



2001 PALS (PARTICIPATION & ACTIVITY LIMITATION SURVEY) RESULTS: WAGE GAPS DUE TO DISABILITY

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Many legal counsel are familiar with the 1991 HALS (*Health & Activity Limitation Survey*) results we have used in our reports to assess wage gaps for people due to motor vehicle accidents. These gaps have been assessed at 10, 18 or 25% for men based on mild, moderate or severe disability, respectively; and reduced labour force participation of 7, 10 or 17% for women for the same severity categories as for men. These wage gaps offer ideal statistical support in cases where the impairment of injury will occur sometime in the future in terms of the impact on earnings, but is not explicitly manifesting itself at the date of incident or a few years thereafter. The impact of the person's impairment may be obscured by an increase in economic activity in the person's industry (leading to opportunities for overtime work) or an expansion of the person's business that would have occurred anyway, and the loss is amongst the cost of replacement workers. These wage gaps are also ideal for cases in which "loss of opportunity" or "loss of chance" has to be assessed but it may occur in the future either because the minor child or adult has not yet entered the labour force or the true impact of the injury may only come with age.

Brown Economic undertook to analyze the 1991 HALS data between 1996 and 2000, culminating in published results in *Damages: Estimating Pecuniary Loss* loose-leaf (Aurora, Ontario: Canada Law Book), 2005 release pending (see section 5.2.a.iv). This involved purchasing the 1991 HALS micro data tape from Statistics Canada for \$3000 and analyzing 91,355 records to ensure there were no missing data in the observations used, and that the demographic variables (age, income,

occupation, residence) were appropriate to do the regression analysis on the observations. Regression analysis¹ was subsequently undertaken to ascertain wage gaps or reduced labour force participation, controlling for other factors that determine income levels apart from the potential impact of disability. Problems due to self-selection bias were addressed using the

¹ The study of the dependence of one variable, the *dependent variable* (in this case, wages), on one or more other variables, the *explanatory variables* (in this case, age, education, occupation, gender, geography, and severity of disability), with a view to estimating and or predicting the (population) mean or average value of the former in terms of the known or fixed (in repeated sampling) values of the latter.

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Heckman correction method. This analysis is far different from simply calculating average income levels for the disabled and non-disabled, and attributing the difference in wages (if any) to disability: a method which overstates potential wage gaps due to disability, because it does not control for other factors determining wages and assumes that all of the gap that exists (if any) is attributable to disability alone, rather than differences in gender, age, education, occupation, place of residence, etc.

Since 2004, Brown Economic has undertaken analysis of the 2001 PALS data, purchasing the micro data tape again for \$3000. The PALS was carried out by Statistics Canada in the fall of 2001.² Brown Economic will publish the results in the 2005 pending release of *Damages* but also submit the results for publication in an economic journal. In this edition of the *Economics Editor* and the next, we publish some of the highlights of our findings.

2001 PALS results

In 2001, 14.6 percent of Canadians aged 15 years and older reported some level of disability.³ Of the 3.4 million disabled adults, over 2.5 million individuals, or 71.7% of disabled adults, reported a disability involving mobility. With such large numbers, understanding the relationship between a disability and labour market outcomes becomes important to both the policy makers who design, manage and investigate reforms for income support programs for the disabled. In addition, proposals for policies to integrate disabled Canadians into the workforce are being proposed to help offset the expected contraction in labour supply associated with an ageing Canadian population need basic information on the determinants of labour supply of the disabled.

The original PALS sample consisted of 43,276 individuals, including 35,424 adults and 7,853 children. The PALS response rate was 82.5%, similar to the HALS response rate of 87%. In order to ensure the non-disclosure of confidential information, the level of the public use micro data file (PUMF) for the PALS data-set

² Statistics Canada changed the PALS survey from the HALS surveys in three significant ways: the 2001 PALS uses new census disability filter questions to identify its population (it is more inclusive); those who answered "no" to the disability filter questions were excluded in the PALS survey; and the PALS survey questionnaire content included new screening questions related to the identification of the types and severity of activity limitations, particularly identification of the non-physical disabilities. One of the main outcomes of the PALS approach was to identify the severity categories into 4 (mild, moderate, severe and very severe) compared to the HALS approach of mild, moderate and severe categories. (Source: Statistics Canada, *A New Approach to Disability Data: Changes between the 1991 Health and Activity Limitation Survey (HALS) and the 2001 Participation and Activity Limitation Survey (PALS)*, catalogue no. 89-578-XIE, December 2002).

³ Statistics Canada, *Participation and Activity Limitation Survey: A Profile of Disability in Canada* (Ottawa: Statistics Canada, December 3, 2002). This prevalence seems to be stable as Hum and Simpson (1996, 285) report that 12.9% of the population aged 15-64 reported some form of disability in 1991.

was reduced to 20,710 disabled individuals and combined with data for 55,550 non-disabled individuals randomly drawn from the 2001 Census resulting in a data set representing 76,260 individuals. Our sample sizes are 24,392 females and 24,085 males, similar to the 1991 HALS sample sizes. 23.32% of the 24,329 females (5,687) and 5,183 or 21.52% of the male sample reported having a disability. The sample of disabled individuals consists of the respondents who answered “yes” to either question 7 or 8 in the 2001 Census (form 2B), which identify persons with disabilities.

