Barriers to Economic Security: Disability, Employment, and Asset Disparities in Canada

Michelle Maroto
University of Alberta

David Pettinicchio
University of Toronto

Abstract

Although ample research shows that people with disabilities face significant labor market barriers, questions remain about whether and how disadvantages in employment and earnings contribute to economic insecurity. We use 1999 to 2012 Canadian Survey of Financial Security data to study disparities in nonhousing assets, which include household savings, stocks, and pensions, across households with and without disabilities. We find that households where the respondent or their spouse reported a disability held 25 percent less in nonhousing assets after accounting for key employment, education, and demographic factors. Demonstrating the more complicated relationship between disability, employment, and assets, these direct effects were further strengthened by disability's indirect effects on assets through its relationship with employment income.

Résumé

Bien que la recherche considérable montre que les personnes handicapées rencontrent d'importants obstacles d'accès au marché du travail, les questions demeurent quant à savoir si et comment les désavantages en matière d'emploi et de gains contribuent à l'insécurité économique. Nous utilisons les données de l'Enquête sur la sécurité financière canadienne de 1999 à 2012 pour étudier les disparités des actifs non immobiliers, comprenant l'épargne des ménages, les actions et

Michelle Maroto, Department of Sociology, University of Alberta, 6–23 Tory Building, Edmonton, AB T6G 2H4, Canada. E-mail: maroto@ualberta.ca

les rentes, parmi les foyers avec ou sans personnes handicapées. Nous avons constaté que les ménages dans lesquels le répondant ou son conjoint avait signalé une invalidité avaient 25 pour cent de moins d'actifs non immobiliers après la comptabilisation pour un emploi clé, l'éducation, et les facteurs démographiques. Illustrant les relations plus complexes entre l'invalidité, l'emploi et les actifs, ces effets directs ont été renforcés davantage par les effets indirects de l'invalidité sur les actifs par le biais de leurs liens avec le revenu d'emploi.

MULTIPLE INTERRELATED BARRIERS prevent many Canadians with disabilities from attaining basic economic security. This sobering reality was recently exposed in a Toronto Star interview with Anna Costa, a Toronto woman who "fell apart" trying to juggle her Type I diabetes and a series of dead-end jobs with no benefits.[1] Despite regular government support supplementing her low earnings, she had nothing left at the end of the month once she paid for food and housing. Even though she was "grateful" to receive government benefits, such as those provided by Ontario Works (OW), Costa noted, "I need a career with benefits or I'll never get off OW."

Provincial governments have sought new policies to help Canadians with disabilities find stable employment, get out of poverty, and build their savings. But even with existing legal protections meant to mitigate these inequalities including the *Canadian Charter of Rights and Freedoms*, working-age Canadians with disabilities have employment rates that are almost 40 percent lower than the larger population and they are much more likely to experience poverty (Wall 2017).[2] When they do work, they are more likely to be segregated into low-paying jobs, partly explaining their low earnings (Blanck et al. 2007; Lindsay et al. 2014; Maroto and Pettinicchio 2014b; Morris et al. 2018; Schur 2004; Shuey and Jovic 2013).

The obstacles faced by people with disabilities and their families extend well beyond the labor market. As Anna Costa's experience illustrates, dead-end jobs made it difficult to afford food and shelter, let alone build assets to secure a financial future. Many inequality scholars rightfully focus on the labor market given its centrality in the distribution of resources in liberal market welfare states. Not surprisingly, policies meant to improve economic well-being have done the same, seeking to change employer attitudes and practices and increase resources to social services, such as vocational rehabilitation. As a result, both scholars and policymakers have often ignored how disadvantage, marginalization, and

1. See https://www.thestar.com/news/gta/2018/03/23/advocates-pin-hopes-on-budget-for-roadmap-out-of-poverty.html.

2. Comparatively, in the United States, 22 percent of people with disabilities were employed, and workers with disabilities earned 26 percent less than similarly situated persons without disabilities in 2014 (Maroto and Pettinicchio 2015; see also Maroto, Pettinicchio, and Patterson 2019). Moreover, using U.S. Current Population Survey Data, Brucker et al. (2015) found that disability is associated with poverty regardless of the measure used.

inequality in employment shape wealth and economic security as a whole. Yet, we know, for instance, that people from historically disadvantaged groups, including racialized groups and immigrants, often have limited access to credit markets, financial institutions, and products that help to build assets (Campbell and Kaufman 2006; Conley 1999; Shamsuddin and DeVoretz 1998; Zhang 2003).

How do households that include members with disabilities fare in terms of nonhousing assets? And, how might the relationship between disability and assets be mediated by labor market participation? Limited studies on disability and wealth find that households with disabilities were less likely to own their homes, held lower net worth, and reported lower incomes in Canada, the United States, and the United Kingdom (Maroto 2016; McKnight 2014; Parish et al. 2010). These findings show that employment earnings are but one, albeit a significant, dimension of persistent economic inequality. Wealth dynamics also matter for economic security.

We use data from the 1999 to 2012 Canadian Survey of Financial Security (SFS) to analyze the relationship between disability and nonhousing assets across households. In assessing these disparities, we account for key covariates and include a set of mediation models to examine disability's indirect relationship with assets through employment income. We find that households where the respondent or their spouse reported a disability had significantly lower assets than households where no one reported a disability. Importantly, disability's negative association with assets was further exacerbated by its indirect relationship through lower employment income. Combining direct and indirect effects, disability was associated with a total decrease of 30 percent in nonhousing assets. Our findings, therefore, illustrate the complex relationship between disability, employment, and wealth, speaking to the ways in which disparities associated with status characteristics, such as disability, transcend labor and credit markets to contribute to economic insecurity more broadly.

