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by René Morissette and Hanqing Qiu

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# ***Entering postsecondary education after job loss: Family-level considerations***

by René Morissette and Hanqing Qiu

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## **Abstract**

This study examines whether the likelihood of displaced workers entering postsecondary education (PSE) or choosing a new field of study after job loss varies across family types. The main finding is that, all else equal, the propensity of displaced workers to enter PSE or to choose a new field of study after job loss was fairly similar across types of family units. The types of educational programs selected and their duration also appear fairly similar across types of family units. Conditional on the tax and transfer parameters and tuition fees observed during the 2010s, this finding provides no support for the hypothesis that post-displacement PSE transitions are a “luxury” that only certain types of families can afford. The study also shows that:

1. Displaced workers are between one and three percentage points more likely than other workers to enter PSE after job loss;
2. Unattached individuals and lone parents are no less likely than dual-earner couples to enter PSE or change fields of study after job loss;
3. Among dual-earner couples, spousal earnings and having children younger than 18 years are not robustly correlated with the decision to enter PSE or change fields of study after job loss;
4. Displaced women who are the main earners in dual-earner couples are more likely than others to enter PSE or change fields of study when their spouse is employed in public administration in the year before job loss.

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## Introduction

Every year, thousands of Canadian workers experience job displacement, i.e., lose their job. Since job displacement often leads to substantial and persistent earnings losses (Jacobson et al., 1993; Hijzen et al., 2010; Morissette et al., 2013), one important issue is the strategies displaced workers use to adjust to job loss (Morissette & Qiu, 2021).

Going back to school is one of these adjustment strategies. Recent Canadian studies on labour adjustment following job loss (Frenette et al., 2011; Ci et al., 2016; Morissette & Qiu, 2021; Handler & Morissette, 2022) have quantified the degree to which job displacement increases transitions into postsecondary education (PSE) and identified the individual-level covariates (e.g., age, education, sex, immigrant status) that are associated with these transitions. However, remarkably little attention has been paid to the family-level factors that may foster or restrict PSE transitions after job loss.

One important issue is whether post-displacement PSE transitions are a “luxury” that only certain types of families can afford. For example, because of time constraints and financial constraints, lone parents and single individuals might enter PSE after job loss to a far lesser extent or choose educational programs of shorter duration, compared with their counterparts living in dual-earner couples or high-income couples. Conversely, the incentives for going back to school might be lower for workers who live in dual-earner couples and can rely on a second earner. Time constraints might also be greater for couples who have children than for single individuals.

A second issue is whether displaced workers in dual-earner couples are more likely than others to enter PSE when spousal earnings are relatively high or the risk of job loss of the spouse is relatively low. If so, one would expect displaced workers whose spouse is employed in large firms or in public administration—sectors that have a low risk of job loss—to enter PSE more often than others after job loss.

A related question is whether, for displaced workers with at least a college education, the likelihood of **re-skilling**—i.e., entering a new field of study after job loss—varies across types of family units and, among dual-earner couples, depending on the earnings or risk of job loss of the non-displaced spouse.

In sum, the opportunities for coping with job loss through PSE transitions might be unequally distributed across Canadian families, perhaps even more so than across Canadian workers.

These issues are important for a variety of reasons. As labour markets in Canada and around the world witness advances in robotics and artificial intelligence, some jobs face a growing risk of being lost or transformed because of automation (Brynjolfsson & McAfee, 2014; Arntz et al., 2016; Acemoglu & Restrepo, 2019; Frenette & Frank, 2020). This risk may have been magnified by the COVID-19 pandemic, as some employers might now face greater incentives to automate tasks to reduce the likelihood of subsequent interruptions in their operations. In this context, documenting how displaced workers in various types of families cope with job loss is a prerequisite for informed discussions of post-displacement labour adjustment.

The goal of this project is to shed light on these issues. Using data from Statistics Canada’s Longitudinal Worker File (LWF), the T1 Family File (T1FF), the Postsecondary Student Information System (PSIS), and the 2006 Census of Population, the study quantifies the degree to which the likelihood of entering PSE or a new field of study after job loss varies, all else equal, across types of family units and, among dual-earner couples, with the earnings or the risk of job loss of the spouse.

## Previous research

Several studies have documented the negative impact of job loss on workers' earnings (Jacobson et al., 1993; Stevens, 1997; Kletzer & Fairlie, 2003; Couch & Placzek, 2010; Hijzen et al., 2010; Morissette et al., 2013; Morissette & Qiu, 2020). However, the link between job loss and PSE has been analyzed to a lesser extent.

Frenette et al. (2011) used Canadian administrative data and found that job displacement from firm closures and mass layoffs was associated with a one-percentage-point increase in PSE attendance (from a baseline rate of 10%). Since job losses from firm closures or mass layoffs account for less than half of all permanent layoffs in Canada (Morissette & Qiu, 2020), their analysis was restricted to a subset of job losses. Ci et al. (2016) considered all permanent layoffs experienced by workers aged 35 to 44 who were displaced from 2004 to 2011. They found that laid-off male and female Canadian workers were two to four percentage points more likely than other men and women to transition to PSE in the year of the layoff or the following year (from a baseline rate of about 3%). Morissette and Qiu (2021) came to a similar conclusion while focusing their attention on workers displaced in 2009. Because they did not use PSIS, none of these studies assessed the degree to which Canadian displaced workers chose fields of study that led them to simply upgrade their skills or fields that implied a major career reorientation.<sup>1</sup>

Handler and Morissette (2022) filled this gap. Using data from the 2006 Census of Population linked with Statistics Canada's LWF and PSIS, they showed that of all prime-aged postsecondary-educated workers who lost their job from 2009 to 2013, close to 10% entered PSE in the three years following job loss. Of those who entered PSE after job loss, almost 60% changed fields of study. They also showed that displaced men and women who went back to school after job loss and who had similar initial fields of study tended to choose different fields of study after displacement. In particular, displaced men were less likely to move into health-related fields of study than displaced women.

Foote and Grosz (2020) used U.S. data from the Integrated Postsecondary Education Data System, a dataset that allowed them to disaggregate results by field of study. They found that for every 100 workers laid off, enrolment in community colleges increased by three students within the next three years. They also showed that for every 100 workers involved in a mass layoff, degree completion increased by two students, with most of this effect being concentrated among short-term certificates, as opposed to associate's degree programs.

