 and 20013 the percentage of people from a European ethnic origin were decreasing across all three groups presented, with this downward trend being more pronounced for PwD. This is shown by a 5% point drop in the proportion of both the vision impaired and other disabilities category being classed as European, compared to a 1% point drop for Pw/oD.

Maori made up the second largest ethnic group for people with vision disabilities (23%), those with other types of disabilities (17%), and the non-disabled population (12%) in 2013. Interestingly individuals with vision impairments were more likely to be Asian (9% in 2013), compared to other types of disabilities (6% in that same year).

Table 12: Individual-level demographic characteristics of PwD (vision & other) and Pw/oD by survey year

	Disability Type - Vision			Disability Type – All others			Pw/oD		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Gender	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Male	43	42	41	50	52	49	49	49	49
Female	57	58	59	50	48	51	51	51	51
Age Groups	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Age 15-44	39	39	34	51	44	50	70	67	65
Age 45-64	61	61	66	49	56	50	30	33	35
Mean age **(years)**	44	47	46	43	45	43	36	37	37
Ethnicity[a]	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
European	64	57	59	74	62	69	69	60	68
Maori	26	26	23	17	17	17	13	14	12
Pacific	7	6	6	4	4	5	5	5	5
Asian	S	S	9	2	2	6	7	10	12
Other	S	9	3	1	15	3	1	11	2
Not specified	S	S	S	1	S	S	6	S	S
Partnership Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Partnered	53	55	58	55	58	54	58	58	62
Non-partnered	47	45	42	45	42	46	42	42	38
Personal Income	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Loss	S	S	S	0	1	0	1	1	1
Zero income	12	7	8	5	4	9	5	6	9
$1-$5,000	5	8	5	8	7	6	11	9	7
$5,001-$10,000	21	16	6	18	10	7	11	7	5
$10,001-$15,000	15	23	12	17	16	11	9	6	7
$15,001-$20,000	9	11	10	9	10	9	9	7	6
$20,001-$25,000	5	7	6	8	7	7	8	7	5
$25,001-$30,000	8	6	6	8	8	7	9	7	6
$30,001-$40,000	10	7	13	12	15	11	15	17	11
$40,001-$50,000	4	3	6	7	9	9	8	11	11
$50,001-$70,000	9	8	16	5	9	13	8	12	16
$70,001-$100,000	S	S	8	2	2	7	3	5	9
$100,001 or more	S	S	3	1	2	3	3	5	7
Mean income bracket **($)**	15-20k	15-20k	25-30k	15-20k	20-25k	20-25k	20-25k	25-30k	25-30k
Sources of Income	(%)	(%)	(%)	(%)	(%)	(%)			
Wages or salary	29	30	40	34	39	42	47	53	53
Self-employment	14	8	10	12	13	11	13	14	13
Interest/investments	9	12	11	15	15	11	18	16	14
ACC/private insurance payments	3	3	2	4	4	3	1	1	1
New Zealand superannuation	S	S	1	2	1	1	1	0	0
Other superannuation	S	S	S	2	0	1	1	0	0
Unemployment benefit	7	5	3	6	3	3	5	2	2
Sickness benefit	5	7	5	4	6	6	1	1	1
Domestic purposes benefit	4	5	5	5	3	4	3	2	2
Invalids benefit	11	17	10	8	9	7	1	0	0
Student allowance	S	S	2	2	1	2	3	2	3
Other government benefit	3	S	3	4	2	4	3	3	3
Other source of income	3	S	1	2	1	2	2	2	2
No source of income	8	6	5	3	3	6	5	5	7

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

[a] In 2013, ethnicity changed from a prioritised ethnic group method variable to a total response method variable. With the exception of the Maori population, ethnicity data for 2013 DS is not comparable to previous years.