As part of BEC’s ongoing research and development, we examine the impact that a disability on the employment income and labour force participation of Canadian men and women using data from the *Participation and Activity Limitation Survey: A Profile of Disability in Canada (2001)*. Our estimates show large earnings penalties associated with disability ranging from 21 percent for mild disabilities to over 50 percent for very severe disabilities. We also find that disability is associated with a 30-percentage point reduction in labour force participation. We find no difference in the impact of disability between males and females relative to their comparator non-disabled group. Relative to previous studies of the impact of disability, our estimates for more severe disability are comparable but our estimates of the impact of milder disabilities are substantially and significantly larger. This difference likely reflects improvements in the PALS design over previous surveys like the HALS and LMAS in accurately identifying mild disability versus non-disability.

When we correct for sample selection bias in the Heckman regression we find that women who indicated that their level of disability was mild earned -21% less income in 2000 than those non-disabled women to -29% for moderately disabled women, to -40% for severely disabled women, and -57% for women in the very severe category. When we do control for selection bias the loss in income associated with different severity levels for men the loss in income ranged from -15% for the mild cases, -23% for the moderately disabled, -33% for the severely disabled, to -49% for the most severe cases. All rates were statistically significant. Similarly, labour force participation for men was reduced by -19%, -27%, and -48% for mild, moderate and severe categories; the percentages for women were -14%, -23% and -40%.

See the July 2005 issue of *The Economics Editor* for more PALS results.

UPDATING NON-PECUNIARY AWARDS FOR INFLATION (MAY 2005, CANADA)

Year of Accident/ Year of Settlement or Trial	"Inflationary" Factors*	Non-Pecuniary Damages - Sample Awards				
		\$10,000	\$25,000	\$50,000	\$75,000	\$100,000
May 2004-May 2005	1.021	\$10,211	\$25,528	\$51,057	\$76,585	\$102,114
Avg. 2003-May 2005	1.027	\$10,270	\$25,675	\$51,349	\$77,024	\$102,698
Avg. 2002-May 2005	1.055	\$10,552	\$26,380	\$52,760	\$79,140	\$105,520
Avg. 2001-May 2005	1.079	\$10,790	\$26,976	\$53,952	\$80,928	\$107,904
Avg. 2000-May 2005	1.107	\$11,066	\$27,665	\$55,330	\$82,996	\$110,661
Avg. 1999-May 2005	1.137	\$11,367	\$28,416	\$56,833	\$85,249	\$113,665
Avg. 1998-May 2005	1.157	\$11,565	\$28,913	\$57,827	\$86,740	\$115,654
Avg. 1997-May 2005	1.167	\$11,673	\$29,182	\$58,364	\$87,546	\$116,729
Avg. 1996-May 2005	1.186	\$11,860	\$29,651	\$59,301	\$88,952	\$118,602
Avg. 1995-May 2005	1.205	\$12,054	\$30,134	\$60,269	\$90,403	\$120,537
Avg. 1994-May 2005	1.231	\$12,314	\$30,784	\$61,569	\$92,353	\$123,137
Avg. 1993-May 2005	1.234	\$12,338	\$30,845	\$61,690	\$92,534	\$123,379
Avg. 1992-May 2005	1.256	\$12,560	\$31,400	\$62,800	\$94,200	\$125,600
Avg. 1991-May 2005	1.275	\$12,751	\$31,878	\$63,756	\$95,635	\$127,513
Avg. 1990-May 2005	1.346	\$13,462	\$33,655	\$67,310	\$100,965	\$134,620
Avg. 1989-May 2005	1.411	\$14,112	\$35,281	\$70,562	\$105,843	\$141,124
Avg. 1988-May 2005	1.481	\$14,811	\$37,028	\$74,057	\$111,085	\$148,113
Avg. 1987-May 2005	1.541	\$15,411	\$38,528	\$77,055	\$115,583	\$154,110
Avg. 1986-May 2005	1.608	\$16,082	\$40,205	\$80,410	\$120,615	\$160,819
Avg. 1985-May 2005	1.675	\$16,747	\$41,867	\$83,733	\$125,600	\$167,467
Avg. 1984-May 2005	1.742	\$17,420	\$43,551	\$87,101	\$130,652	\$174,202
Avg. 1983-May 2005	1.818	\$18,177	\$45,441	\$90,883	\$136,324	\$181,766
Avg. 1982-May 2005	1.923	\$19,234	\$48,086	\$96,172	\$144,257	\$192,343
Avg. 1981-May 2005	2.132	\$21,324	\$53,311	\$106,621	\$159,932	\$213,243
Avg. 1980-May 2005	2.394	\$23,943	\$59,856	\$119,713	\$179,569	\$239,425
Avg. 1979-May 2005	2.638	\$26,376	\$65,940	\$131,880	\$197,820	\$263,760
Jan. 1978-May 2005	3.007	\$30,074	\$75,184	\$150,368	\$225,552	\$300,736

\$77,055 = \$50,000 x 1.541 represents the dollar equivalent in May 2005 of \$50,000 based on inflation increases since 1987. Similarly, \$300,736 (= \$100,000 x 3.007) represents the dollar equivalent in May 2005 of \$100,000 in 1978 based on inflationary increases since 1978.

* Source: Statistics Canada, Consumer Price Index, monthly CPI release

Consumer Price Index		Unemployment Rate	
From May 2004 to May 2005* (rates of inflation)		For the month of May 2005	
Canada:	2.1%	Canada:	6.8%
Vancouver:	2.2%	Vancouver:	6.1%
Toronto:	1.6%	Toronto:	7.5%
Edmonton:	1.6%	Edmonton:	4.3%
Calgary:	1.9%	Calgary:	3.4%
Halifax:	2.4%	Halifax:	5.9%
St. John's, NF:	2.6%	St. John's, NF:	9.4%
Saint John, NB:	2.1%	Saint John, NB:	6.0%
Charlottetown:	2.8%	Charlottetown:	10.8%

* Based on 12-month rolling average. Source: Statistics Canada

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