In sum, job loss appears to trigger a modest increase in enrolment in PSE institutions, both in Canada and the United States. The degree to which this increase in PSE enrolment varies across types of family units and, among dual-earner couples, with spousal earnings or the risk of job loss of the spouse is currently unknown in Canada and will be investigated in the remainder of the paper.

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1. In these studies, transitions into PSE were identified from T1 records, using information on tuition credits and education deductions claimed for courses taken at a PSE institution in Canada.

## Data and samples

The study integrates data from four different datasets: the 2006 Census of Population, Statistics Canada's LWF, PSIS, and the T1FF. Each of these files captures information that forms the basis of the descriptive analyses and regression analyses performed in subsequent sections.

The 2006 Census of Population is used to measure the education level and field of study of workers in 2006, as well as their immigrant status and the population group (e.g., Black, White, Filipino, South Asian) they belong to. The LWF identifies displaced workers—workers who lose their job in a given year—and a comparison group of workers who do not lose their job during that year. The T1FF measures the different types of family units that displaced workers live in: single individuals, lone parents, single-earner couples and dual-earner couples. Lastly, PSIS captures the transitions into PSE that some displaced workers undertake after job loss and that some non-displaced workers make during the same time interval. In this study, a transition into PSE occurs when a worker is not enrolled in PSE during years  $t$  and  $t-1$ , but is enrolled at some point between years  $t+1$  and  $t+3$ .<sup>2</sup> PSIS has information on the duration and level of the educational program selected and on the field of study with which this program is associated.

The focus of the paper is on the educational strategies of prime-aged displaced workers who lost their jobs from 2009 to 2013.<sup>3</sup> For this reason, most of the analyses are restricted to displaced workers who were aged 30 to 54 during the year of job loss (year  $t = 2009, \dots, 2013$ ) and to a comparison group of non-displaced workers who were also aged 30 to 54 that year.<sup>4</sup>

While sample selection criteria differ depending on the family unit considered (see Appendix 1 for details), all of the sampled workers are required to remain in the same type of family unit from year  $t-1$  (the year before job loss) to year  $t+4$  (the fourth year after job loss). For example, unattached displaced workers and their counterparts in the comparison group are required to remain unattached during this six-year period. This restriction is imposed to help assess the degree to which job loss influences transitions into PSE, while holding constant family-level factors. In the “Robustness checks” section, this restriction is relaxed and family types are defined solely conditional on the type of family unit observed in the year before job loss, i.e., year  $t-1$ .

Regardless of the type of family unit considered, all sampled displaced workers and workers in the comparison group did not attend PSE institutions in the year before job loss (year  $t-1$ ) and in the year of job loss (year  $t$ ). This restriction ensures that individuals who attended such institutions in the years following reference year  $t$  actually made a **transition** into PSE.

Transitions into PSE are measured using two different definitions of PSE. The first definition is broad and includes all transitions into PSE made in the three years following job loss, including those associated with non-programs<sup>5</sup> (regardless of whether these non-programs give credits or not).<sup>6</sup> The second definition is narrower and excludes transitions into non-programs. One justification for the broad definition

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2. To capture transitions into PSE, both T1 records and PSIS are used. Non-enrolment in PSE in reference years  $t$  and  $t-1$  is measured from T1 records using information on tuition credits and education deductions claimed for courses taken at a PSE institution in Canada. Enrolment in PSE between years  $t+1$  and  $t+3$  is measured using the enrolment flags from PSIS. T1 records are used to measure non-enrolment in years  $t$  and  $t-1$  because PSIS does not have full coverage of enrolment in 2008, which represents year  $t-1$  for the 2009 cohort of displaced workers.
  3. The years 2009 to 2013 are selected to allow a comparison of results with those of Handler and Morissette (2022).
  4. Data on five cohorts of displaced workers—those laid off between 2009 and 2013—and on their respective comparison group are pooled. Since some individuals may appear in several comparisons groups, standard errors of parameter estimates are clustered by person identifier when regression analyses are performed.
  5. An accounting course taken in isolation, i.e., outside of a bachelor's degree program or a university certificate program, is an example of a non-program. Courses taken in isolation and that do not give credits are another example.
  6. Handler and Morissette (2022) use this broad definition of PSE.

is that all forms of human capital investment and, therefore, all PSE transitions can potentially help individuals adjust to loss. Conversely, the possibility that perhaps only significant human capital investments taking place in formal educational programs are likely to facilitate labour adjustment after job loss provides a rationale for the narrower definition.

Under both definitions, a minority of individuals make multiple PSE transitions during the three years following job loss.<sup>7</sup> When this happens, the transition with the longest duration is considered in the analysis. The transition with the longest duration is chosen because it will likely lead to the largest increase in human capital and, therefore, be the most relevant for post-displacement labour adjustment. When multiple PSE transitions have the same duration, the transition observed shortly after job loss is considered.

By combining the field of study observed in 2006 with the field of study selected in the three years following job loss (i.e., after the years 2009 to 2013), it is possible to assess the degree to which displaced workers undergo re-skilling, i.e., enter a new field of study after job loss (Handler & Morissette, 2022). This is done for a subsample of postsecondary-educated displaced workers, i.e., displaced workers who had PSE below a bachelor's degree in 2006 or who had a bachelor's degree or higher education that year.

## Entering postsecondary education after job loss

Table 1 shows the rates of entry into PSE, by type of family unit, sex and PSE definition for workers displaced between 2009 and 2013, as well as for other workers in the relevant comparison groups. Across sex categories and types of family units, when the broad PSE definition is considered, between 4.7% and 10.0% of workers displaced during that period entered PSE in the three years following job loss. The corresponding percentages for other workers are between two and four percentage points lower, thereby suggesting that job loss slightly increases the likelihood of returning to school.