The descriptive statistics on personal income show a comparatively similar income distribution for people with sight disabilities, and those with other disability types. When compared to Pw/oD however, people with vision or other types of disabilities were generally more likely to have personal income under $20,000, as expected, given the analysis presented in section 4. It is interesting to note that in examining the mean for personal income information in Table 12 it is evident that individuals with a vision disability had the largest personal income growth across the three survey years. Between 2001 and 2013, people with vision disabilities saw a jump in their mean personal income from the $15,001-$20,000 income bracket to the $25,001-$30,000 income bracket. In comparison, people with other types of disabilities had an increase in their mean personal income from the $15,001-$20,000 income bracket in 2001 to the $20,001-$25,000 income bracket in 2013, and Pw/oD from the $20,001-$25,000 income bracket in 2001, to the $25,001-$30,000 income bracket in 2013.

Overall, the evidence from Table 12 shows that for both disability groups, income was generally sourced from either wages or salary, self-employment, and interest and investments. Combined, these sources accounted for over 50% of all income sources across all three survey years. In comparison, for Pw/oD in 2013, a combined total of 80% of income was sourced through wages or salary, self-employment, and interest and investments.

In each survey year, people with sight related disabilities had the lowest percentage of income from wages or salary when compared to people with other disabilities and Pw/oD. 40% of individuals with vision impairments signalled they received personal income from wages and salary. Many of the source of income characteristics are similar between the group with vision impairments, and the other disabilities category. The only exception to this general trend being that in all survey years, there tended to be a greater proportion of people with vision impairments receiving the invalids benefit, compared to those in other disability categories.

In terms of household level demographics, individuals with vision disabilities are more likely to have children, compared to other disability types, and this has experienced a pronounced upward movement over the period 2001 to 2013. People with sight disabilities saw the largest increase in the percentage of those with children. In 2001, only 39% had children, which increased to 61% in 2013.

Table 13: Household-level demographic characteristics of PwD (vision & other) and Pw/oD by survey year

	Disability Type - Vision			Disability Type – All others			Pw/oD		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Family Type	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With children	39	47	61	44	42	53	50	56	61
Without children	70	53	39	56	58	47	50	44	39
Household Income	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Loss	S	S	S	S	S	1	0	0	0
Zero income	S	S	S	1	1	1	0	0	0
$1-$5,000	S	S	S	2	1	1	1	1	1
$5,001-$10,000	5	S	2	4	2	1	2	1	0
$10,001-$15,000	5	9	4	6	5	3	4	1	1
$15,001-$20,000	6	8	5	7	6	4	5	2	1
$20,001-$25,000	5	9	3	6	9	2	5	3	2
$25,001-$30,000	15	5	6	9	5	5	7	3	3
$30,001-$40,000	15	11	9	12	11	8	11	8	5
$40,001-$50,000	10	9	5	12	11	8	11	8	6
$50,001-$70,000	8	16	15	18	17	16	21	19	14
$70,001-$100,000	19	14	17	13	18	21	16	21	22
$100,001 or more	11	13	34	11	15	31	18	31	46
Mean income bracket **($)**	30-40k	30-40k	50-70k	30-40k	40-50k	40-50k	40-50k	50-70k	70-100k

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ.

With respect to household income characteristics, Table 13 illustrates a number of observations worth noting. First, between 2001 and 2006, people with sight disabilities and other types of disabilities were generally more likely to be at the lower end of the income distribution, with 50% or more being part of a household with an income between $1 and $50,000. By 2013 however, all subgroups in Table 13 had a rise in the individuals at the top end of the distribution. For Pw/oD, the proportion earning atleast $50,000 household income rose from 55% to 82%. In a similar fashion, the comparable numbers for those with vision impairments was an increase from 38% to 66%, and for those with other types of disabilities, an increase from 42% to 68%. It is also useful to point out that by 2013, households with people who have vision disabilities were generally more likely to have a higher mean household income when compared to households with people who have other types of disabilities. The mean household income for people with sight disabilities was in the $50,001-$70,000 bracket in 2013, compared to $40,001-$50,000 for household with people who have other types of disabilities for the same year.

