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Comparing integration and inclusion between Canadians and Americans with disabilities: Evidence from national surveys of time use

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Abstract: As Canada moves toward the passage of a federal statute assuring access and inclusion for disabled persons, inevitable comparisons arise between the statutory environments for people with disabilities in Canada and the USA. In previous research, we have used daily time use as a macro indicator of the degree of integration of people with disabilities into the wider society. If statutory protection of disabled persons is effective, activity participation should be similar between persons with and without disabilities in jurisdictions that are favorable to full participation. This paper provides the analysis of national survey data on time use in the United States and Canada for 2010. It shows that the dissimilarity of time use by persons with and without disabilities is smaller for Canadians than for Americans. This finding shows that disabled Canadians are more integrated into their wider society than disabled Americans. Paid work is one activity where Canadians and Americans with and without disabilities are most dissimilar. Regression analysis of time spent in paid work indicates that, with demographic and economic descriptors held constant, the American residency does not promote an advantage in paid work which is a key indicator of integration. This casts doubt on the effectiveness of statutory protections for persons with disabilities.

Keywords: disability statutes, integration, activity patterns, disabled people, time use, disability policy evaluation (5600 words excluding abstract)

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1. Introduction

The Government of Canada has recently undertaken extensive public consultations toward the development of Bill C-81: An act to ensure a barrier-free Canada. The bill was designed to "promote equality of opportunity and increase inclusion and participation of Canadians who have disabilities or functional limitations." (Employment and Social Development Canada, 2016). Although the Minister for Public Services, Procurement and Accessibility, the Honourable Carla Qualtrough, has been clear that the new bill is not simply a Canadian version of the Americans with Disabilities Act (ADA; 1990; 2008), there are inevitable comparisons with the situation in the U.S.A. The ADA makes it illegal to engage in civic or corporate discrimination on the basis of disability in the areas of employment, public services, public accommodations, telecommunications and miscellaneous. It characterizes disabled people as a discrete minority group, and takes a human rights approach. Other Western countries have followed suit with similar disability discrimination protections, particularly the UK and Australia.

In Canada, multiple levels of rights protections are already in place - the Charter of Rights and Freedoms,1982; Canadian Human Rights Act, 1977; Employment Equity Act,1995; and provincial/ territorial human rights acts and labour codes. In addition, Canada has committed to

signing the Optional Protocol of the United Nations Convention on the Rights of Persons with Disabilities. The Protocol recognizes the authority of the UN Committee on the Rights of Persons with Disabilities to hear complaints against states parties. Instead of adding further anti-discrimination legislation, Bill C-81 proposes a structural approach to accessibility that dovetails with the existing statutory environment. It responds to the issues and barriers enumerated by Canadians with disabilities in the national consultations that have taken place of the past year.

The idea of federal disability legislation has by no means been universally supported. According to Prince (2010), there are three camps of responses to the idea. One group supports the proposal whole-heartedly, believing that for both real and symbolic reasons, the enactment of federal disability legislation will galvanize the disability community, and provide the impetus to correct some of the slippage that has been perceived in disability policy in recent years (Boyce et al., 2001; McColl & Jongbloed, 2006).

A second group expresses ambivalence toward the idea of federal disability legislation. They recognize the potential benefits, but also the possible pitfalls of an overarching legislative response to the multi-dimensional, multi-sectoral problems experienced by the heterogeneous community of disabled people. They advocate for a highly consultative process to ensure appropriate considerations and representation.

A third group opposes a federal disability act, believing that the effects will at best be negligible, and at worst detrimental. Some believe that the existing legislative framework provides all the safeguards and provisions necessary. Others fear that such an initiative would be nothing but window-dressing, and would distract attention from a programmatic approach to the persistent and pressing problems of the most disadvantaged disabled people.

A persistent challenge for disability policy is the lack of empirical evidence to form a sound evidence base upon which to build. In its absence, ideological tensions have made it difficult for policy-makers to relate to the disability community and to achieve consensus on the needs of people with disabilities (Joiner, 2006; Prince, 2004, 2006). Furthermore, debate is often highly polarized, and inflamed by the rhetoric of rights (Bickenbach, 2006). A number of areas exist where there are strong disagreements about how disabled citizens should be viewed, what they need, and how they can be best served by governments in Canada (McColl & Jongbloed, 2006). Any fractiousness within the community permits the government to do nothing until a clear policy direction emerges with some support and momentum.