INCOME, WEALTH, AND ASSET DISPARITIES

Income and wealth are related but distinct features of economic security (Western et al. 2012). Wealth reflects the stock of resources, often accumulated over time, which contributes to the ability of individuals and households to weather economic instability. Income, however, refers to the flow of resources, and can be far more variable and situational, as well as more precarious among disadvantaged groups such as people with disabilities. Although income contributes to wealth, it is but one dimension; wealth also increases with investments, homeownership, and credit. Thus, income and wealth are not perfectly correlated because credit market access and individual financial behavior (including saving)—both of which are determined by one's position in the social structure—affect assets. Wealth

grows in large part because wealthier households make financial decisions about how to further invest their wealth. Not surprisingly, the association between income and wealth is stronger for those at higher income levels (Barsky et al. 2002; Killewald 2013; Killewald et al. 2017). Alternatively, households with fewer assets are confronted with a different set of choices, making inequality much more pronounced in a wealth distribution than in an income distribution.

Most adult Canadians strive to build assets, important resources that households invest to secure their economic futures (see Shapiro and Wolff 2001). Assets include financial products such as retirement plans, savings accounts, stocks, and bonds, along with nonfinancial goods such as vehicles and real estate. While income facilitates immediate consumption, it can also be invested or transformed into assets contributing to aggregated household wealth (Parish 2010; Shapiro and Wolff 2001). Certain assets, such as money in savings accounts, can also be particularly valuable in times of economic distress. Unlike housing wealth that does not always provide adequate financial safety because it is not easily accessed, liquid assets, such as financial wealth, are more likely relied upon as an immediate cushion for unexpected expenses including medical bills (Hacker et al. 2014).[3]

Explaining Asset Disparities

Wealth shapes household standards of living and well-being (Spilerman 2000). However, over the past several decades, wealth gains in Canada have primarily gone to the top of the distribution with average net worth, calculated as assets net liabilities, increasing for only the wealthiest households (Brzozowski et al. 2010; Macdonald 2018). In Canada, as elsewhere, wealth inequality tends to exceed income inequality (Semyonov and Lewin-Epstein 2013). Between 1999 and 2016, the wealthiest households in the top 20 percent of the population controlled about 67 percent of the total net worth in the country, but the poorest households in the bottom 20 percent reported negative wealth levels, controlling merely −.1 percent of the nation's net worth (Maroto 2016; Statistics Canada 2019a). Similar trends were apparent when considering assets with the top 20 percent controlling 62 percent of total assets and the bottom controlling .5 percent (Statistics Canada 2019a).

The relationship between wealth and well-being is especially salient among members of historically disadvantaged groups. Households with less education, racial minorities, and immigrant groups tend to have less wealth in the majority of industrialized countries (Semyonov and Lewin-Epstein 2013). They also have fewer opportunities for asset building and

3. As Hacker et al. (2014) note that the Economic Security Index does not include housing debt/assets as financial security precisely because of difficulties in accessing home equity.

less access to credit markets than members of other groups (Keister and Moller 2000; Maroto 2016). Previous research shows that groups that have been traditionally disadvantaged in the labor market face additional disadvantages within credit markets with consequences for overall economic well-being (Chawla and Uppal 2012; Darku 2014; Liu, Ostrovsky, and Zhou 2013). We expand this research to examine assets across Canadian households with disabilities, a less-researched marginalized group that often faces large barriers in the related areas of labor and financial markets.

Explanations for continuing wealth and asset disparities have been offered at both the micro and macro levels. Explanations range from those related to individual-level behavior, such as the propensity to save (Avery and Rendall 2002; Keister and Moller 2000; Spilerman 2000; Semyonov and Lewin-Epstein, 2013), to more structural-level factors, such as access to credit markets (Maroto 2016; Sherraden, Schreiner, and Beverly 2003). We focus on several sets related to age differences, family structure and gender, immigrant and citizenship status, education and employment, financial behavior and credit market access, and regional variation.

Wealth is strongly tied to aging and the life course and varies across demographic groups (Kerstetter 2002; Morissette and Zhang 2006). As posited by the classic life-cycle hypothesis, saving for the future is a finite process (Ando and Modigliani 1963; Modigliani 1988). Individuals save during active periods in order to use their wealth later in retirement, which is why, for most people, wealth increases until their sixties or seventies and begins to decline thereafter (LaFrance and LaRochelle-Côté 2012).

Wealth also tends to vary with gender, household structure, and family responsibilities (Maroto 2019; Maroto and Aylsworth 2017; Zagorsky 2005). Women generally accumulate fewer assets than men (Chang 2010; Schmidt and Sevak 2006; Warren et al. 2001), but gender wealth differences are often more difficult to measure due to the ways in which gender is tied to household structure (Maroto and Aylsworth 2017; Yamokoski and Keister 2006). Two adult households tend to have the greatest wealth (Lupton and Smith 2003; Ozawa and Lee 2006), whereas single persons are more likely to have a savings deficit (Liu, Ostrovsky, and Zhou 2013). This is due in part to the wealth premiums associated with marriage (Zagorsky 2005) and the higher likelihood of wealthier individuals marrying (Schneider 2011; Vespa and Painter 2011). Finally, the presence of extended family in the household is often associated with lower wealth levels (Maroto and Aylsworth 2017).

Asset building is inherently shaped by social forces constraining those opportunities and, no doubt, immigrants face among the most significant institutional barriers in accessing credit markets (Bauer et al 2011; Cobb-Clark and Hildebrand 2006). In the United States, most immigrants do not hold important investment products as part of their portfolios (Painter and Qian 2016) although this does vary by racial and ethnic group. In Canada, Maroto and Aylsworth's (2016) study of first-generation

immigrant households found that immigrant status combined with recency and place of origin significantly depressed wealth. Due to racial and ethnic discrimination, devalued human capital, language differences, and a lack of familiarity with investment products and savings opportunities, it can take immigrants to Canada many decades to catch up to the rest of the population (Maroto and Aylsworth 2016; Nee and Sanders 2001).