7.2 Support level characteristics of people with vision impairments

Table 14: Support level characteristics of PwD by survey year

	Disability Type – Vision			Disability Type – All others		
Variables	**01**	**06**	**13**	**01**	**06**	**13**
Support Level	(%)	(%)	(%)	(%)	(%)	(%)
Low support needs	43	12	46	52	47	51
Medium support needs	42	71	42	39	42	41
High support needs	15	17	12	9	10	8

Table 14 illustrates the support characteristics of vision disabled individuals versus other types of disabilities. There are severable notable findings here. First, in 2001 and 2013, 45% to 46% (respectively) of people with vision disabilities were relatively self-sufficient and had no need for assistive equipment or support from other people (i.e. low support needs). This compares to 52% in 2001, and 51% in 2013 of people with other types of disabilities. This compares to 15% and 12% of vision impaired being classed as high support needs, and 9% and 8% of other disability types, in 2001 and 2013 respectively. It therefore appears that vision impaired individuals were less likely to require low levels of support, and more likely to require higher support, compared to their counterparts with other forms of disability.

The second notable finding from Table 14 is that the support level rates for 2006 are markedly different to that of 2001 and 2013, with only 12% of people with vision related disabilities displaying low levels of support needs, and 71% displaying medium levels of support needs. With no existing research available that used the 2006 HDS, these results have no point of reference for the purpose of comparison. Statistics NZ has indicated that the support level variable was generated in a consistent manner between 2001 and 2006. However, there appears to be a lack of documentation on the definition or methodology followed in generating the 2006 support level variable. It is possible that issues with this 2006 support variable is the root cause of why Statistics NZ cautions users regarding use of the 2006 wave of disability data, but this is purely speculative. Based on these findings data for the 2006 support level is deemed unreliable and will therefore not feature in forthcoming analysis.

7.3 Employment outcomes for people with vision impairments

The labour force status information in Table 15 reveal several distinct observations. For Pw/oD and those with different types of disabilities, there was virtually no change in employment propensity between 2001 and 2013. In comparison, those with a vision impairment had the employed proportion of this group increase from 44% to 60% over this 12 year time frame. By 2013, their employment probability is equivalent to that experienced by other disability types, at 60%, indicating convergence of this group's labour market behaviour, relative to other disabilities. In a similar fashion, the proportion of vision impaired that work full-time also increased over the sample period, to be on par with the full-time propensity of other disability types (76% versus 74% respectively).

Table 15: Employment characteristics of PwD (vision & other) and Pw/oD by survey year

	Disability Type - Vision			Disability Type – All others			Pw/oD		
Variables	**01**	**06**	**13**	**01**	**06**	**13**	**01**	**06**	**13**
Labour Force Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Employed	44	47	60	59	60	60	76	79	75
Unemployed	9	6	8	6	5	7	5	4	5
Not in the labour force	48	47	32	35	35	34	19	18	20
Work Status	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Full-time		66	76		79	74		81	79
Part-time		34	24		21	26		19	21
Total Work Hours	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1-9 hours		S	6		5	7		5	5
10-19 hours		15	9		8	9		7	6
20-29 hours		12	9		8	10		7	9
30-39 hours		13	14		12	14		13	13
40-49 hours		34	45		42	39		44	46
50-69 hours		13	9		12	12		12	12
70 hours or more		S	8		14	9		11	8
Mean work hours **(hours per week)**		35	37		40	37		40	39

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage was below the prescribed threshold specified by Statistics NZ. 2001 columns for 'Work Status' and 'Total Work Hours' are grey due to the unavailability of required variables in the 2001 HDS.