Several authors have called for an empirical approach to disability policy, using a macro-level composite index of social inclusion (Prince, 2009; Simplican et al, 2015). Such an index would operate at the population level, reflect the participation of all disabled people, and encompass variations in their needs and circumstances. It would enhance the ability of government and advocates to track and evaluate the impact of policy and program activity.

Our previous research has proposed a *time use dissimilarity index* as such an indicator (Wilson et al, 2017). The dissimilarity index represents the proportion of total time that is spent differently between two populations; alternately, it is the proportion of time that would have to be reallocated in order to produce identical time use profiles. The index reflects the extent to which time allocated to various activities differs between disabled and non-disabled sectors of the population. It is based on the proposition that similarity of time use reflects similarity in access to resources and opportunities. To the extent that public policy is designed to create equal opportunity and access to goods and services, the outcomes of disability policy can be judged on the extent to which time use is similar between disabled and non-disabled sectors of the

population. Greater similarity between disabled and non-disabled populations is representative of greater integration. Given the similarity of many aspects of culture, geography and economic development of the United States and Canada, we argue that differences in time use of disabled people in the two countries can be at least partially attributed to the differences in the policy environment.

We have shown that time use currently differs significantly between disabled and non-disabled adults in Canada for a number of important activities: paid work (disabled average 131 minutes per day vs. non-disabled 210 minutes per day), family responsibilities (19 vs. 30 min.), education (16 vs. 36 min.) and TV/computer time (199 vs. 145 min.). On a more hopeful note, disabled and non-disabled samples have begun to converge in time use in the decades between 1992 and 2010 (Wilson et al, 2017).

In this study, we use the *time use dissimilarity index* to explore the (dis)similarity in time use between disabled people in Canada and the US and as an indicator of the relative effects of the policy environments in both countries. As Canadians contemplate the form and content of national disability legislation, this study compares the experience of people with disabilities in Canada (under the existing statutory infrastructure) with their counterparts in the United States, 30 years after the institution of the ADA.

The specific objectives are:

1. to compare time use among disabled and non-disabled populations in Canada and the United States, with respect to 18 activities of daily living;
2. to assess the mediating impact of gender on time use;
3. to examine the relative effect of country (Canada vs USA) on time allocation to paid work which is one of the key indicators of social inclusion and opportunity.

2. Method

Design

This study is a retrospective secondary analysis of national survey data. It is a cross-sectional comparison of disabled vs. non-disabled sectors of the population on time use. National time use survey data in both countries in 2010 provides an opportunity to undertake this comparison.

Data

The data for the present study came from two 2010 time use surveys:

- the General Social Survey on Time Use (Statistics Canada, 2011). The GSS obtains one-day diaries from persons 15 years and older, living in private residences. Children, residents of Canada's northern territories and persons living in institutions are omitted.
- the American Time Use Survey (U.S. Bureau of Labor Statistics, 2017). The ATUS obtains diaries from Americans aged 15 and older in private households, excluding military and institutional populations.

(a) Disability

Statistics Canada has employed a number of definitions of disability, the most recent being based on an assessment of impairment type and activity limitations (Grondin, 2016). This procedure was employed in the 2012 Canadian Survey on Disability (CSD) and subsequently in the GSS and other survey programs. Impairments include hearing, seeing, walking or climbing stairs, reaching or grasping or bending, communicating, and dealing with cognitive and psychological conditions. Activity limitations refer to the degree of restriction at home, at work, or at other places. The American ATUS defines disability as difficulty dressing, bathing, hearing, seeing, doing outside errands alone, walking,

concentrating or remembering. The prevalence of disability in the Canada based on the GSS public file is estimated at 20%, which is higher than the reported rate from the 2012 CSD of 13.7 percent (Statistics Canada, 2013). Disability prevalence in the ATUS was 9.3 percent.