In addition to varying across groups, education and employment situations further shape wealth outcomes across households (Semyonov and Lewin-Epstein 2013). Education and employment broadly influence social and human capital development over the life course (see Bernardi et al. 2019), as well as access to financial knowledge more specifically (Chawla and Uppal 2012). As a result, households with higher levels of education and employment income tend to also have greater wealth in most industrialized countries, including Canada (Maroto 2016; Semyonov and Lewin-Epstein 2013).

Furthermore, wealth is associated with financial behavior and credit market access. According to the institutional theory of saving, access to credit markets and knowledge of savings institutions support the savings capacity of households (Sherraden 1991; Sherraden, Schreiner, and Beverly 2003). As a result, households with better access to banking services and savings-building programs, greater information regarding the rewards of saving, mechanisms to help facilitate savings, and expectations for saving are wealthier (Sherraden, Schreiner, and Beverly 2003). This is why in examining household wealth, economists have focused heavily on savings behavior and financial portfolio choices (Keister 2000; LaFrance and LaRochelle-Côté 2012). Although wealth is significantly tied to financial literacy, which influences retirement savings and consumer choices, such as the willingness to invest in stocks, financial literacy also varies by education, along with age, race, and gender (Lusardi and Mitchell 2007; Van Rooij, Lusardi, and Alessie 2011)—characteristics that are directly tied to broader social, political, and economic vulnerabilities and disadvantages.

Credit is an important tool for wealth building and for maintaining levels of economic security. Canadians have increasingly relied upon credit in order to live the so-called middle-class lifestyle to which prior generations had grown accustomed, making the inherently unequal relationship between creditors and debtors even more salient. Additionally, credit market norms governing inclusion and exclusion of potential borrowers (Dwyer 2018) have disparately affected segments of the population. In the United States, credit market discrimination has been well documented. Obstacles to asset building among marginalized groups are compounded by existing constraints on holding assets and having good credit history (Pager and Shepherd 2008), and policies that permit subprime financial products that include unsecured loans, higher fees, and high interest rates (Buckland 2012). In Canada, Maroto's (2016) study of wealth inequality found that limited credit market access likely played a role in continuing

wealth disparities among vulnerable groups including immigrants, people with disabilities, and Indigenous peoples. Homeownership, which requires access to lending and credit, was a key mediating factor in explaining wealth inequality across these groups.

In sum, individual and household factors tied to asset building are neither exogenous nor independent of more macro forces constraining the ability to save. They are embedded within broader institutional and cultural contexts that limit access to good jobs, low-cost quality education, credit markets, and overall wealth. For many, especially members of already disadvantaged and historically marginalized groups, these represent interconnected sites of inequality, helping some groups and limiting others.

Disability and Economic Insecurity

In 2017, approximately 22 percent of Canadians aged 15 and older, or 6.3 million individuals, reported a disability (Morris et al. 2018). These persons experienced material disadvantages across many areas, including wealth (Shuey, Willson, and Bouchard 2016). A recent Canadian study found that people with disabilities held about $22,000 less in net worth compared to people without disabilities after controlling for factors such as education, employment, and family structure (Maroto 2016). Similarly, Parish (2010) found large net worth gaps across households with and without disabilities in the United States, and McKnight (2014) found that people with disabilities in the United Kingdom experienced net worth and asset gaps that were largest among middle-aged individuals. Although these disparities were partly associated with differences in household structure, employment, and education, large gaps remained even after accounting for such factors.

If an important source of asset building stems from employment earnings, people with disabilities are at a significant disadvantage. Half of employed Canadians with disabilities need some form of accommodation to maintain gainful employment and many have unmet needs that include a lack of access to adequate medical care (see Clarke and Latham 2014), contributing to problems of maintaining gainful employment. Disadvantages, then, do not end when people with disabilities find employment.

Employed workers with disabilities earn considerably less than similarly situated workers without disabilities (Kovacs Burns and Gordon 2010; Maroto and Pettinicchio 2014a; Morris et al. 2018; She and Livermore 2007; Shier et al. 2009; Wall 2017). Employment wage growth in Canada has been limited to already relatively high earners (Darku 2014), typically excluding members of marginalized groups, including people with disabilities. Wage increases also typically benefited workers in growing sectors within which members of disadvantaged groups are underrepresented

(Brooks, Jarman, and Blackburn 2003; Fortin and Huberman 2002; Maroto and Pettinicchio 2014b). In addition to earnings, employment helps build assets through private or registered pension plans (i.e., registered retirement savings plan [RRSPs]) and, not surprisingly, households with the largest savings surpluses are those with private pension coverage (Liu, Ostrovsky, and Zhou 2013). Since people with disabilities are significantly unemployed or underemployed, or in so-called "bad jobs," they are far less likely to benefit from employer-based pensions and more likely to undersave (Shuey and Willson 2017).

Scholars studying links between health, employment, and wealth (see, e.g., Headey and Wooden 2004; Parish et al. 2010; Shuey and Wilson 2017) have shown that anything undermining the ability to earn and save during individuals' active years can have long-lasting repercussions. Clarke and Latham's (2014) analysis of American Panel Study of Income Dynamics (PSID) data showed that having a work-limiting disability in pre-midlife compounded economic and health inequalities over the life course. They found that by age 40, where incomes continue to increase for nondisabled people, those with work-limiting disabilities see a leveling off in income. Consequently, over one-third of Canadians with disabilities rely on income other than employment to make ends meet (Arim 2015) with approximately 38 percent of this income coming from government transfers (Crawford 2013).