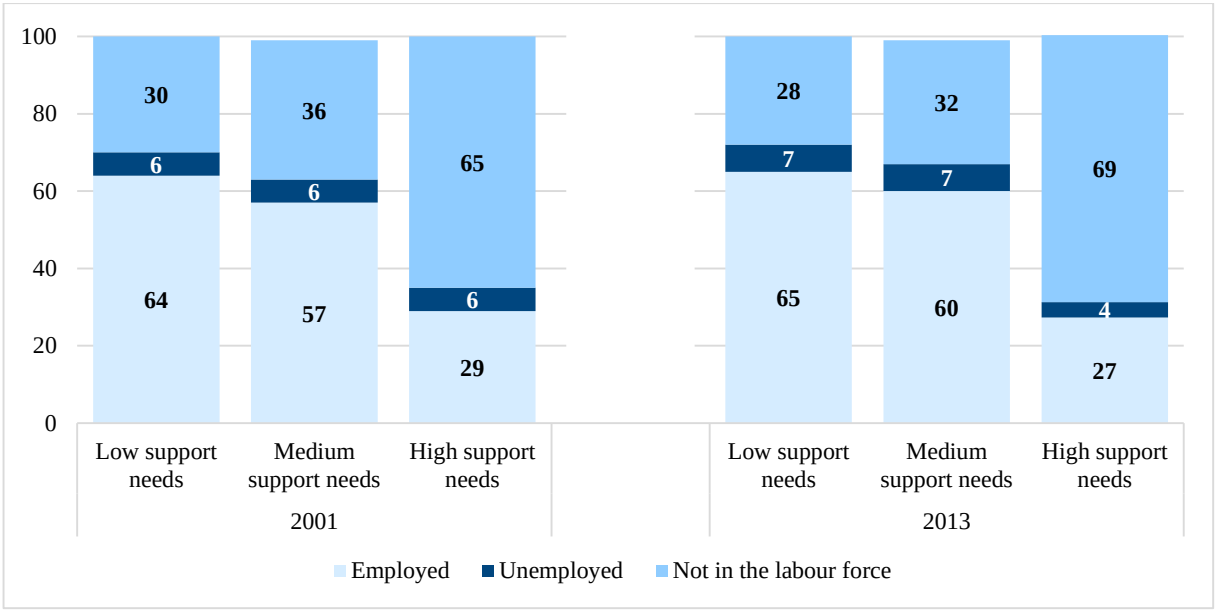
In terms of total work hours, the mean for this variable was fairly similar across the different groups in Table 15, in 2013. It appears that there was a substantial increase in vision impaired individuals working between 40-49 hours between 2006 and 2013, rising from 34% to 45%. This is in comparison to little movement in the comparable proportion of other disabled workers, and workers without a disability in this category of work hours. In fact, by 2013, vision disabled workers were marginally more likely to be working 40 hours or more (62%) relative to other disabilities (60%).

These changes could partly be explained by the decrease in the number of people with sight disabilities, in employment, working between 10 and 29 hours per week (i.e., part-time work status).

Next, it is useful to examine how labour force trends compare across different levels of support for the disabled population. As shown in existing literature (Jensen et al., 2005; Wilkins, 2003), levels of employment generally decrease as the severity of disabilities increase. Results for people with vision disabilities are presented in Figure 3, and for people with other types of disabilities in Figure 4. As outlined earlier, given the reliability concerns with the 2006 support level variable, analysis will only be carried out using 2001 and 2013 support level data.

