

CCSD's

# DISABILITY INFORMATION



SHEET

No. 2  
2001

This is the second Disability Information Sheet published by the Canadian Council on Social Development. In response to many information requests received by the CCSD, our first Information Sheet described the major Canadian data sources on persons with disabilities and examined some of the potential research themes that could be explored using those data sources.

This second Information Sheet also covers several frequently asked questions, but it is more technical in nature than Sheet No. 1. In this issue, we examine methodological issues surrounding a disability status variable when using longitudinal data. In the second part of this issue, we examine the relationship between this longitudinal disability status variable and employment from 1993 to 1998. In the final part, we present two tables featuring education and employment for persons with and without disabilities – an area about which we have received countless requests.

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## Methodological Issues when using Longitudinal Data: The Disability Status Variable

People used to assume that disability was a permanent state. However, evidence from longitudinal databases indicates that there is actually a fair

amount of change in disability status over time for some individuals. This was first documented using data from the 1989-90 Labour Market Activity Survey (LMAS). This longitudinal survey was one of the first data sources to identify persons with disabilities *and* survey the same individuals at different points in time.

Examining the working-age population – that is, those aged 15 to 64 – we found the following:

- 5.7% of those surveyed reported having a disability in 1989, but did not report one in 1990;
- 5.2% reported no disability in 1989, but reported one in 1990;
- 7.2% reported a disability in both 1989 and 1990;
- 81.9% reported no disability in either 1989 or 1990.

Over the two-year period covered by LMAS, disability affected about 18% of the working-age population. However, the disability rate for an individual year – either 1989 or 1990 – was just under 13%.

With six years of new longitudinal data available from the Survey of Labour and Income Dynamics (SLID), a similar “turnover phenomenon” is evident. This raises new issues in the research on disability – issues which need to be

resolved, or at least acknowledged, in order to avoid potential confusion about research results based on longitudinal databases.

In the first part of this CCSD Disability Information Sheet, we examine two such issues:

- the importance of the “don’t know” category in disability screening questions;
- how to deal with changes to disability status over time, in order to develop a longitudinal variable for disability status.

## THE IMPORTANCE OF THE “DON’T KNOW” CATEGORY:

A screening question for disability used on some databases (including the first panel of SLID) offers individuals three choices of response: “Yes,” “No,” or “Don’t know.”<sup>1</sup> When working with these data, it is common to limit the analysis to only those persons about whom you have known information – that is, those who answered either “yes” or “no.” All others are treated as “missing cases” and eliminated from the analysis. However, examining six years of SLID data suggests that the “don’t know” category should be reconsidered, particularly when dealing with the longitudinal file.

<sup>1</sup> The format of the disability screening question used by Statistics Canada has recently changed. The latest panel of SLID and other databases will use this improved question, which is likely to reduce the number of individuals who respond “Don’t know.”



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Only a very small fraction of individuals in the longitudinal file answered “don’t know” to the disability screening question in every year of the six-year period, but about 18% answered “don’t know” in at least one year. However, to exclude this 18% of the longitudinal sample poses a number of problems. First, it reduces the sample size and therefore threatens the reliability of estimates derived from the sample. Second, it may introduce a bias in that the excluded population is probably one in which individuals have experienced some degree of activity limitation, but are uncertain about the severity or longevity of their situation. This could mean that persons in the early stages of a disability or those with cyclical disabilities might be under-represented in the analysis.

Looking at the longitudinal panel from SLID for 1993 to 1998, the responses for each category for each year were as follows:

	1993	1994	1995	1996	1997	1998
Per cent “Yes” (disability)	10.1	10.0	10.0	13.7	15.1	16.3
Per cent “No” (no disability)	80.6	85.3	85.1	82.3	81.8	82.9
Per cent “Don’t know”	9.3	3.5	4.0	3.2	2.6	0.8
Per cent “missing”	0.0	1.2	0.9	0.8	0.5	0.1

(Note: Based on weighted data for all adults aged 16 and older in 1993; uses the 1998 longitudinal weight)

The “missing” category includes records that are truly missing, perhaps due to an individual’s withdrawal from the survey, difficulties in locating the individual, or even as a result of the death of the respondent.

It is important to remember that these percentages apply to a cohort of

individuals who aged six years over the survey period. Given the link between age and the onset of disability, the incidence of disability would be expected to increase somewhat during this period simply due to the aging of the cohort itself. And as shown in the table, the percentage of individuals who reported having a disability rose in the final three years of the survey period.