**Table 1**  
**Rates of entry into postsecondary education (PSE), by family type, sex and PSE definition, workers displaced from 2009 to 2013 and other workers**

Type of family unit	Unattached individuals		Lone-parents		Single-earner couples		Main earners		Secondary earners	
	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers
percent										
<b>I. Broad definition of postsecondary education</b>										
All	7.0	4.7	9.2	5.7	6.2	3.8	6.2	4.6	6.5	4.9
Men	5.9	3.7	4.7	3.0	5.9	3.7	5.9	4.3	5.9	3.8
Women	8.8	5.8	10.0	6.1	7.4	4.6	7.8	5.5	6.9	5.2
<b>II. Narrow definition of postsecondary education</b>										
All	4.2	2.3	6.0	3.1	3.3	1.8	3.3	2.2	3.8	2.5
Men	3.5	1.7	2.3	1.4	3.0	1.6	3.1	1.9	3.1	1.7
Women	5.3	3.0	6.6	3.3	4.6	2.5	4.6	2.9	4.3	2.7
numbers										
Sample size	11,430	254,895	5,680	115,620	7,460	178,020	23,685	430,660	33,315	427,625

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Sample sizes are rounded to the nearest 5.

**Source:** Statistics Canada, Census of Population of 2006; Longitudinal Worker File; T1 Family File; Post-Secondary Information System.

7. Only 12.1% of displaced workers and 9.7% of non-displaced workers who enter PSE after year t make multiple PSE transitions from year t+1 to year t+3. Hence, the vast majority of workers make only one transition into PSE after year t.

As expected, rates of entry into PSE are somewhat lower when the narrow PSE definition is used. Based on the narrow definition, between 2.3% and 6.6% of displaced workers entered PSE in the three years following job loss. The corresponding percentages for workers in the comparison groups are between one and three percentage points lower.

Regardless of the PSE definition and type of family unit considered, displaced women entered PSE at a higher rate than displaced men. For example, under the broad PSE definition, 10.0% of lone mothers entered PSE after job loss, compared with 4.7% of lone fathers.

Table 1 also shows that rates of entry into PSE are, for displaced workers, fairly similar across types of family units. Depending on the type of family unit considered, when the broad definition is used, between 4.7% and 5.9% of displaced men entered PSE in the three years following job loss. While single displaced men entered PSE at the same rate (5.9%) as displaced men living in single-earner couples or dual-earner couples, displaced lone fathers entered PSE at a slightly lower rate (4.7%). Furthermore, rates of entry into PSE were no lower for displaced single women and displaced lone mothers than they were for women living in couples. Taken together, these numbers provide no support for the view that post-displacement PSE transitions are a luxury that only certain types of families can afford.<sup>8</sup>

Table 2 tests whether, all else equal, displaced workers enter PSE more often than other workers. Separate probit models of the likelihood of entering PSE in the three years following job loss are estimated by type of family unit, sex and PSE definition. For all types of family units, a core set of control variables includes a binary indicator for being aged 45 to 54 (as opposed to being aged 30 to 44), education, immigrant status, population groups and cohort indicators.<sup>9</sup> A binary indicator of whether couples have children younger than 18 years of age is added to this set of control variables when workers living in single-earner or dual-earner couples are considered. Lastly, indicators of spousal earnings and a binary indicator of whether one's spouse works in public administration in the year before job loss are added for individuals living in dual-earner couples.

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8. See appendix tables 1 and 2 for more details.

9. Whenever probit models pool data for men and women, a binary indicator for women is added to the list of control variables.



**Table 2**  
**Job loss and entry into postsecondary education, by family unit type, sex and postsecondary education definition**

Type of family unit	Unattached individuals	Lone parents	Single-earner couples	Dual-earner couples	
				Main earner lost job	Secondary earner lost job
average partial effects of being displaced					
<b>I. Both sexes</b>					
Broad definition of PSE	0.029 ***	0.037 ***	0.025 ***	0.020 ***	0.023 ***
Narrow definition of PSE	0.021 ***	0.029 ***	0.016 ***	0.013 ***	0.016 ***
<b>II. Men</b>					
Broad definition of PSE	0.025 ***	0.019 †	0.023 ***	0.018 ***	0.024 ***
Narrow definition of PSE	0.018 ***	0.011 †	0.014 ***	0.012 ***	0.014 ***
<b>III. Women</b>					
Broad definition of PSE	0.034 ***	0.040 ***	0.032 ***	0.027 ***	0.021 ***
Narrow definition of PSE	0.025 ***	0.032 ***	0.022 ***	0.019 ***	0.017 ***

\* significantly different from reference category ( $p < 0.05$ )

\*\* significantly different from reference category ( $p < 0.01$ )

\*\*\* significantly different from reference category ( $p < 0.001$ )

† significantly different from reference category ( $p < 0.10$ )

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run for each family type, sex and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

The results confirm the pattern shown in Table 1: in all types of family units, displaced men and women are slightly more likely than other workers to enter PSE after job loss. This pattern holds for both PSE definitions. For example, under the narrow PSE definition, displaced lone mothers are on average 3.2 percentage points more likely to enter PSE in the three years following job loss than other lone mothers. Under the broad (narrow) PSE definition, the likelihood of displaced men and women entering PSE after job loss is, on average, between 1.8 and 4.0 percentage points (between 1.1 and 3.2 percentage points) higher than that of other workers. These estimates are in line with those of Morissette and Qiu (2021) and Handler and Morissette (2022).

Table 3 tests whether, all else equal, the likelihood of displaced workers entering PSE after job loss varies across types of family units. In this case, the sample is limited to displaced workers, and those living in different types of family units are pooled in a single dataset. Separate probit models are estimated by sex and PSE definition. In addition to indicators of family types, the models include the core set of control variables used for Table 2.