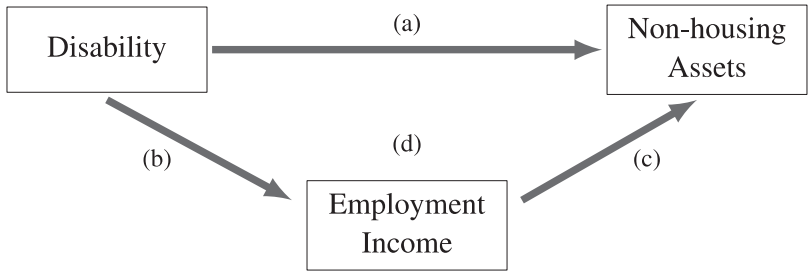
The reliance on government transfers means that households with disabilities must also meet the means-testing requirements for accessing benefit programs, many of which include limits for allowable assets. Asset limits associated with receiving disability benefits provide disincentives to saving, such as households, rightfully, do not want their benefits to decrease (Wood 2015). In contrast, lending institutions usually require certain income levels in order to obtain loans. This often disqualifies low-income groups, leaving high interest and subprime loans as the only options for many (Buckland 2012). And, like their American counterparts, Canadians with disabilities also have limited access to conventional financial institutions and financial products.

Because people with disabilities earn considerably less and disability often comes with medical and other costs, their expenditures often exceed their income, making it difficult to build wealth. Out-of-pocket health care expenditures among people with disabilities far exceed those of other groups (She and Livermore 2007). People with disabilities may also face higher costs of living as a result of aides and equipment and various forms of accommodations, health-related expenses, services, and transportation (Morris et al. 2018; Smith et al. 2004; Steinmetz 2006).

Importantly, disability not only increases financial insecurity for the individual person with the disability, but it also limits options for other household members who may or may not have disabilities (Batavia and Beaulaurier 2001; Crawford 2013; Erickson, Lee and von Schrader, 2015;

Figure 1

Direct and Indirect Relationships between Disability and Nonhousing Assets



Note: (a) The direct relationship between disability and nonhousing assets net of other covariates, when multiplied (b) × (c) represents the indirect relationship through income, (d).

McKnight 2014; Parish et al. 2010; Shuey and Willson 2017). As She and Livermore (2007) describe, because insecurity disseminates throughout entire households, measuring disability at only the individual-level underestimates the ways in which disability affects economic hardship. The problem is twofold. A household member with a disability faces income penalties and credit barriers, contributing less to household wealth than they might otherwise. In addition, costs associated with disability, combined with caregiving responsibilities that can limit the ability of other family members to earn income, can leave households with little savings and even considerable debt (Batavia and Beaulaurier 2001; McKnight 2014).

We expect people with disabilities to have lower assets, partly explained by family, demographic, education, and employment differences for which we control. However, even after accounting for these factors, disability asset disparities will likely persist due to the many structural barriers they face, the increased expenses associated with living with a disability, and the disincentives for asset building associated with disability benefits. In addition, because employment income is a strong predictor of net worth and disability largely limits earnings (Maroto and Pettinicchio 2014a, 2015; Pettinicchio and Maroto 2017), we expect disability to be indirectly related to nonhousing assets through its relationship with employment income. We therefore posit two pathways for the relationship between disability and assets, described in Figure 1. Segment (a) represents the direct relationship between disability and nonhousing assets, and segment (d), the product of segments (b) and (c), represents the indirect relationship through employment income, which is thought to mediate some of the direct effect of disability on assets.

DATA

We study disability-related asset disparities using pooled data from the 1999, 2005, and 2012 waves of the Canadian SFS confidential microdata files accessed through the Statistics Canada Research Data Centre program. The SFS is a reoccurring cross-national survey on net worth, debt, and assets that uses the economic family household, or a group of two or more related individuals who live in the same dwelling, as the unit of analysis.[4] To address potential data issues, the survey combined responses with information from T1 income tax files and imputed additional missing data using deterministic, hotdeck, and nearest neighbor matching imputation (Statistics Canada 2003, 2007, 2015). The survey also computed totals from detailed debt and asset variables to improve the reliability of estimates. Although the SFS appears to underestimate financial assets and consumer debt, the survey includes the best wealth data available in Canada. The survey also collects key demographic and employment information for all family members over age 15 and contains important data on household structure.

To account for the sampling design, we applied survey-provided household weights across all analyses. Weights were adjusted for nonresponse and calibrated to known population totals based on Canadian Census data. After restricting the sample to respondents age 18 and older, we obtained a sample of 33,201 households.

MEASURES

Our primary outcome variable is *total household nonhousing assets*. Total nonhousing assets include vehicles, businesses, pensions measured on a going concern valuation basis, stocks, savings, and other types of financial and nonfinancial assets (Cohen et al. 2001). Following Hacker et al. (2014), we excluded housing and property wealth because home equity is more difficult for families to readily access and has significantly lower yearly fluctuations. This also helps to make our results more generalizable to families in different contexts where total wealth is less driven by the housing market. All monetary values are adjusted for inflation and appear in 2012 $CAD.

Whether the respondent or spouse reported *any disability*—the key predictor variable—refers to any type of limitation to daily activities.[5] Limitations include whether the person reported any difficulty doing activities,

4. Because Statistics Canada only includes related individuals within the household for its definition of an economic family unit, we refer to family households when discussing families or households. For more information, see www.statcan.gc.ca/concepts/definitions/economic_family-familles_economiques-eng.htm.

5. We also tested models with measures that included only a work-related disability. These produced similar results but indicated larger wealth disparities, partly through the loss of earnings.

such as hearing, seeing, communicating, walking, climbing stairs, bending, or learning; a physical condition, mental condition, or health problem that reduces activity that can be done at home; or a condition that limits the activities that can be done at school or work. This definition is based on a social model of disability that broadens the definition of disability beyond so-called medical conditions to incorporate the relationship between bodily function, structure, and environmental factors. It follows definitions used in other disability surveys, such as the Canadian Survey on Disability and the American Community Survey (Arim 2015; Erickson, Lee, and von Schrader 2015; Morris 2018).