Over the same six-year period, the percentage of people who answered “Don’t know” decreased – from 9.3% to 0.8%. Perhaps respondents gained a better understanding of the question from one year to the next. Or perhaps those who were in the early stages of a health problem or those who had an accident required some time for a diagnosis about which they could be certain. It is also evident in the table that as the percentage who answered “Don’t know” decreased, the

percentage who responded “No” increased. This suggests that many individuals changed their response from a “Don’t know” to a “No” in a subsequent year.

In fact, an analysis of all six years of the SLID data suggests that many of the “Don’t knows” do convert to “No” at some point, but for many individuals, the situation is not quite that simple.

In some cases, people who responded “Don’t know” one year may also have reported a “Yes” in all the other years.

In other cases, the response for all other years may have been a "No." In such instances, it is reasonable to assume that the "Yes" or "No" response could be assigned for the entire six-year period.

Many individuals, however, have a more cyclical pattern of answers, with the "Don't know" responses likely representing a transition between having a disability and not having a disability, and vice versa. These individuals could be included in an analysis by assigning a disability status based on the overall pattern of their "Yes" or "No" responses.

Thus, by assuming an individual's disability status for certain years based on the pattern of their responses throughout the six-year survey period, it is possible to return many of the "Don't know" responses back into the analysis.

## CREATING A MEANINGFUL LONGITUDINAL VARIABLE FOR DISABILITY STATUS:

Another challenge when using longitudinal SLID data for persons with disabilities is how to deal with changes in disability status. Depending on the research question you are examining, a variety of options exist.

### Option #1:

One option is to include only those individuals who had a disability in all

six years. This yields a very select population of persons with disabilities for analysis and tends to exclude the following groups: individuals who have cyclical disabilities, those in the early stages of degenerative conditions, those who have had accidents or illnesses where the long-term impact is uncertain, and individuals who might have had difficulty receiving a proper diagnosis. This option also yields a much smaller sample size: 3.5% of the population on the six-year longitudinal file, when treating all responses of "Don't know" as a "No" response; or, 4.2% when assuming disability status for "Don't know" based on the pattern of responses in the remaining years.

### Option #2:

Another option is to categorize disability status on the basis of the number of years the individual reported a disability during the six-year survey interval. About 25% of the first longitudinal panel – that is, those aged 16 and older in 1993, with "Don't know" responses treated as "No" responses – reported a disability in at least one year during the survey period. To examine this option, we created a four-category variable in which all "Don't know" responses were treated as a "No." The following percentages were the result:

No disability in any year:	74.6%
Disability in 1 or 2 years:	12.1%
Disability in 3 or 4 years:	6.9%
Disability in 5 or 6 years:	6.5%

While this information can be useful when examining questions about work activity during the six-year period, the

variable doesn't capture cycles of disability, transitions, or the direction and timing of changes in disability status. Yet these can be important dimensions of a longitudinal variable for disability status, and particularly so when analyzing work patterns.

Option #3:

A third option for a potential variable attempts to characterize changes in disability status in a more dynamic way. When creating this variable, responses of "Don't know" are treated as missing cases only if the individual had more than three "Don't know" responses over the six-year survey period. For other individuals who responded "Don't know" for three or fewer years, disability status is assigned based on their pattern of "Yes" or "No" answers in the other survey years. For example, if an individual reported having no disability for five years and responded "Don't know" in one year, that individual is assumed to have had no disability over the entire interval.

Looking at the SLID data using this third option, we divide individuals according to changes in their disability status. Included in these changes are transitions from one state to another, which are sustained as well as cyclical patterns. The following percentages result:

- No disability in any year 74.6%
- Disability in all 6 years 4.2%
- Transitions (sustained change in disability status)
  - Exit (has disability, then does not have disability):

- Early exit (Respondent moves from "Yes" to "No" in first 3 years): 1.9%
- Late exit (Respondent moves from "Yes" to "No" in final 3 years): .5%
- Total with sustained exit from disability: 2.4%

- Entry (does not have disability, then has disability)
  - Early entry (Respondent moves from "No" to "Yes" in first 3 years): 3.2%
  - Late entry (Respondent moves from "No" to "Yes" in final 3 years): 3.3%
  - Total with sustained entry into disability: 6.5%

- Cycles of Disability (two or more changes in status)
  - Cycles with 3 or more years having disability: 5.3%
  - Cycles with 2 or less years having a disability: 6.9%
  - Total with cycles of disability: 12.2%

For this variable, we treat individuals who have changed from one state to the other without returning to the original state as "sustained transitions." However, we must be aware that this applies only to this six-year survey period – we might simply be picking up persons with cyclical disabilities, where the cycles are longer and therefore undetected over the six-year interval. The larger percentage of individuals entering into, rather than exiting from, a state of disability might also be due, in part, to the aging of this cohort.