**Table 3**  
Likelihood of displaced workers entering postsecondary education after job loss, by family unit type and personal characteristics

	Both sexes		Men		Women	
	Definition of PSE		Definition of PSE		Definition of PSE	
	Broad	Narrow	Broad	Narrow	Broad	Narrow
average partial effects of variables						
<b>Family unit type</b>						
Displaced unattached individuals (reference group)	...	...	...	...	...	...
Displaced lone parents	0.010 *	0.006	-0.008	-0.007	0.005	0.007
Displaced earners in single-earner couples	-0.001	-0.005	0.004	-0.003	-0.010	-0.005
Displaced main earners in dual-earner couples	-0.005 †	-0.007 **	0.000	-0.004 †	-0.016 *	-0.011 *
Displaced secondary earners in dual-earner couples	-0.010 **	-0.008 ***	0.001	-0.004	-0.023 ***	-0.014 **
<b>Sex</b>						
Men	...	...	...	...	...	...
Women	0.010 ***	0.009 ***	...	...	...	...
<b>Age in reference year t</b>						
30 to 44 years (reference group)	...	...	...	...	...	...
45 to 54 years	-0.029 ***	-0.022 ***	-0.028 ***	-0.022 ***	-0.032 ***	-0.022 ***
<b>Education in 2016</b>						
Less than high school	-0.022 ***	-0.018 ***	-0.021 ***	-0.018 ***	-0.023 ***	-0.014 ***
High school (reference group)	...	...	...	...	...	...
Trades certificate or diploma	-0.009 **	-0.01 ***	-0.008 *	-0.009 ***	-0.012 *	-0.009 *
PSE below bachelor's degree	0.015 ***	0.007 **	0.014 ***	0.006 *	0.015 ***	0.008 *
Bachelor's degree	0.024 ***	0.016 ***	0.016 **	0.010 **	0.031 ***	0.022 ***
Above bachelor's degree	0.035 ***	0.022 ***	0.037 ***	0.029 ***	0.032 ***	0.014 *
<b>Immigrant status</b>						
Canadian-born (reference group)	...	...	...	...	...	...
Landed 10 years earlier or less	0.008	0.010 *	0.007	0.009 †	0.011	0.012
Landed more than 10 years earlier	-0.013 ***	-0.006 **	-0.013 **	-0.004	-0.013 *	-0.010 *
numbers						
Sample size	81,575	81,575	45,980	45,980	35,600	35,600

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

**Table 3**  
**Likelihood of displaced workers entering postsecondary education after job loss, by family unit type and personal characteristics (continued)**

	Both sexes		Men		Women	
	Definition of PSE		Definition of PSE		Definition of PSE	
	Broad	Narrow	Broad	Narrow	Broad	Narrow
average partial effects of variables						
<b>Population groups</b>						
South Asian	-0.029 ***	-0.014 ***	-0.021 ***	-0.008 *	-0.039 ***	-0.022 ***
Chinese	-0.012 *	-0.005	-0.012	-0.004	-0.013	-0.008
Black	0.024 **	0.023 ***	0.033 *	0.025 *	0.013	0.022 *
Filipino	-0.019 **	-0.010 *	-0.005	-0.005	-0.037 ***	-0.019 **
Arab	-0.019 *	-0.004	-0.021 *	-0.008	-0.013	0.004
Latin American	0.008	0.013 †	-0.002	0.003	0.022	0.029 †
Southeast Asian	-0.025 **	-0.005	-0.006	0.012	-0.047 ***	-0.026 ***
Other	0.040 ***	0.021 ***	0.030 ***	0.010 *	0.054 ***	0.037 ***
White (reference group)	...	...	...	...	...	...
<b>Cohort</b>						
2009 (reference group)	...	...	...	...	...	...
2010	-0.001	0.002	-0.008 *	-0.004 †	0.009 †	0.011 **
2011	-0.003	-0.001	-0.004	-0.003	-0.001	0.002
2012	-0.007 *	0.000	-0.010 **	-0.004 †	-0.001	0.006 †
2013	-0.006 *	0.000	-0.008 *	-0.003	-0.004	0.004
numbers						
Sample size	81,575	81,575	45,980	45,980	35,600	35,600

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

In line with Table 1, Table 3 provides no support for the view that PSE transitions are limited to a narrow set of families. Regardless of the PSE definition considered, none of the family type indicators considered are statistically significant (relative to unattached individuals) for displaced men. Furthermore, the likelihood of displaced women living in dual-earner couples is, if anything, **lower** than that of unattached displaced women. For example, under the broad PSE definition, displaced women who are secondary earners in dual-earner couples are, on average, 2.3 percentage points less likely to enter PSE after job loss than unattached displaced women.

Table 3 uncovers three additional patterns. In line with Table 1, it shows that women are more likely than men to return to school after job loss. The sex difference averages about one percentage point and thus is fairly modest. Table 3 also confirms that young and highly educated displaced workers are more likely to enter PSE after job loss than other displaced workers (Morissette & Qiu, 2021). Lastly, Table 3 shows that the likelihood of entering PSE after job loss varies across population groups. For example, the

likelihood of South Asian women and Filipino women entering PSE after job loss is about four percentage points lower than that of White women under the broad PSE definition and about two percentage points lower under the narrow definition.

Table 4 investigates the role of family characteristics among displaced workers living in dual-earner couples. Separate probit models are estimated by sex, main earner status and PSE definition. The set of control variables is the same as the full set of variables used in Table 2, i.e. include the core set of variables, a binary indicator of whether couples have children younger than 18 years of age, indicators of spousal earnings and a binary indicator of whether one’s spouse works in public administration in the year before job loss.

**Table 4**  
**Likelihood of displaced workers in dual-earner couples entering postsecondary education after job loss, by selected family characteristics**

	Broad definition of PSE		Narrow definition of PSE	
	Main earner	Secondary earner	Main earner	Secondary earner
<b>lost job</b>				
average partial effects of variables				
<b>I. Men</b>				
<b>Couple has children younger than 18 in year t</b>				
Yes	-0.001	0.001	-0.004	0.003
No (reference group)	...	...	...	...
<b>Employment income of spouse in year t-1 (2018 dollars)</b>				
Less than \$30,000 (reference group)	...	...	...	...
\$30,000 to \$49,999	-0.005	-0.004	-0.005	0.004
\$50,000 to \$74,999	-0.017 ***	-0.001	-0.011 **	0.009 †
\$75,000 to \$99,999	-0.005	-0.001	-0.010	0.003
\$100,000 or more	-0.002	-0.004	-0.008	-0.001
<b>Spouse works in public administration in year t-1</b>				
Yes	0.021 **	0.011	0.013 *	0.002
No (reference group)	...	...	...	...
numbers				
Sample size	20,030	11,815	20,030	11,815

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex, main earner status and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

**Table 4**  
**Likelihood of displaced workers in dual-earner couples entering postsecondary education after job loss, by selected family characteristics (continued)**