Grondin describes a number of validity tests that Statistics Canada performed on various disability definitions from 2008 to 2012, including one based on work of the Washington Group on Disability Statistics (2001). She concludes that hearing, seeing, walking and dexterity impairments were relatively well understood by respondents and were conceptually consistent between Canadian and American surveys. Limiting the disability definition to any of these four conditions results in prevalence rates of 15.2% in Canada and 7.8% in the U.S. This definition gives results more consistent with the prevalence rate of the Canadian Survey on Disability (see Table 1).

Table 1. Sample size and population characteristics, 2010, by disability status

	Canada		United States	
Sample counts	No disability	Disability	No disability	Disability
Total	12,494	2,896	11,981	1,279
Female	6,911	1,778	6,663	784
Male	5,583	1,118	5,318	495
Population distribution by characteristic (weighted sample)				
Estimated population	23,437,289	4,204,006	222,948,562	18,964,918
Sex				
Female	49.4 %	57.1 %	51.3 %	54.5 %
Male	50.6%	42.9%	48.7%	45.5%
Age group				
15 to 44	54.9%	21.9%	53.9%	15.1%
45 to 64	32.7	41.9	32.8	37.1

>= 65	12.4	36.2	13.3	47.8
Main activity				
Labour force	59.7%	33.9%	72.9%	22.6%
Student	10.8	2.4	na	na
Other not in LF	29.5	63.8	na	na
Some post-secondary education	70.8%	57.3%	53.7%	40.0%
Mean income (CAD 2010)	$ 89,054	$ 65,577	$ 67,857	$ 39,857

Currently, no indicator of severity is available on the data file. Statistics Canada expended considerable effort to refine the screening questions for disability, so that type of impairment and severity of disability are available on the 2012 Canadian Survey on Disability, as well as the 2015 GSS time use cycle and other surveys. These indicators will permit future research to examine groups within the disabled community that are being served most effectively by current programs and those which are not. Improved indicators may also permit more ambitious international comparisons of daily activities.

(b) Time use

Time use is measured using a time diary approach; that is, minutes per person per day allocated to a pre-determined set of 18 activities (see Table 2) used in previous research (Wilson et al, 2017). The total number of minutes in a day is 1440 and their distribution among activities is called a time budget.

(c) Demographic variables

In the regression analysis of paid work time which follows, we employ a number of descriptive variables to isolate the effects of disability and country:

- Country, disability status, gender, weekday indicator, post-secondary education, living with a partner, and managerial/professional occupation are all treated as binary variables.
- Age and number of children are measured as continuous variables.
- Age squared was also used to allow for the possibility of a non-linear relationship between age and work time. Both young people in full time education and retired persons work very little. Paid work time tends to rise with age then to fall as retirement approaches but does not reach zero even in the oldest cohorts.
- State and provincial unemployment rates are available from statistical agencies and were matched to the time use files to capture geographic variations in employment. Unemployment in 2010 in Canada was 8.1 percent and in the United States was 9.6 percent.
- We used high income occupation as a proxy for the influence of income on work participation to avoid simultaneous equation bias.

Sample demographics

Table 1 gave the estimated Canadian and American populations by disability status and demographic characteristics. The ratios of women to men in Canada and the U.S. are within 1%, but in Canada women constitute almost 3% more of the disabled population than in the U.S. The age structure of disabled population is markedly different. In Canada 64% of disabled persons are under 65 years old and 36% are over 65. In the United States, only 52% are under 65 and 48% are over 65. In other words, the disabled population in the US is older on average than in Canada.

Labour force participation rates are similar for all persons at about 65%, but are notably higher among disabled persons in Canada (34% vs. 23%). Post-secondary educational attainment was also notably higher in Canada for both disabled persons and those without disabilities (71% in Canada vs 54% in the US for non-disabled; 57% in Canada vs 40% in the U.S for disabled).

Analysis

Objective #1 & 2: Comparison of time use between disabled and non-disabled, Canada and US, controlling for the effect of gender.

After weighting the two samples to account for sampling variations, population means for time use were compared between disabled and non-disabled sectors of the population, and between countries. Sample sizes in national surveys are so large that all but very small time differences are statistically significantly in most difference of means tests. This poses reporting problems of avoiding trivial differences and of extracting substantive conclusions from the data.