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The CCSD continues to try to perfect a longitudinal variable for disability status and we hope to report on new developments in future Information

Sheets. In the next section of this Information Sheet, we present a collapsed version of this variable in an examination of employment patterns.

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## Disability and Employment Over Time

In this section, we describe an initial effort we made to examine the relationship between disability and employment over time. We used a collapsed version of the longitudinal disability status variable discussed above. Due to sample size restrictions in this particular analysis, we have reduced the longitudinal disability status variable to one which includes the following categories:

### Disability Status over Six Years:

- Persons without a disability all six years
- Persons with a disability in five or six years
- Persons with a sustained exit transition (i.e., someone who had a disability, then didn't have a disability)
- Persons with a sustained entry transition (i.e., someone who did not have a disability, then had a disability)
- Cycles of disability status (two or more changes in status) with three or four years of disability
- Cycles of disability status with one or two years of disability

From previous research (such as *In Unison 2000: Persons with Disabilities*

*in Canada*), we know that 1994 and 1995 were difficult years for persons with disabilities in the labour market. One interpretation of these findings is that the recession of the early 1990s might have had a very negative impact on persons with disabilities, even after an economic "recovery" was in progress. We asked the following questions:

- What happened to persons who entered the six-year survey period (1993 to 1998) with full-year employment?
- For people who had a job at the beginning of this interval, how many lost their full-year employment and never regained it?
- How many remained employed full-year for all six years?
- How many experienced some fluctuation of full-year work during this period?
- How did these experiences differ by disability status?

Since we are interested in employment issues, we limit our analysis to the following population:

- Persons who were of working age (16 to 64 years) for all six of the survey years (1993 to 1998)

- Persons who were not full-time students during that period
- Persons who were employed all year during 1993, whether full-time or part-time.

In order to begin to answer the questions posed above, we created an employment variable with the following categories:

### Full-year Employment during Six Years:

- (1) Early Full-year Employment Loss:
  - employed full-year in 1993, but not employed full-year from 1994 through 1998
  - employed full-year in 1993 and 1994, but not employed full-year from 1995 through 1998
  - “lost” full-year employment in either 1994 or 1995
  - once full-year employment was lost, the individual might have had part-year employment, unemployment, periods out of the labour force altogether, or some combination thereof during the rest of the survey interval. What is important is that they never worked full-year again during this period.
- (2) Middle Full-year Employment Loss:
  - employed full-year in 1993, 1994, and 1995, but not employed full-year from 1996 through 1998
  - employed full-year in 1993, 1994, 1995, and 1996, but not employed full-year from 1997 through 1998
- (3) Late Full-year Employment Loss:
  - employed full-year in 1993 through 1997, but not employed full-year in 1998
  - “lost” full-year employment in 1998
- (4) Employed Full-year All Six Years:
  - employed full-year in 1993 through 1998
  - no “loss” of full-year employment
- (5) Fluctuating Pattern of Full-year Employment:
  - employed full-year in 1993
  - “lost” full-year employment at some point after 1993, but regained full-year employment later during the survey period, after a gap in time
  - during this gap, these individuals might have worked part-year, been unemployed, or dropped out of the labour force. What is important is that they worked at least one full-year after this gap.

Table 1

Longitudinal Disability Status by  
Full-year Employment Patterns from 1993 to 1998  
Working-age Persons during 1993-1998  
Longitudinal Disability Status (1993 to 1998)

Longitudinal Labour Force Participation	Persons not disabled in all six years	Persons disabled in five or six of the years	Transitions (sustained change in disability status)		Cycles of Disability Status (not sustained changes in disability status)		Total
			Exit (has disability then does not have disability)	Entry (does not have disability, then has disability)	3 or 4 years of disability status	1 or 2 years of disability status	
Early <sup>1</sup> Full-year Employment Loss	3.5%	21.2%	--	17.6%	13.6%	8.0%	4.9%
Middle <sup>2</sup> Full-year Employment Loss	4.6%	10.0%	--	18.3%	9.2%	6.8%	5.5%
Late <sup>3</sup> Full-year Employment Loss	3.2%	--	3.4%	10.4%	--	5.0%	3.6%
Full-year Employment All Six Years	62.0%	39.6%	63.6%	43.1%	53.1%	60.7%	59.8%
Fluctuating Full-year Employment	26.6%	26.2%	21.1%	10.7%	19.7%	22.2%	26.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Number	7,135,500	136,400	126,000	369,500	160,100	478,400	8,511,000

1 - "Early" refers to respondents who lost full-year employment after either 1993 or 1994.