	Broad definition of PSE		Narrow definition of PSE	
	Main earner	Secondary earner	Main earner	Secondary earner
<b>lost job</b>				
average partial effects of variables				
<b>II. Women</b>				
<b>Couple has children younger than 18 in year t</b>				
Yes	0.011	0.003	0.013 <sup>†</sup>	0.004
No (reference group)	...	...	...	...
<b>Employment income of spouse in year t-1 (2018 dollars)</b>				
Less than \$30,000 (reference group)	...	...	...	...
\$30,000 to \$49,999	-0.016	0.010	-0.006	0.005
\$50,000 to \$74,999	-0.007	0.016 <sup>*</sup>	-0.001	0.008
\$75,000 to \$99,999	-0.029 <sup>†</sup>	0.018 <sup>*</sup>	-0.007	0.006
\$100,000 or more	-0.044 <sup>*</sup>	0.016 <sup>*</sup>	-0.028 <sup>*</sup>	0.004
<b>Spouse works in public administration in year t-1</b>				
Yes	0.055 <sup>*</sup>	0.016 <sup>*</sup>	0.031 <sup>†</sup>	0.006
No (reference group)	...	...	...	...
numbers				
Sample size	3,660	21,500	3,660	21,500

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex, main earner status and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

Table 4 shows that among displaced workers living in dual-earner couples, those who have children younger than 18 are neither more nor less likely to enter PSE after job loss than their counterparts who do not have children. In general, there is little evidence that spousal earnings affect the likelihood of making a transition into PSE after job loss. One exception is found under the broad PSE definition when considering displaced women who are secondary earners. For this sample, displaced women whose spouse earned at least \$50,000 in the year before job loss are about 1.6 percentage points more likely to enter PSE after job loss than their counterparts whose spouse earned less than \$30,000 that year.

The only robust pattern in Table 4 is found among displaced men and women who are main earners in dual-earner couples and whose spouse worked in public administration in the year before job loss. For both PSE definitions, these workers are more likely to enter PSE after job loss than other workers. The difference varies between 1.3 and 2.1 percentage points for men and between 3.1 and 5.5 percentage points for women. This pattern suggests that displaced main earners whose spouses has a relatively low risk of job loss are more likely than others to enter PSE after being displaced.

## Programs selected by enrollees

While displaced workers from different family types enter PSE after job loss to a similar extent, it is conceivable that some of them choose educational programs that vary in length or levels. For example, displaced unattached individuals and lone parents might disproportionately favour one-year programs because of financial constraints or time constraints, compared with displaced workers living in dual-earner couples.

Table 5 examines this issue. It shows, for each type of family unit, the duration and level of educational programs chosen by displaced workers who entered PSE in the three years following job loss.<sup>10</sup> The first thing to note is that there is no evidence that displaced unattached individuals and displaced lone parents disproportionately favour one-year programs. For example, 60% of displaced lone parents chose one-year programs after job loss, but between 63% and 66% of displaced workers living in dual-earner couples also did so. Likewise, there is no evidence that displaced unattached individuals and displaced lone parents disproportionately favour non-educational programs. Between 35% and 40% of them chose non-educational programs after job loss, compared with between 41% and 48% of displaced workers living in single-earner or dual-earner couples.

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10. In this table, program duration measures the number of years during which an individual is observed in a given program within the interval of year t+1 to year t+3. Thus, some individuals who are observed in a given program for three years might actually have kept attending this program after year t+3.

**Table 5**  
**Level and duration of educational program selected by displaced workers after job loss, by family unit type**

Family unit type	Unattached individuals	Lone parents	Single-earner couples	Dual-earner couples	
				Main earner	Secondary earner
				lost job	
			percent		
<b>Duration of postsecondary education program selected after job loss</b>					
One year	63.9	60.2	71.4	66.4	62.7
Two years	24.9	26.6	18.2	23.4	25.1
Three years	11.3	13.3	10.4	10.2	12.3
<b>Level of postsecondary education program selected after job loss</b>					
1	3.2	6.7	4.6	1.6	2.7
2	38.5	39.6	32.5	36.4	35.7
3	9.8	10.0	7.5	6.1	10.2
4	5.2	3.8	4.1	5.7	6.1
5	40.4	35.1	47.6	46.8	41.4
Multiple programs	3.0	4.8	3.6	3.4	4.0
			numbers		
Sample size	785	570	505	1,480	2,190

**Notes:** Level 1 includes basic education and skills programs, and other programs. Level 2 includes apprenticeship programs; qualifying programs for career, technical or pre-university; career, technical or professional training programs; and post-career, technical or professional training programs. Level 3 includes pre-university programs, undergraduate qualifying programs and undergraduate programs. Level 4 includes post-baccalaureate non-graduate programs, graduate qualifying programs (second cycle), graduate qualifying programs (third cycle), health-related residency programs, graduate programs (second cycle), graduate programs (third cycle) and graduate programs (above the third cycle). Level 5 includes non-programs (non-credit), non-programs (credit, undergraduate), non-programs (credit, graduate) and non-programs (credit, other postsecondary). Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

Table 5 also shows that regardless of the type of family unit considered, at least one-third of displaced workers chose Level 2 programs, i.e., one of the following types of programs: apprenticeship programs; qualifying programs for career, technical or pre-university; career, technical or professional training programs; or post-career, technical or professional training programs. Between 6% and 10% of displaced workers chose Level 3 programs, i.e., enrolled in pre-university programs, undergraduate qualifying programs or undergraduate programs. Displaced unattached individuals and displaced lone parents chose Level 3 programs at least as frequently as other displaced workers.

Taken together, the numbers shown in Table 5 do not support the hypothesis that displaced unattached individuals and displaced lone parents choose shorter programs or programs involving lower levels of education after job loss.

## Entering a new field of study after job loss

Discussions of lifelong learning always point out the importance of upgrading one's skills or acquiring new skills throughout one's career, but rarely quantify the degree to which workers do so. When faced with job loss, some workers who contemplate returning to school might decide to do some "fine-tuning,"

i.e., to upgrade their skills within the initial field of study they selected at the beginning of their career. Others might choose to undertake re-skilling, i.e., to acquire new skills in a different field of study. Whether Canadian displaced workers living in different types of family units choose different strategies is currently unknown.

Table 6 fills this information gap and shows the rates of entry of displaced workers and other workers into new fields of study, by sex, type of family unit and PSE definition. Rates of entry into PSE are also shown to provide context. The sample selected consists of postsecondary-educated workers, i.e., workers who had PSE below a bachelor's degree in 2006 or who had a bachelor's degree or higher education that year.