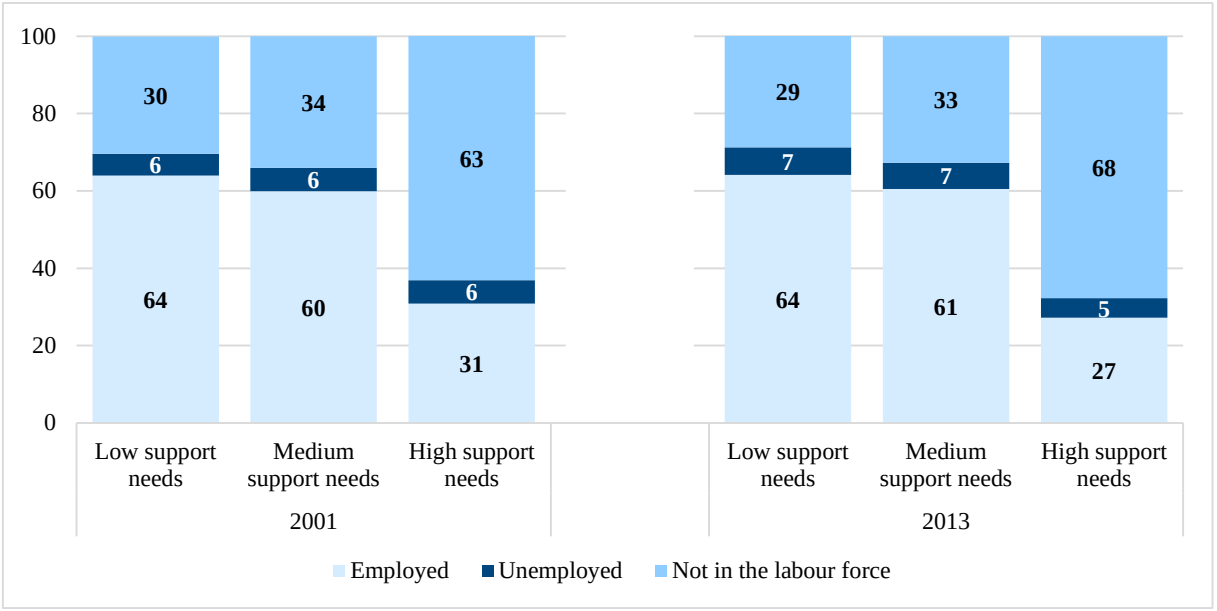
It is apparent from Figure 3 that as the level of support needs increases, the percentage of people with vision disabilities that are employed decreases, in both 2001 and 2013. Additionally, as the level of support needs increases, the percentage of people with vision disabilities out of the labour market increases. For example, in 2001, 64% of people with vision impairments who were relatively self-sufficient (i.e., have low support needs), were employed, compared to 29% of people with vision disabilities who have high support needs.

When comparing trends between Figures 3 and 4, the drop in employment probability is a relatively steady decline as we move up the support hierarchy for those with vision disabilities. In contrast, for other disability types, there is minimal reduction in employment propensity as we shift from low to medium support; and then a pronounced drop for high support individuals. The implication of these statistics, is that further research should delve into better understanding the barriers for vision impaired with medium support needs, to ensure their employment outcomes have the potential to match those for other disability types of similar levels of support needs.



Note: Source: HDS. Author's compilation.

Figure 3: Labour force status by support level, disability type - vision, 2001 and 2013



Note: Source: HDS. Author's compilation.

Figure 4: Labour force status by support level, disability type – all others, 2001 and 2013

7.4 Educational outcomes for people with vision impairments

Table 16: Educational characteristics of PwD (vision & other) and Pw/oD by survey year

Variables	Disability Type - Vision			Disability Type – All others			Pw/oD		
	01	06	13	01	06	13	01	06	13
Highest Qualification	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
No qualification	41	41	33	35	39	26	22	19	13
Certificate (Level 1-3)	32	29	32	37	28	36	41	38	36
Certificate (Level 4)	4	12	11	8	12	12	6	10	9
Diploma (Level 5-6)	14	5	7	8	8	8	11	10	10
Bachelor Degree	S	S	10	6	6	9	10	13	18
Postgraduate Degree	S	6	4	2	3	5	4	5	8
Overseas secondary school qualification	5	4	3	4	4	4	6	5	6

Notes: 'S' refers to suppressed. This indicates that the counts used to calculate the percentage were below the prescribed threshold specified by Statistics NZ.

As shown in Table 16 people with vision disabilities, as well as other types of disabilities, are more likely to have no qualification, compared to Pw/oD. For example, for both disability groups, the proportion of people with no qualification, or a Certificate (Level 1-3) qualification, accounted for between 60% and 70% of all individuals in these subgroups in each survey year.