2 - "Middle" refers to respondents who lost full-year employment after either 1995 or 1996.

3 - "Late" refers to respondents who lost full-year employment after 1997.

-- Sample size too small to provide reliable estimate

Source: Prepared by the Canadian Council on Social Development using Statistics Canada's Survey of Labour and Income Dynamics (masterfile).

Summary:

Overall, those without a disability in any of the six years surveyed had the most success at remaining employed all year long. Among this group, 11.3% (3.5% + 4.6% + 3.2%) lost their full-year work without regaining it; 62% continued to be employed full-year all six years; and 26.6% experienced fluctuations.

Among those with a disability, people who exited or left a state of disability and those who had shorter cycles of disability (only one or two years in total with a disability) experienced the most success at remaining employed all year long: 63.6% and 60.7% respectively

continued to have a full-year job over the entire interval.

Those with a disability for five or six years during this period had the least success in hanging on to their full-year jobs from 1993: only 39.6% were employed full-time during all six years. For this group, loss of full-year employment was most likely to be experienced early – in 1994 or 1995 – with 21.2% having early loss of full-year employment without regaining it.

The impact of entering a state of disability is also evident, as those who became disabled during this period were the most likely of all to

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experience a loss of full-year work without regaining it at some point during the survey interval (early, middle, and late loss added together). This group was the least likely to experience a fluctuating pattern of full-year employment, that is, their loss of full-year work was permanent during this period.

Finally, those with longer or more frequent cycles of disability had less success at full-year employment than did those with shorter or less frequent cycles. For example, 13.6% of those with longer or more frequent cycles of disability experienced a loss of full-year

work in 1994 or 1995 (which was never regained), compared with 8% of those with shorter or less frequent cycles. As well, only 53.1% of those with longer or more frequent cycles were employed full-year for all six years, compared with 60.7% of those with shorter or less frequent cycles.

We emphasize that much work still needs to be done in perfecting both the longitudinal disability status variable and the employment variable used here. The analysis above represents an initial effort to examine these important issues.

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And now for something somewhat different:

## Disability, Education, and Labour Force Participation

Due to numerous requests received by the CCSD for information about education and labour force participation related to persons with disabilities, we present below two tables. Please note that due to space restrictions, we have presented data for 1998 only. People interested in reviewing these data for 1993 through 1998 should visit the CCSD's disability research information subsite at [www.ccsd.ca/drip](http://www.ccsd.ca/drip).

Persons with disabilities continue to have lower levels of educational attainment than their non-disabled counterparts (see Table 2). For example, working-age persons with

disabilities are about twice as likely as those without disabilities to have not completed high school (36% compared with 18.3%). As well, persons without disabilities were almost one and a half times as likely as those with disabilities to have graduated from a post-secondary institution (college or university graduate): 51.4% compared with 36.4%.

These lower levels of education among persons with disabilities have an impact on their opportunities in the labour market, as shown in Table 3. In 1998, both men and women with disabilities were much more likely to be employed all year if they were post-

Table 2

Highest Level of Education Attained, 1998  
Women and Men with and without Disabilities  
Aged 16 to 64, Not Enrolled as Full-time Students

	Highest Level of Education Attained	Gender		Total
		Male	Female	
Person with a disability	Less than high school graduate	37.9%	34.2%	36.0%
	High school graduate	25.6%	29.4%	27.5%
	Post-secondary graduate	36.5%	36.4%	36.4%
	Total	100.0%	100.0%	100.0%
	Number	827,500	857,600	1,685,100
Person without a disability	Less than high school graduate	19.3%	17.2%	18.3%
	High school graduate	29.8%	30.9%	30.3%
	Post-secondary graduate	50.9%	51.9%	51.4%
	Total	100.0%	100.0%	100.0%
	Number	6,533,800	6,608,700	13,142,500

Source: Prepared by the Canadian Council on Social Development using Statistics Canada's Survey of Labour and Income Dynamics (masterfile).

secondary graduates (51.8% for men and 41.1% for women) than if they had not completed high school (24.5% for men and 14.3% for women). Clearly, increasing educational attainment among persons with disabilities improves their chances of success in the labour market.