In line with Table 1, Table 6 shows that rates of entry into PSE are: a) slightly higher for displaced workers than for other workers; b) slightly higher for displaced women than for their male counterparts; c) among displaced workers, fairly similar across types of family units. These patterns generally hold when rates of entry into a new field of study are considered.

Across all combinations of sex, types of family units and PSE definitions, a few patterns emerge. Between 2.5% and 6.1% of the postsecondary-educated workers displaced from 2009 to 2013 entered a new field of study in the three years following job loss. This finding shows that while re-skilling after job displacement is not negligible, it certainly does not affect the majority of laid-off workers. Among displaced workers who entered PSE after job loss, between 41% and 64% chose a new field of study under the broad PSE definition, and between 45% and 77% under the narrow definition.<sup>11</sup> Thus, a large share of postsecondary-educated displaced workers who enter PSE after job loss do so in a new field of study.

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11. The percentages are obtained by dividing the numbers from the lower panel of Table 6 by those from the upper panel.



**Table 6**  
**Rates of entry into postsecondary education and rates of entry into a new field of study, by family unit type, sex and PSE definition - postsecondary educated workers displaced from 2009 to 2013 and other postsecondary educated workers**

Type of family unit	Unattached individuals		Lone-parents		Single-earner couples		Dual-earner couples			
	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers	Main earners		Secondary earners	
							Displaced workers	Other workers	Displaced workers	Other workers
percent										
<b>A) Rate of entry into postsecondary education</b>										
Broad definition of postsecondary education										
All	9.8	6.0	9.9	7.0	7.8	4.4	7.2	5.2	8.5	5.8
Men	8.8	4.8	6.3	4.0	7.4	4.1	6.8	4.8	8.0	4.7
Women	10.7	7.0	10.2	7.3	9.0	5.5	8.7	6.1	8.7	6.1
Narrow definition of postsecondary education										
All	6.1	3.1	6.2	3.9	4.8	2.2	4.2	2.6	5.2	3.0
Men	5.6	2.4	3.6	2.4	4.5	1.9	3.9	2.3	4.5	2.2
Women	6.5	3.7	6.5	4.0	6.0	3.2	5.2	3.3	5.4	3.2
<b>B) Rate of entry into a new field of study</b>										
Broad definition of postsecondary education										
All	5.5	3.1	5.7	3.4	3.8	2.2	3.9	2.5	4.6	2.8
Men	4.8	2.5	4.1	1.6	3.8	2.0	3.6	2.4	3.8	2.3
Women	6.1	3.6	5.9	3.6	3.7	2.8	4.9	2.7	4.9	2.9
Narrow definition of postsecondary education										
All	4.1	1.9	4.3	2.2	2.7	1.3	2.7	1.4	3.4	1.7
Men	3.6	1.5	2.8	1.0	2.7	1.1	2.5	1.4	2.7	1.4
Women	4.6	2.2	4.5	2.3	2.7	1.8	3.3	1.6	3.6	1.8
numbers										
Sample size	4,605	142,350	2,275	63,655	2,510	95,690	9,875	261,960	15,380	255,900

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Sample sizes are rounded to the nearest 5.

**Source:** Statistics Canada, Census of Population of 2006; Longitudinal Worker File; T1 Family File; Post-Secondary Information System.

Table 7 expands Table 3 and shows how the likelihood of postsecondary-educated displaced workers entering a new field of study after job loss varies across types of family units and personal characteristics.<sup>12</sup> In line with Table 3, Table 7 shows that, all else equal, displaced unattached individuals and displaced lone parents are no less likely to enter a new field of study after job loss than displaced workers living in single-earner or dual-earner couples.

Table 7 also shows that young workers are more likely than older workers to enter a new field of study after job loss. The differences between the two groups generally amount to about two percentage points. As was the case in Table 3, some differences are observed across population groups. For example, South Asian displaced women are about two percentage points less likely than White displaced women to enter a new field of study after job loss.

All else being equal, the likelihood of entering a new field of study after job loss varies across initial fields of study. Regardless of the PSE definition, displaced women who initially studied in humanities, visual and performing arts and communications technologies, and physical and life sciences and technologies are about four percentage points more likely to enter a new field of study after job loss than those who studied in business, management and public administration. Likewise, displaced men who initially studied in health and related fields are about three percentage points more likely to choose a new field of study after job loss than their counterparts who studied in business, management and public administration.

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12. In addition to the set of control variables used in Table 3, Table 7 includes workers' field of study in 2006.

**Table 7**  
Likelihood of postsecondary-educated displaced workers entering a new field of study after job loss, by family unit type and personal characteristics

	Both sexes		Men		Women	
	Definition of PSE		Definition of PSE		Definition of PSE	
	Broad	Narrow	Broad	Narrow	Broad	Narrow
average partial effects of variables						
<b>Family unit type</b>						
Displaced unattached individuals (reference group)	...	...	...	...	...	...
Displaced lone parents	-0.003	-0.002	-0.003	-0.005	-0.003	-0.002
Displaced earners in single-earner couples	-0.009	-0.008 <sup>†</sup>	-0.007	-0.008	-0.019 <sup>†</sup>	-0.014
Displaced main earners in dual-earner couples	-0.011 <sup>**</sup>	-0.009 <sup>**</sup>	-0.011 <sup>*</sup>	-0.009 <sup>*</sup>	-0.011	-0.009
Displaced secondary earners in dual-earner couples	-0.01 <sup>*</sup>	-0.008 <sup>*</sup>	-0.009 <sup>†</sup>	-0.008 <sup>†</sup>	-0.011 <sup>†</sup>	-0.007
<b>Sex</b>						
Men	...	...	...	...	...	...
Women	0.006 <sup>*</sup>	0.005 <sup>†</sup>	...	...	...	...
<b>Age in reference year t</b>						
30 to 44 years (reference group)	...	...	...	...	...	...
45 to 54 years	-0.020 <sup>***</sup>	-0.015 <sup>***</sup>	-0.018 <sup>***</sup>	-0.014 <sup>***</sup>	-0.022 <sup>***</sup>	-0.016 <sup>***</sup>
<b>Education in 2006</b>						
PSE below bachelor's degree (reference group)	...	...	...	...	...	...
Bachelor's degree or above bachelor's degree	0.005 <sup>†</sup>	0.005 <sup>*</sup>	0.004	0.004	0.002	0.002
<b>Immigrant status</b>						
Canadian-born	...	...	...	...	...	...
Immigrants	-0.003	0.003	0.005	0.009 <sup>†</sup>	-0.011 <sup>†</sup>	-0.004
numbers						
Sample size	34,640	34,640	16,445	16,445	18,195	18,195