It is difficult to ascertain exact trends in bachelor completions, given the suppressed information for vision impaired individuals in this educational category. However, given the reason for suppression in 2001 and 2006 is low count, we can speculate that those with vision impairments have experienced an increase in the proportion of individuals in this disability category that have gained bachelor level at university (with 10% earning this educational qualification in 2013).

8 Avenues for Further Research

This study has attempted to provide a descriptive portrait of PwD in terms of their demographic profile and their experiences in the labour market and educational sector when compared to Pw/oD. The outcome of this descriptive analysis has been to identify areas where further research can be conducted and provide additional, and more sophisticated, insights into disability outcomes.

One avenue which may be of interest is exploring the experiences of the older disabled population (i.e., those aged 65 years and above). This group was intentionally withheld from the analysis presented in this study due to the project aims to focus on labour market and educational outcomes. In findings not shown here, preliminary work on this front indicates that older individuals are a sizable and growing proportion of the disabled population, and they are reasonably active in the labour market. Understanding drivers of this behaviour may be of interest from a policy perspective given the ageing disabled population.

Another potential avenue for future work is to utilise the differences found when comparing the vision impaired to other disability groups, and delve further (perhaps through primary survey work) as to drivers behind these differences. For instance, why do individuals (from disabled groups other than sight) with medium support needs perform better in labour market outcomes, relative to their vision impaired counterparts?

The final suggestion for future research on this front is probably the most pressing. Equipped with a comprehensive descriptive portrait of the disabled population, future researchers should shift towards more sophisticated empirical work. For example, this study reports associations between disability and employment status. To better understand the relationship between these two variables, future work could conduct propensity score matching. This statistical technique estimates the effect of a treatment, which in this context would be a positive disability status. Utilising the 2013 data, propensity score matching would compare the disabled group (either in its entirety, or focussing on specific disability types, such as the vision impaired) with individuals without a disability, while accounting for relevant covariates. The disabled and non-disabled populations would represent a treatment and control group respectively, and individuals would be matched based on their individual and household level characteristics. Once all demographic and educational variables were controlled for, propensity score matching would illustrate whether there was any remaining difference in employment outcome between the treatment and control group; and if there is, attribute this difference in most part to disability status (as well as potential unobservables at play).

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Appendix A

Table 17: Definitions of high-level disability types

Disability Type	Definition
Sensory	• Hearing and/or vision impairments • Hearing impairments includes not being able to hear, or have difficulty hearing, what is said in conversation with one other person and/or what is said in group conversation with three or more people, even when using an assistive hearing device such as a hearing aid • Vision impairments includes having difficulty seeing or cannot see ordinary newsprint, and/or the face of someone across the room, even when wearing corrective lenses
Intellectual	• Need support or help from people or organisations • Have been to a special school or receive special education because of an intellectual disability
Psychiatric / Psychological	• Includes having a long-term emotional, psychological, or psychiatric condition that causes: ➢ Difficulty with everyday activities ➢ Difficulty communicating with others, mixing with others, or socialising
Physical	• Mobility and/or agility impairments • Mobility impairments includes having difficulty with, or being unable to do any of the following: ➢ Walk about 350m without resting ➢ Walk up or down a flight of stairs ➢ Carry an object as heavy as 5kg over a distance ➢ Move from room to room within a home ➢ Stand for a period of 20 minutes ➢ Bend down without support ➢ Get in and out of bed independently • Agility impairments includes having difficulty with, or being unable to do any of the following: ➢ Dress and undress independently ➢ Cut their own toe or fingernails ➢ Use fingers to grasp or handle things like scissors or pliers ➢ Use arms in any direction ➢ Cut their own food
Other	• Includes difficulty with speaking, learning, or memory • Speaking impairments includes having difficulty speaking or being understood • Learning impairments includes having a long-term condition or health problem that makes it hard in general for someone to learn • Memory impairments includes having a long-term condition or health problem that causes ongoing difficulty with an adult's ability to remember

Note: Source: Statistics NZ (2014). Author's compilation.