Dissimilarity indices offer a macro-measure of distributional differences. Stewart (2006) examined several indices applicable to time use data and concluded that the weighted absolute deviation index was both robust and readily interpretable. It reports the proportion of total available time that would have to be reassigned to equate two time budgets. The formula for the dissimilarity index between time budgets a and b is:

$$T = \sum_i \text{abs}(a_i - b_i) / 2880$$

where abs( ) is the absolute value of the expression in parentheses and the summation is over all activities, i = 1 … n. A value of, for example, 0.2 indicates that 20% of the total time of the two samples (2880 minutes) would have to be reallocated in order to equalize the two time budgets.

Objective #3: Factors affecting time allocated to work:

Paid work is one of the most important dimensions of integration and is a clear measure of participation; as such, it is also a public policy objective. To explore the effect of disability and country of residence on paid work, we regressed time spent on work against the descriptive

variables discussed above. An interaction term was created for country and disability status, namely Canada-Disabled, Canada-Not Disabled, US-Disabled. US-Not Disabled was used as the comparator term.

Published weights inflate the sample sizes and exaggerate statistical significance. Our solution was to normalize the two national samples separately by the national mean weight (Thompson, 2008). The Canada and U.S. sample counts are then correct in a pooled data file and significance tests are based on actual sample sizes.

3. Results

Comparing time use between disabled and non-disabled people in Canada and the US

Table 2 gives the time budgets for Canada and for the United States in 2010 by disability status. Eight activities comprise the bulk of time use for both Canadians and Americans: sleep, screen time (TV or computer), paid work, light housework, personal care, eating, social leisure, and travel. These 8 activities account for 1250 minutes per day (20.8 hours, or 12.2 excluding sleep) among Canadians with disabilities, and 1253.7 minutes (20.9 hours, or 11.6 excluding sleep) among Americans with disabilities.

While the major time-using activities are the same for disabled people in Canada and the U.S., differences of more than 20 minutes occur for a number of activities (see shaded entries):

- Disabled Canadians spend 69 minutes more than disabled Americans in paid work, and 28 minutes more in social leisure;
- Disabled Americans spend 79 minutes more than disabled Canadians using TV and computers, and 39 minutes more sleeping;
- Canadians have 22 fewer minutes in unreported time.

The Dissimilarity Index between disabled and non- disabled was 10 % for Canada and 15.8 % for the U.S. The daily routines of disabled Canadians resemble those of non-disabled Canadians more closely than the same comparison in the United States.

Table 2. Time budgets, 2010, for Canada and the United States, by disability status (minutes)

Activity	Canada		United States		(Canada–US)
	Not disabled	Disabled	Not disabled	Disabled	
Screen (TV, computer)	146.5	198.3	170.5	276.8	**-78.5**
Sleeping	501.5	516.9	516.9	556.0	**-38.9**
Unreported time	1	1.1	18.1	23	**-21.9**
Personal care	71.3	97.5	71	109.8	-12.3
Passive leisure	21.7	34.9	22.2	45.6	-10.7
Waiting	1.6	1.6	2.9	2.7	-1.1
Light housework	84.1	102	86.4	98.7	3.3
Adult family care	2.5	4.4	1.2	1	3.4
Shopping & services	30.9	32.6	27.7	28.1	4.5
Civic, voluntary	16.1	19.5	17.3	15	4.5
Child care	27.4	14.5	25	9.6	4.9
Active leisure	38.5	36.6	33.1	31.5	5.1
Heavy housework	27.2	32.4	23.8	25.3	7.1
Education	34.8	12.4	28.6	4.6	7.8
Eating	73.2	80.2	67.5	68.0	12.2
Travel	76.9	60.5	73.6	46.8	13.7
Social leisure	78.4	73.8	49.1	46	**27.8**
Paid work	206.3	120.9	205	51.6	**69.3**

Note. Activity ordered by disabled difference, (Canada - U.S.). Differences of 20 minutes or more shown in bold.

Comparing disabled men in Canada and the US

Table 3 gives the time budgets for men by country and disability status.

Disabled Canadian men differ by more than 20 minutes from non-disabled Canadian men on only four activities:

- Disabled Canadian men spend 61 minutes more than their non-disabled counterparts on screen time (TV & computer), and 32 minutes more on personal care.
- To compensate they spend 103 minutes less on paid work and 21 minutes less on education.