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

**Table 7**  
Likelihood of postsecondary-educated displaced workers entering a new field of study after job loss, by family unit type and personal characteristics (continued)

	Both sexes		Men		Women	
	Definition of PSE					
	Broad	Narrow	Broad	Narrow	Broad	Narrow
average partial effects of variables						
<b>Population groups</b>						
South Asian	-0.017 ***	-0.012 **	-0.011 †	-0.006	-0.026 ***	-0.021 ***
Chinese	-0.003	-0.003	-0.009	-0.007	0.003	-0.001
Black	0.032 **	0.030 **	0.022	0.021 †	0.044 **	0.040 **
Other visible minority groups	0.003	0.004	-0.008	-0.005	0.015 †	0.014 †
White (reference group)	...	...	...	...	...	...
<b>Cohort</b>						
2009 (reference group)	...	...	...	...	...	...
2010	-0.003	0.002	-0.007	-0.005	0.001	0.008 †
2011	-0.004	-0.003	-0.004	-0.006	-0.005	-0.001
2012	-0.009 *	-0.004	-0.011 *	-0.007 †	-0.007	-0.001
2013	-0.005	-0.001	-0.006	-0.003	-0.004	0.001
<b>Field of study in 2006</b>						
Education	0.013 *	0.008 †	0.016	0.005	0.015 *	0.012 *
Visual and performing arts, and communications technologies	0.025 ***	0.028 ***	0.006	0.010	0.041 ***	0.044 ***
Humanities	0.025 ***	0.029 ***	0.012	0.017 *	0.037 ***	0.041 ***
Social and behavioural sciences and law	0.015 **	0.014 ***	0.011	0.006	0.018 **	0.020 ***
Business, management and public administration	...	...	...	...	...	...
Physical and life sciences and technologies	0.031 ***	0.024 ***	0.020 †	0.011	0.043 ***	0.036 ***
Mathematics, computer and information sciences	0.015 **	0.016 **	0.009	0.013 †	0.017 †	0.013 †
Architecture, engineering and related technologies	-0.002	0	-0.008 †	-0.008 *	0.017 *	0.020 **
Agriculture, natural resources and conservation	0.037 ***	0.021 **	0.024 *	0.014	0.054 **	0.027 *
Health and related fields	0.013 **	0.012 **	0.032 **	0.030 **	0.010 †	0.009 *
Personal, protective and transportation services	0.011	0.013 †	0.000	0.000	0.022	0.026 *
Baseline rate (percent)	4.5	3.3	3.9	2.8	5.1	3.8
numbers						
Sample size	34,640	34,640	16,445	16,445	18,195	18,195

... not applicable

\* significantly different from reference category (p < 0.05)

\*\* significantly different from reference category (p < 0.01)

\*\*\* significantly different from reference category (p < 0.001)

† significantly different from reference category (p < 0.10)

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

Table 8 assesses how the likelihood of entering a new field of study after job loss varies by family characteristics for postsecondary-educated displaced workers living in dual-earner couples.<sup>13</sup> It shows no evidence that postsecondary-educated displaced workers living in dual-earner couples with children are more or less likely than their counterparts with no children to enter a new field of study after job loss. As was the case in Table 4, where rates of entry into PSE were considered, spousal earnings are not robustly correlated with the likelihood of entering a new field of study, conditional on the control variables used in the probit models. However, displaced women who were the main earners and whose spouse worked in public administration before job loss were about five percentage points more likely to enter a new field of study after job loss than displaced women whose spouse worked in other sectors. In line with

13. In addition to the set of control variables used in Table 4, Table 8 includes workers' field of study in 2006.

Table 4, this finding suggests that transitions into PSE or a new field of study are more frequent among displaced women whose spouse has a relatively low risk of job loss than among other displaced women.

**Table 8**  
**Likelihood of postsecondary-educated displaced workers in dual-earner couples entering a new field of study after job loss, by selected family characteristics**

	Broad definition of PSE		Narrow definition of PSE	
	Main earner	Secondary earner	Main earner	Secondary earner
<b>lost job</b>				
average partial effects of variables				
<b>I. Men</b>				
<b>Couple has children younger than 18 in year t</b>				
Yes	0.001	-0.002	-0.004	0.003
No (reference group)	...	...	...	...
<b>Employment income of spouse in year t-1 (2018 dollars)</b>				
Less than \$30,000 (reference group)	...	...	...	...
\$30,000 to \$49,999	-0.007	-0.009	-0.012 **	0.001
\$50,000 to \$74,999	-0.017 **	-0.015	-0.017 **	-0.003
\$75,000 to \$99,999	-0.004	-0.023	-0.008	-0.011
\$100,000 or more	0.011	-0.019	0.007	-0.014
<b>Spouse works in public administration in year t-1</b>				
Yes	0.008	0.010	0.003	0.002
No (reference group)	...	...	...	...
numbers				
Sample size	7,590	4,325	7,590	4,325

... not applicable

\* significantly different from reference category ( $p < 0.05$ )

\*\* significantly different from reference category ( $p < 0.01$ )

\*\*\* significantly different from reference category ( $p < 0.001$ )

† significantly different from reference category ( $p < 0.10$ )

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex, main earner status and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

Table 8

## Likelihood of postsecondary-educated displaced workers in dual-earner couples entering a new field of study after job loss, by selected family characteristics (continued)