Importantly, because we study assets, which are measured at the household level, we also measure disability at the household level and examine whether the respondent or their spouse reported any limitation. Previous research shows that a disability among either the respondent or spouse will directly affect total household earnings as 70 percent of economic families in 2016 were dual earner households (Statistics Canada 2019b). Additionally, even in certain single-earner households, the time required to care for a partner with a disability and the associated expenses will likely impact wealth in some situations (Burton and Phipps 2009; Gibson, Kelly, and Kaplan 2012; Keefe, Légaré, and Carrière 2007; Turcotte 2013). It follows that a disability for either partner will likely be related to household assets. As shown in Table 1, 19.6 percent of households reported a disability, and mean and median asset levels were much lower within these households.

We incorporate five sets of control variables across models to examine how the relationship between disability and wealth relates to different explanations for wealth inequality. We also include an indicator for *survey wave year* (1999, 2001, or 2012) in all models. Our baseline model controls for the respondent's *age*, along with a *quadratic age term* to account for the lessening effects of age on assets over time. This further helps to address how wealth varies according to life-cycle models (Keister and Moller 2000; Lafrance and La Rochelle-Côté 2012). On average, households with disabilities were approximately 10 years older than those not reporting any disabilities.

Our second set of models incorporates controls for family and household situation including *household size*, whether *any children under 18* were present in the household, and whether a household included *any extended family*. People with disabilities lived in slightly smaller households, which is likely due to the smaller percentage with children present. Our models also control for *family structure and gender*, a variable that includes three categories: two adult partners (referent), single male adult, and single female adult.[6] Because data are measured at the household level, it is important to assess gender and family status together

6. Partners include married or cohabitating couples and spouses.

Table 1

Weighted Descriptive Statistics for 1999 to 2012 SFS Data by Disability Status

	Full Sample		No Disability		Disability	
	Estimate	**SE**	**Estimate**	**SE**	**Estimate**	**SE**
Home owner	61.7	0.43	62.5	0.49	58.5	0.89
Nonhousing assets						
Mean	337,900	6,230	348,500	7,160	294,500	11,000
Median	108,700	2,170	112,000	2,600	91,100	5,330
Any disability (R or SP)	19.6	0.34				
Mean age (years)	48.7	0.15	46.3	0.15	58.5	0.3
Household size	2.4	0.01	2.4	0.01	2.1	0.02
Family structure						
Two adult partners	60.2	0.45	60.7	0.51	58.4	0.91
Single male adult	18.2	0.37	18.4	0.41	17.1	0.76
Single female adult	21.6	0.39	20.9	0.44	24.5	0.79
Any children present	28.4	0.37	31.3	0.42	16.7	0.64
Any extended family present	19.2	0.32	19.4	0.36	18.4	0.74
Gave assistance	12.6	0.28	12.7	0.31	12.5	0.58
Adult landed immigrant	17.4	0.33	18	0.37	15	0.61
No English or French as first language	22.4	0.36	23	0.41	19.5	0.74
Noncitizen	8.9	0.26	9.7	0.31	5.7	0.45
Education						
High school degree	22.2	0.37	23	0.43	19.1	0.73
Less than high school degree	21.4	0.35	17.4	0.37	37.7	0.86
Some college	34.9	0.42	35.6	0.46	32	0.91
Bachelor's degree	14.3	0.31	16	0.37	7.5	0.47
Beyond bachelor's degree	7.2	0.22	8	0.26	3.7	0.32
Employed (R or SP)	73.4	0.37	80.3	0.36	45.4	0.91
Household wage and salary income						
Mean	48,600	500	54,200	580	25,700	760
Median	32,000	670	39,000	620	100	130
Monthly budget	47.3	0.44	47.7	0.49	45.7	0.9
Carry credit card balance	40.8	0.43	38.6	0.47	49.7	0.89
Own stocks or bonds	26.2	0.37	27	0.42	22.8	0.76
Region						
Atlantic provinces	7.3	0.2	6.9	0.23	9.1	0.35
Quebec	25	0.38	26.2	0.45	20.3	0.77
Ontario	37.1	0.44	36.3	0.49	40.4	0.9
Prairies	16.8	0.27	16.9	0.31	16.3	0.57
BC	13.7	0.28	13.6	0.32	13.8	0.56

(*Continued*)

Table 1

Continued

	Full Sample		No Disability		Disability	
	Estimate	**SE**	**Estimate**	**SE**	**Estimate**	**SE**
Size						
Rural	14.2	0.3	13.9	0.34	15.7	0.6
CA population < 30,000	12.3	0.24	11.6	0.26	15.2	0.66
CA population 30,000–99,999	9.6	0.24	9.2	0.26	11.1	0.55
CMA population 100,000–499,999	14.6	0.29	14.4	0.32	15.6	0.62
CMA population 500,000+	49.2	0.43	50.9	0.47	42.4	0.94
N	33,201		26,158		7,043	

Note: Estimates provided as percentages unless otherwise specified. Income variables provided in 2012 Canadian dollars. "R" refers to respondent and "SP" refers to spouse.
Source: Survey of Financial Security, 1999 to 2012, $N = 33{,}201$ family households (restricted to households where respondent is 18 years or older).

(Maroto and Aylsworth 2017). Finally, we account for whether the respondent or spouse *provided financial assistance* to family members living outside the household.

This model adds additional demographic controls, primarily related to immigrant status. We account for *landed immigrant status*. We focus on adult immigrants and measure this variable as whether the respondent or the respondent's partner became a landed immigrant to Canada as an adult over the age of 18.[7] As measures of immigrant group characteristics, we also control for *citizenship status* and *language*. Citizenship status is a dichotomous variable indicating whether the respondent or spouse was not a Canadian citizen. Language indicates whether the household did not have English or French as the first language. Households with disabilities were more likely to be citizens and have English or French as their first language, both of which confer certain social and economic advantages.