Disabled American men differ from non-disabled by more than 20 minutes on 7 activities:

- American disabled men spend 120 minutes (2 hours) more on screens, 39 minutes more sleeping, 36 minutes more on personal care and 25 minutes more on passive leisure.
- Disabled American men spend 172 minutes (almost 3 hours) less on paid work, 26 minutes less travelling and 23 minutes less on education.

Directly comparing disabled men in Canada and the US,

- Disabled Canadian men spent 72 more minutes in paid work and 23 more minutes in social activities than disabled American men;
- Disabled Canadian men spent 76 less minutes in front of screens (TV/computer) and 39 less minutes sleeping than disabled American men.

Table 3. Men's Time budgets, 2010, by country and disability status (minutes)

Activity	Canada			USA			Disabled
	Not disabled	Disabled	(D – ND)*	Not disabled	Disabled	(D – ND)	(Can – US)
			Men				
TV, computer	165.7	226.5	**60.8**	182.8	302.9	**120.1**	**- 76.4**
Personal care	64.9	96.7	**31.8**	63.1	99.2	**36.1**	- 2.5
Sleeping	495.6	511.8	16.2	510.9	550.5	**39.6**	**- 38.7**
Passive leisure	19.8	33.5	13.7	20.6	45.6	**25.0**	- 12.1
Social	73.9	66.2	- 7.7	48	43.7	- 4.3	**22.5**
Travel	79.7	62.8	- 16.9	75.4	49.2	**- 26.2**	13.6
Education	32.8	11.4	**- 21.4**	28.1	4.9	**- 23.2**	6.5
Paid work	239.3	136.3	**- 103.0**	237.2	64.7	**- 172.5**	**71.6**

* Activity ordered by Canada disabled/not disabled difference. Only differences of 20 minutes or more shown, in bold.

Using the Dissimilarity Index, Canadian disabled men were 11.2 % dissimilar from men without disabilities, while American disabled men were 15 % dissimilar from American non-disabled men. In direct comparison between disabled men in both countries, Canadian disabled men were 10.6% dissimilar from American disabled men.

Comparing disabled women in Canada and the US

Table 4 gives time budgets for women.

Disabled Canadian women differ by more than 20 minutes from non-disabled Canadian women on only three activities:

- Disabled Canadian women spend 50 minutes more than their non-disabled counterparts on screen time (TV & computer).
- Disabled Canadian women spend 103 minutes less than non-disabled women on paid work, and 21 minutes less on education.

Disabled American women differ from non-disabled by more than 20 minutes on 8 activities:

- American disabled women spend 96 minutes more on screens, 38 minutes more sleeping, 40 minutes more on personal care, and 22 minutes more on passive leisure.
- Disabled American women spend 124 minutes (2 hours) less on paid work, 27 minutes less travelling, 25 minutes less on education, and 21 minutes less on child care than American women without disabilities.

Directly comparing disabled women in Canada and the US,

- Disabled Canadian women spent 32 more minutes socializing and 69 more minutes in paid work than disabled American women;
- Disabled Canadian women spent 78 less minutes on screens (TV/computer), 40 minutes less sleeping and 20 less on personal care than disabled American women.

Table 4. Women's Time budgets, 2010, by country and disability status (minutes)

	Canada			USA			(Can – US)
Activity	Not disabled	Disabled	(D – ND)*	Not disabled	Disabled	(D – ND)	Disabled
TV, computer	127.0	177.2	**50.2**	158.8	255	**96.2**	**- 77.8**
Sleeping	507.5	520.7	13.2	522.5	560.5	**38.0**	**-40.2**

Passive leisure	23.7	35.9	12.2	23.7	45.7	**22.0**	- 9.8
Personal care	77.9	98.1	11.2	78.5	118.6	**40.1**	**- 20.5**
Unreported time	0.8	1	0.2	18.8	24.9	6.1	**- 23.9**
Social	83	79.5	- 3.5	50.1	47.8	- 2.3	**31.7**
Travel	74.1	58.7	- 15.4	71.9	44.8	**- 27.1**	13.9
Child care	37.4	20.2	- 17.2	33.7	12.9	**- 20.8**	7.3
Education	36.8	13.2	**- 23.6**	29	4.3	**- 24.7**	8.9
Paid work	172.6	109.3	**- 63.3**	174.5	40.6	**- 123.9**	**68.7**

* Activity ordered by Canada disabled/not disabled difference. Only differences of 20 minutes or more shown, in bold.