A similar relationship between education and employment is found among persons without disabilities (see Table 3). However, while it is clear that higher education greatly benefits persons with disabilities in the labour market, persons without disabilities experience even greater benefits. For example, 51.8% of men with disabilities who were post-secondary

graduates were employed all year in 1998; among their counterparts without disabilities, this figure was 82%. Similarly, 41.1% of women with disabilities who were post-secondary graduates were employed all year, compared with 73.9% of their non-disabled counterparts. So while education is important for persons with disabilities in the labour market, they also encounter other barriers in the labour market itself.


People interested in reviewing these data for 1993 through 1998 should visit the CCSD's disability research information subsite at [www.ccsd.ca/drip](http://www.ccsd.ca/drip). 

Table 3

Yearly Labour Force Status by Highest Level of Education Attained, 1998  
 Women and Men with and without Disabilities  
 Aged 16 to 64, Not Enrolled as Full-time Students

			Highest Level of Education Attained			Total
			Less Than High School Graduate	High School Graduate	Post-secondary Graduate	
<b>Person with a disability</b>						
Yes	Male	Employed all year	24.5%	43.1%	51.8%	39.2%
		Unemployed part or all year	4.4%	7.9%	5.5%	5.7%
		Some labour force/ Some NILF	13.1%	11.8%	12.4%	12.5%
		NILF all year	58.0%	37.2%	30.3%	42.5%
		Total	100.0%	100.0%	100.0%	100.0%
		Number	313,600	212,200	301,700	827,500
	Female	Employed all year	14.3%	28.0%	41.1%	28.1%
		Unemployed part or all year	5.2%	5.5%	5.7%	5.5%
		Some labour force/ Some NILF	7.3%	16.9%	13.3%	12.3%
		NILF all year	73.3%	49.5%	40.0%	54.2%
		Total	100.0%	100.0%	100.0%	100.0%
		Number	293,400	251,700	312,500	857,600
<b>Person without a disability</b>						
No	Male	Employed all year	64.5%	77.8%	82.0%	77.4%
		Unemployed part or all year	5.1%	2.5%	1.6%	2.5%
		Some labour force/ Some NILF	21.7%	16.3%	13.3%	15.8%
		NILF all year	8.7%	3.4%	3.1%	4.3%
		Total	100.0%	100.0%	100.0%	100.0%
		Number	1,262,600	1,946,200	3,325,100	6,533,800
	Female	Employed all year	40.1%	63.2%	73.9%	64.8%
		Unemployed part or all year	5.6%	3.8%	2.3%	3.3%
		Some labour force/ Some NILF	15.9%	15.6%	13.5%	14.5%
		NILF all year	38.4%	17.4%	10.3%	17.3%
		Total	100.0%	100.0%	100.0%	100.0%
		Number	1,137,100	2,039,800	3,431,800	6,608,700

Note: NILF indicates that respondent was not in the labour force.

Source: Prepared by the Canadian Council on Social Development using Statistics Canada's Survey of Labour and Income Dynamics (masterfile).

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## DISABILITY INFORMATION WEBSITE

The CCSD has created a new subsite on our website in order to provide centralized access to all of our disability-related resources. Our objective is to make this subsite – called the Disability Research Information Page (DRIP) – as accessible as possible to people with disabilities. Materials in the subsite will be available in both English and French.

Wherever possible, *Web Content Accessibility Guidelines* have been adhered to in the design and creation of the site. Whenever possible, materials will be presented in various formats (for example, HTML and PDF), so that a variety of choices will be available to all users. We believe that clarity of content, simplicity of design, structural integrity and ease of navigation are essential elements of any good website, and they provide benefits to all users, especially those with disabilities. Similarly, providing alternate ways of accessing information will prove useful to people with and without disabilities.

Users of the website are encouraged to provide us with feedback on our progress towards our website accessibility objectives. Users have the option of providing their feedback using a web survey form, or via e-mail or by telephone. See the box on page 2 for all the CCSD's coordinates.

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*We hope you will find this Information Sheet useful in your work, but we need to know. So please give us your feedback on what you like – or don't like – about anything here: the topics chosen, the ways in which the information is presented, the language used, anything at all.*

*To do so, you can send us a letter or an e-mail at the coordinates on page 2. Or you can log onto our website at [www.ccsd.ca/drip](http://www.ccsd.ca/drip) and provide your feedback directly on-line.*