The third set of models includes employment and education variables given that wealth increases with different human capital dimensions. As measures of the family household labor market situation, we control for *logged total family wage and salary (employment) income* in 2012 $CAD and whether the respondent or spouse were *employed* with any hours of employment during the previous calendar year. We measure *education* with a variable indicating whether the primary respondent obtained a high school diploma (referent); less than a high school diploma; some college; a university or bachelor's degree, or advanced education beyond a B.A.

7. This variable includes "mixed" families where one partner immigrated to Canada, but the other partner did not.

Households with disabilities had much lower levels of education, were less likely to be employed, and earned less.

In order to account for credit access and financial behavior within the fourth set of models, we incorporate categorical variables that indicate whether the respondent or the respondent's spouse *had a monthly budget, carried a credit card balance,* or *owned any stocks.* We also control for *homeownership*. Although similar percentages of households with and without disabilities reported having a monthly budget, those with disabilities were more likely to carry a credit card balance and less likely to own stocks or bonds.

Finally, investment opportunities and assets also vary with region of the country with even greater differences present when comparing cities (Statistics Canada 2019a). We therefore include a set of covariates to assess the broader context within the fifth set of models. We consider *region* of the country (Atlantic provinces, Quebec, Ontario, Prairie provinces, and British Columbia), and *size of the area of residence*, which compares rural and urban centers and includes both census agglomerations (CAs) and census metropolitan areas (CMAs). These variables account for provincial policy contexts, economic situations, and variation in the cost of living across regions (Statistics Canada 2019a). Incorporating these control variables speaks to common explanations for wealth inequality that include individual behavior, life-cycle changes, income, employment, and overall credit market standing connected to disability.

METHODS

We use linear regression models with survey weights and robust standard errors to analyze logged total household nonhousing assets. We transformed the assets variable using the natural log transformation in order to account for potential skewness. This also allows us to interpret the coefficients on a relative scale, as a percentage change in assets. After examining how the relationship between disability and wealth changes with different sets of covariates, we then incorporate mediation models to assess disability's indirect relationship with net worth through household employment income.

The most common method for calculating indirect effects relies on comparisons of partial regression coefficients across fitted models with and without mediating variables present (Baron and Kenny 1986). However, this method can produce biased estimates for the indirect effects because the coefficients and error variance are not separately identified (Pearl 2014). We therefore used the mediation package in R, which permits the estimation of causal mediation models across different model types using different sets of assumptions required for identification (Imai et al. 2010a; Imai, Keele, and Yamamoto 2010b; Tingley et al. 2014). This allows us to better report how disability is associated with assets by

focusing employment income as a key mechanism. We also conducted a series of sensitivity analyses to assess potential violations of the models' strict assumptions of sequential ignorability. Finally, we used nonparametric bootstrap procedures to estimate confidence intervals and significance levels.

RESULTS

Our results show that households where one or more persons reported a disability held less in nonhousing assets than households without any disabilities.[8] Including covariates for education, employment, and credit market access helped to decrease the gaps between households with and without disabilities, which demonstrates how disability's association with assets is also connected to disadvantages experienced in other domains. Nevertheless, a direct relationship remained even after accounting for common explanations of wealth inequality, and mediation models showed that disability was indirectly associated with assets through its relationship with household employment income. This indirect relationship further compounded disability's negative relationship with nonhousing assets, illustrating how disadvantage is connected across labor and credit markets.

Direct Relationships

Table 2 presents the results from linear regression models estimating the association between disability and total nonhousing assets. Table 3 presents the results for all covariates in the full model. In Table 2, Model 1 controls for age and year, Model 2 adds controls for family situation and other demographic variables, Model 3 includes employment and education variables, Model 4 adds controls for credit market variables, including homeownership, and Model 5 (the full model) incorporates controls for context. Results are presented as percent differences in net worth.

Households with a disability held 56.7 percent less in nonhousing assets prior to accounting for control variables in Model 1. Adding family and demographic controls decreased this gap only slightly to 56.5 percent in Model 2. However, controlling for education and employment in Model 3 decreased the gap to 40.1 percent, and adding financial and credit market variables in Model 4 decreased the gap to 25.2 percent, which is expected given disability's negative association with homeownership and holding stocks and bonds. Finally, incorporating context in Model 5 resulted in a gap of 25.3 percent. Thus, households with disabilities held approximately

8. In separate analyses (results not shown), we found that people with disabilities were less likely to own their homes by about 8 percentage points, controlling for a host of factors.

Table 2

Results from Regression Models Predicting Nonhousing Assets by Disability Status, SFS 1999 to 2012

	Effects of Disability across Models		
	$e^b - 1$	b	SE
Model 1—controlling for age and year			
Intercept		11.922***	(0.025)
Any disability	−0.567	−0.837***	(0.047)
Pseudo-R^2	0.188		
Model 2—adding other demographic variables			
Intercept		12.083***	(0.057)
Any disability	−0.565	−0.832***	(0.042)
Pseudo-R^2	0.336		
Model 3—adding education and employment variables			
Intercept		11.637***	(0.083)
Any disability	−0.401	−0.512***	(0.039)
Pseudo-R^2	0.428		
Model 4—adding credit market variables			
Intercept		10.734***	(0.076)
Any disability	−0.252	−0.291***	(0.032)
Pseudo-R^2	0.577		
Model 5—adding context variables (full model)			
Intercept		10.474***	(0.091)
Any disability	−0.253	−0.292***	(0.033)
Pseudo-R^2	0.579		

Note: OLS regression models predicting logged total non-home assets. Models include all covariates. Continuous variables are mean centered. "$e^b - 1$" can be interpreted as a percentage change in assets. All monetary values appear in 2012 $CAD. Standard errors are robust. Models include sample survey weights.
***$p < .001$;
**$p < .01$;
*$p < .05$.
Source: Survey of Financial Security, 1999 to 2012, $N = 33{,}201$ family households (restricted to households where respondent is 18 years or older).