Using the Dissimilarity Index, Canadian women were 8.8 % dissimilar from Canadian non-disabled women, while American disabled women were 17.2 % dissimilar from American non-disabled women. Canadian disabled women were 12.1% dissimilar from American disabled women. This is almost 15 percent greater than the dissimilarity between disabled American and Canadian men.

Regression analysis of paid work

Table 5 gives the regression coefficients and standard errors for the pooled regression analyses of paid work time. The adjusted R-square statistic indicates that the equation accounts for 22 percent of variation in work time. The sample contained 19,845 respondents who supplied a complete data set.

The regression model is designed to reflect the impact of country and disability status on time spent in paid work, while controlling for known differences in age, sex, post-secondary

education, socio-economic status, and labour force participation (see Table 1). Regression coefficients can be interpreted as the number of minutes per day accounted for by the variable.

Controlling for other variables, the impact of country and disability on work time appear to be as follows:

- Americans with disabilities work 51 minutes less than Americans without disabilities,
- Canadians with disabilities work 34 minutes less than Americans without disabilities,
- Canadians without disabilities work 27 minutes less than Americans without disabilities,
- Americans with disabilities work 17 minutes less than Canadians with disabilities,
- Canadians with disabilities work about 7 minutes less than Canadians with no disabilities.

Table 5. Regression Coefficients for Paid Work Time

Independent variable	Coefficient	Std. error	t statistic
Constant	-248.9	16.9	-14.7
Disabled_US	-51.0	15.5	-3.3
Disabled_Canada	-33.5	7.8	-4.3
Not disabled_Canada	-26.9	3.9	-6.9
Weekday	240.1	3.7	65.7
Male	50.3	3.3	15.2
Management/Administrative occupation	27.1	3.8	7.1
Post-secondary education	19.3	3.7	5.2
Age	17.4	0.7	25.2
Number children	-10.4	1.7	-6.0
Living as couple	10.1	4.0	2.5
Unemployed	-3.1	1.1	-2.9
Age squared	-0.2	0.0	-24.8

Note. N = 19,845 R-squared coefficient = 0.22. All coefficients are significantly different from zero ($p < .01$)

Weekday completion of the survey is obviously influential, accounting for 6 hours of time allocation. Four additional variables account for more than 15 minutes each:

- Being male accounts for 50 minutes additional allocation of time
- Managerial and professional occupations increase time by 27 minutes
- Post-secondary training completed increases work time by 19 minutes and
- Work time increases by 17 minutes for every year of age (170 minutes per 10 years less the small negative effect of squared age). Work is positively related to age up to middle age (about 41) but reduces for older workers.

4. Discussion

This study set out to compare time use of disabled people in Canada and the United States with respect to daily activity patterns, in particular, paid work. The analyses of time budget data by country and by gender suggest greater inclusion of disabled persons in Canada than in the United States. Activity patterns of Canadian women with disabilities are more similar to those without disabilities than is the case for men. While these relative rates of integration may reflect differences in the impact of legislation in the two countries, they may also reflect differences in the demographics of the two survey samples. Accordingly, we have conducted a regression analysis of paid work time (a major indicator of economic opportunity and integration) to control for demographic effects.

We have shown that:

- Disabled people are more like non-disabled in the way they spend their time in Canada than in the United States;
- This pattern holds true for both sexes;
- Disability in the US has a more detrimental effect on time spent in paid work than in Canada;
- Other important variables for work time in both countries and regardless of disability status are: being male, having a white-collar occupation, and having post-secondary education.

Overall, disability appears to have a smaller negative impact on paid work and other activities in Canada than in it does in the U.S. Thus any expectation that the Americans with Disabilities Act has created a more favourable environment for disabled people than the Canadian policy infrastructure is not supported in this empirical analysis, using highly robust national survey data. Time use surveys provide no evidence that disabled persons are more integrated or engaged in the United States than in Canada. Disabled Americans were 16% dissimilar from non-disabled Americans, versus 10% dissimilar for Canadians with and without disabilities. In particular, Americans with disabilities worked 17 minutes less than Canadians with disabilities. The regression model explained 22% of the variance in time allocated to work.

When we think of barriers to work, we often think in terms of four types of barriers:

- physical barriers, like built environment accessibility;
- information barriers, such as availability of work, knowledge of how to apply for and obtain work, knowledge and expertise in the content area of work;
- attitudinal barriers, including those of employers, co-workers, and society in general; and,
- systemic barriers, meaning processes and policies that favour or disadvantage disabled workers (McColl and Jongbloed, 2006).

The legislative environment – labour law, employment equity law, human rights protections -- is obviously a systemic factor affecting work for people with disabilities. Legislation can also contribute to physical accessibility, particularly if it establishes and enforces accessibility standards. It can favour informational accessibility if it ensures standards of information access, and upholds equal opportunities for education and training. Our previous research shows that post-secondary education produces substantial economic gains for workers with disabilities. Higher rates of post-secondary education were associated with greater time spent in paid work (Wilson et al., 2015, 2017). It is more challenging to draw inferences about a direct effect of legislation on attitudes.

Integration has also been studied in relation to immigration. In this research, four key dimensions of integration have been identified: *status*, *rights*, *engagement*, and *identity* (Klaver & Ode, 2009). These are broadly related to Prince's (2009) five dimensions of citizenship: *discourse, legal, democratic, fiscal-social*, and *economic*.

The terms *status and citizenship rights* versus*, legal* and *democratic rights,* cover somewhat the same ground as they arise from either statutes or constitutions and, within stated parameters, apply universally to named populations (e.g. adults, citizens etc.). Prince however, points to a history in Canada of legal and demographic rights for persons with disabilities being initially ignored but later defended and extended by litigation. We take no exception to such observations, but point out that affirmation of such rights will eventually be reflected in changed behaviour such as greater participation in elections or civic activity. Over time such activity will be reflected in reported time use data.

Prince's terms *fiscal-social* and *economic* rights broadly deal with the Klaver and Ode dimensions of *engagement* and *identity*. The term *engagement* has historically been applied to political and community activity. However it is now being expanded to include workforce attachment, neighbourhood roles, and access to the retail and service markets. As such it addresses much of the conceptual content of social and economic rights. Engagement is clearly germane to the definition and measurement of integration of disabled persons but is to a great extent captured by time use data. *Identity* relates to shared social, legal, historical, and cultural traditions. Movements such as the Paralympics and demands for physical access to public facilities attest to the determination of disabled persons to participate in social and cultural institutions. One could say that identity of disabled people with society as a whole is a driver in their quest for civic integration.

Time use is not a perfect measure of integration, but in an absolute sense, no empirical or conceptual construct could be. The question is, "are there dimensions of integration that are important to disabled people which are not reflected in time use data?" Most aspects of *engagement* (e.g. work force attachment, community participation, education and social interaction) and *identity* (participation in public institutions and culture) are well reflected by time use measurements. To the extent that litigation affirms *democratic* and *legal* rights, these will be reflected in increasing similarity of time use of persons with and without disabilities. What is missing is a subjective element. Respondents to national surveys are generally not asked whether they feel included, or whether they value the needs of others in society. It would not be difficult to make a case for a subjective measure of inclusiveness on social survey instruments.

5. Conclusion

In conclusion, this empirical analysis of time use data from Canada and the United States has shown that the policy environment in the U.S., which includes the Americans with Disabilities Act, has not produced superior conditions for integration of disabled people in that country. Disabled Americans spend less time in paid work and social leisure than disabled Canadians, and more time sleeping, using TVs/computers, and in unreported activity. Disabled Americans are 16% dissimilar from non-disabled Americans in their time use, whereas disabled Canadians are only 10% dissimilar from their non-disabled counterparts. With regard particularly to paid work, a key indicator of economic and social integration, Americans with disabilities are significantly more disadvantaged than Canadians with disabilities. This analysis suggests that any bias toward an American style policy environment as regards disability would not necessarily have salutary effects for disabled Canadians.

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