25 percent less in assets in addition to the disadvantages they faced in terms of education and employment. This creates an even more precarious situation for people with disabilities as they have limited income and little wealth to draw on in times of need.

Overall, the models show that disability asset disparities are partly related to the disadvantages that people with disabilities face in terms of these households' education, employment, and credit market situations. Accounting for differences in these areas decreased the disability wealth gap, but a persistent negative relationship was still present, even after

Table 3

Full Model Results from Regression Models Predicting Nonhousing Assets by Disability Status, SFS 1999 to 2012

	$e^b - 1$	b	SE
Intercept		10.474***	(0.091)
Any disability (R or SP)	−0.253	−0.292***	(0.033)
Age	0.046	0.045***	(0.001)
Age-squared	0.000	0.000***	(0.000)
Household size	0.031	0.031	(0.017)
Family structure (Ref: 2 adult partners)			
Single male adult	−0.442	−0.584***	(0.044)
Single female adult	−0.477	−0.647***	(0.040)
Any children present	0.016	0.016	(0.040)
Any extended family present	0.167	0.154*	(0.061)
Gave assistance	0.354	0.303***	(0.033)
Adult landed immigrant	−0.319	−0.384***	(0.041)
No English or French as first language	−0.232	−0.264***	(0.037)
Noncitizen	−0.015	−0.015	(0.052)
Education (Ref: high school degree)			
Less than high school degree	−0.364	−0.453***	(0.044)
Some college	0.181	0.166***	(0.032)
Bachelor's degree	0.483	0.394***	(0.039)
Beyond bachelor's degree	0.718	0.541***	(0.052)
Employed (R or SP)	0.359	0.307***	(0.054)
Household wage and salary income (logged)	0.047	0.046***	(0.005)
Home owner	2.380	1.218***	(0.032)
Monthly budget	−0.012	−0.012	(0.024)
Carry credit card balance	−0.523	−0.740***	(0.026)
Own stocks or bonds	1.403	0.877***	(0.022)
Region (Ref: Atlantic provinces)			
Quebec	0.320	0.277***	(0.052)
Ontario	0.325	0.282***	(0.048)
Prairies	0.482	0.394***	(0.050)
BC	0.483	0.394***	(0.052)
Size (Ref: rural)			
CA population < 30,000	−0.028	−0.028	(0.042)
CA population 30,000–99,999	−0.008	−0.008	(0.047)
CMA population 100,000–499,999	−0.031	−0.031	(0.044)
CMA population 500,000+	−0.033	−0.033	(0.038)

(*Continued*)

Table 3

Continued

	$e^b - 1$	b	SE
Year (Ref: 1999)			
Year 2005	0.032	0.031	(0.029)
Year 2012	0.216	0.196***	(0.026)
Pseudo-R^2	0.579		

Note: OLS regression models predicting logged total nonhome assets. Continuous variables are mean centered. "$e^b - 1$" can be interpreted as a percentage change in assets. All monetary values appear in 2012 $CAD. Standard errors are robust. Models include sample survey weights.
***$p < .001$;
**$p < .01$;
*$p < .05$.
Source: Survey of Financial Security, 1999 to 2012, $N = 33{,}201$ family households (restricted to households where respondent is 18 years or older).

including all covariates. The results therefore speak to disability's direct relationship with assets net of confounding factors.

The Mediating Effects of Wage and Salary Income

Employment income is a key variable influencing individuals' abilities to build assets. Given that people with disabilities experience a variety of labor market barriers, these disadvantages likely compound wealth inequality. This requires considering the indirect relationship between disability and assets through employment income.

Table 4 and Figure 2 present the results from mediation models that examined the indirect relationship between disability and nonhousing assets through its relationship with household wage and salary income. As shown in Figure 2, disability was associated with an added 5.9 percent decrease in assets through its negative relationship with income. This resulted in a total decrease of 29.0 percent in nonhousing assets, with 17.8 percent of this total effect mediated by disability's relationship with employment income (Table 4). The mediation model demonstrates how disability's negative effects on wealth are amplified through its additionally negative relationship with employment income. These direct and indirect effects resulted in even larger total disparities.

DISCUSSION

Disability is an important axis of inequality that affects many outcomes. People with disabilities experience interconnected disadvantages in education, employment, and, as this research shows, assets. Overall, we find

Table 4

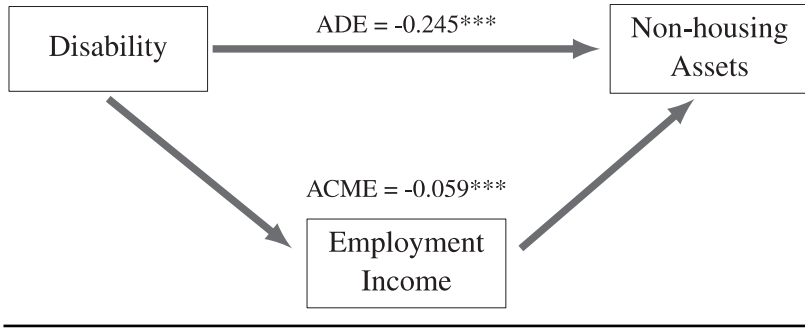
Results from Employment Income Mediation Models Predicting Nonhousing Assets by Disability Status, SFS 1999 to 2012

Predicting Net Worth	Estimate	95% Confidence Interval	
ACME	−0.059***	−0.039	−0.075
ADE	−0.245***	−0.205	−0.311
Total effect	−0.290***	−0.252	−0.351
Proportion mediated	0.1779		

Note: Mediation models predicting non-housing assets. Models include all covariates. Estimates can be interpreted as a percentage change in the outcome when multiplied by 100. All monetary values appear in 2012 $CAD. Standard errors are robust. Models include sample survey weights. ACME refers to the average causal mediated effect. ADE refers to the average direct effect.
***p<.001,
**p<.01,
*p<.05.
Source: Survey of Financial Security, 1999 to 2012, N = 33,201 family households (restricted to households where respondent is 18 years or older).

Figure 2

Direct and Indirect Relationships between Disability, Employment Income, and Nonhousing Assets



Note: Results are based on mediation models presented in Table 4. ADE refers to the average direct effect of disability on the outcome variable net of all covariates, and ACME refers to the average causal mediated effect of disability through income. ADE + ACME = Total effect.

that households where either the respondent or the respondent's spouse reported a disability held 25 percent less in nonhousing assets than otherwise similar households. General explanations for wealth inequality help to account for some of the larger disability wealth gaps, demonstrating how inequality and disadvantage are linked across areas. However, disparities remain even after accounting for education, employment, and family

structure differences distinctly pointing to disability's direct negative relationship with assets. Additionally, mediation models show that the gaps are actually much larger once the indirect relationship between disability, employment earnings, and assets is accounted for. Labor market barriers make it difficult for people with disabilities to build and access savings and retirement plans, accounting in part for the significant link between earnings and assets in our findings.

A lack of knowledge, tools, and resources that limits many members of disadvantaged groups from accessing financial products, programs, and credit markets makes it easier to blame an individual for their so-called poor financial choices (see Mirowski and Ross 1998). However, as our analyses illustrate, large disparities in assets remained even after accounting for key explanations of wealth inequality across models. These disparities may be the result of attitudinal barriers people with disabilities face including biases and discrimination. They may also be accounted for via structural barriers including economic policies, such as asset-based testing to determine disability benefits, which actively discourage people to save. Not surprisingly, people with disabilities develop low expectations about saving or building financial assets (see Soffer et al. 2010).

Canadian federal and provincial governments have sought to address wealth disparities by creating opportunities for saving like, for instance, the Registered Disability Savings Plan (RDSP)[9] within which the federal government provides matching savings contributions for individuals qualifying for the Disability Tax Credit (DTC). This system is very similar to an RRSP that incentivizes individuals to put money aside in a nest egg. According to the Canadian Revenue Agency (CRA), "The purpose of the DTC is to provide for greater tax equity by allowing some relief for disability costs, since these are unavoidable additional expenses that other taxpayers don't have to face."

Despite the promise in this saving opportunity, the program comes with several limitations. Savings cannot be accessed for a period of 10 years, and individuals who lose their DTC qualification also stand to lose any prior matching contributions. In addition, these programs have been fairly limited, emphasizing an individual's personal responsibility to save rather than more significant underlying social and economic problems generating poverty and inequality. These policies do not address the kinds of financial insecurities people like Anna Costa experience when disability leads to precarious employment with limited disability benefits to supplement meager earnings. In other words, when there is no money to save.

This paper provided empirical insights on disability's relationship with assets and a larger theoretical contribution through our focus on the interconnectivity of labor and credit markets in explaining disadvantages

9. See http://www.rdsp.com/about/what-is-it.

experienced by Canadians with disabilities. Certain limitations were, however, present in our study. First, we were limited in terms of the available wealth data (Spilerman 2000). Our models likely underestimate wealth inequality within Canada because the SFS misses extremely wealthy households that have incentives to hide their wealth. Second, due to the size of the sample of people with disabilities (7,043 households) and the available data, we were unable to provide a more refined measure of disability and could not assess how results varied by disability type and severity. Other studies (Jones 2008, 2011; Maroto and Pettinicchio 2014b) have shown that outcomes tend to vary based on the nature of disability and it is likely that this applies to the relationship between disability and wealth as well. Third, our use of cross-sectional data complicated our ability to fully discern the direction of the relationships of interest. Although disability likely leads to subsequent disadvantage, it may also be the case that low-income persons subject to poor working conditions are more likely to develop disabilities later on.

Future studies should seek to more directly observe the consequences of disability in the labor market and in wealth building. Longitudinal surveys, like the U.S. National Longitudinal Survey of Youth (NLSY) and the PSID would be ideal for this type of research. Unfortunately, Canadian longitudinal surveys of this kind are limited. Additionally, considering multiple aspects of economic security is critical given that people with disabilities face numerous barriers to employment and earnings, which means that many must rely on alternate sources of income (including transfer payments, see Parish 2010) for their well-being and survival (Jones 2008, 2011; Maroto and Pettinicchio 2014b, 2015). But, less is known about how income sources beyond employment influence economic insecurity (Western et al. (2012). Given the decline in lifelong careers and decreased reliance on employer–employee savings plans, individuals must independently seek out other ways to support themselves (Hacker 2006)—a reality all the more salient to individuals with disabilities and those with limited assets more generally.

Considering the ways in which status characteristics shape inequality in related domains such as education, credit markets, and work can have important policy implications. If governments want to close the disability wealth gap, policy must extend beyond the labor market to account for social assistance programs (overhauling means-tested social assistance), health (especially growing health care costs), and asset-building programs (which tend to disproportionately benefit more advantaged groups). Poverty rates among people with disabilities remain high during their working years but decline in old age, when additional federal programs kick in to alleviate poverty (Crawford 2013). This points to the important role of government in addressing asset limits as well as a much needed multifaceted approach to overcoming the many barriers that people with disabilities face, bolstering our understanding of the ways in which

economic disparities and insecurities might be mitigated through social policy.

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