	Broad definition of PSE		Narrow definition of PSE	
	Main earner	Secondary earner	Main earner	Secondary earner
<b>lost job</b>				
average partial effects of variables				
<b>II. Women</b>				
<b>Couple has children younger than 18 in year t</b>				
Yes	0.003	0.008	0.006	0.004
No (reference group)	...	...	...	...
<b>Employment income of spouse in year t-1 (2018 dollars)</b>				
Less than \$30,000 (reference group)	...	...	...	...
\$30,000 to \$49,999	-0.004	-0.011	0.006	-0.014
\$50,000 to \$74,999	-0.005	-0.004	0.007	-0.012
\$75,000 to \$99,999	-0.019	0.001	-0.008	-0.009
\$100,000 or more	-0.033 **	-0.014	-0.012	-0.019 †
<b>Spouse works in public administration in year t-1</b>				
Yes	0.056 *	-0.008	0.052 *	-0.007
No (reference group)	...	...	...	...
numbers				
Sample size	2,290	11,050	2,255	11,050

... not applicable

\* significantly different from reference category ( $p < 0.05$ )\*\* significantly different from reference category ( $p < 0.01$ )\*\*\* significantly different from reference category ( $p < 0.001$ )† significantly different from reference category ( $p < 0.10$ )

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. The narrow definition excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Separate probit models are run by sex, main earner status and definition of PSE. See main text for details. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

## Robustness checks

The results shown so far are based on samples of workers who are required to remain in the same type of family unit over six years, i.e., from year t-1 (the year before job loss) to year t+4 (the fourth year after job loss). The main advantage of these samples is that they allow analyses of the educational strategies of displaced workers within a stable family environment. Their main disadvantage is that they are selective samples, i.e., are not necessarily representative of all Canadian family units.

To overcome this selectivity issue, tables 2 to 4 and 7 and 8 were replicated for a broader sample in which family units observed in year t-1 were allowed to change subsequently. For example, individuals

who were unattached or lone parents in year t-1 were allowed to get married in subsequent years, while couples observed in year t-1 were allowed to divorce or separate in subsequent years.

Results available upon request show that all of the main findings reported in the study hold when this broader sample is used. For both samples:

1. Displaced workers are between one and three percentage points more likely to enter PSE after job loss than other workers.
2. Unattached individuals and lone parents are no less likely than dual-earner couples to enter PSE or change fields of study after job loss.
3. Among dual-earner couples, spousal earnings and having children younger than 18 years are not robustly correlated with the decision to enter PSE or change fields of study after job loss.
4. Displaced women who are the main earners in dual-earner couples are more likely than others to enter PSE or change fields of study when their spouse is employed in public administration in year t-1.

## Conclusion

As pressures rise to move economies away from fossil fuels and as advances in robotics and artificial intelligence raise the prospect of job displacement in occupations where tasks can be easily automated, it is important to understand how Canadian workers cope with job loss. Transitioning into PSE or into a new field of study is one of the strategies that displaced workers may use to adjust to job loss. To date, the degree to which this strategy was used by displaced workers living in different types of families was unknown. Using several administrative datasets that track individuals over time and that accurately measure job loss and transitions into PSE, this study fills this information gap.

The main finding is that, all else equal, the propensity of displaced workers entering PSE or choosing a new field of study after job loss is fairly similar across types of family units. The types of educational programs selected and their duration also appear fairly similar across types of family units. Conditional on the tax and transfer parameters and tuition fees observed during the 2010s, this finding provides no support for the hypothesis that post-displacement PSE transitions are a luxury that only certain types of families can afford.

The study also shows that among dual-earner couples, displaced individuals whose spouse had relatively high earnings were generally no more likely to enter PSE or choose a new field of study after job loss than their counterparts whose spouse earned less. In other words, inequality in spousal earnings did not translate into unequal rates of entry into PSE after job displacement.

That being said, displaced women who were the main earners before job loss in dual-earner couples and whose spouses worked in public administration were more likely to enter PSE or select a new field of study after job loss than displaced women whose spouses worked in other sectors. For this group of women, transitions into PSE or a new field of study appear to be fostered by the fact that their spouse holds secure employment, i.e., a job where the risk of job loss is relatively low.

Lastly, the fact that rates of entry into PSE or into new fields of study are, all else equal, fairly similar across family types does not rule out the possibility that, regardless of family types, some displaced workers who seek to upgrade their skills through the PSE system might face barriers—financial, informational or of other nature<sup>14</sup>—that limit the degree to which they do so. Whether this is the case or not is an empirical question left for future research.

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14. DeLuca et al. (2021) highlight another potential barrier to PSE: "... students who have faced instability or hardship in the form of disruptive events, or 'adverse shocks' (e.g., violence, eviction or incarceration of a family member), anticipate future shocks that could derail their educational plans. In response, they opt for shorter, more flexible educational programs that they expect they can complete despite anticipated shocks." This argument, which is put forward for students, might also apply for some displaced workers who have faced instability or hardship during their childhood or teenage years.



## Appendix 1: Sample selection criteria

The study uses the following samples for various types of family units.

### A) Unattached individuals and lone parents

Displaced workers must satisfy all of the following conditions. They

- 1) were aged 30 to 54 in year  $t$  ( $t=2009, \dots, 2013$ )
- 2) remained unattached or lone parents for six years, i.e., from year  $t-1$  to year  $t+4$
- 3) had wages and salaries in year  $t-1$  and year  $t$  and may have had self-employment income in year  $t-1$
- 4) did not attend a postsecondary education institution in year  $t-1$  or year  $t$
- 5) were not permanently laid off in year  $t-1$
- 6) were permanently laid off in year  $t$ .

Other workers must satisfy conditions 1) to 5), as well as the following condition:

- 7) From year  $t$  to year  $t+4$ , they had wages and salaries and were not permanently laid off. Combined with conditions 3) and 5), condition 7) implies that other workers earned wages and salaries from year  $t-1$  to year  $t+4$  and were not permanently laid off during that period.

### B) Single-earner couples

Displaced workers in these couples must satisfy all of the following conditions:

- 1) Husbands were aged 30 to 54 in year  $t$  ( $t=2009, \dots, 2013$ ).
- 2) There was no restriction on the age of wives in year  $t$ .
- 3) Couples remained intact for six years, i.e., from year  $t-1$  to year  $t+4$ .
- 4) One of the spouses had wages and salaries in year  $t-1$  and year  $t$  and may have had self-employment income in year  $t-1$ .
- 5) The other spouse had no wages and salaries and no self-employment income in year  $t-1$  and year  $t$ .
- 6) Husbands and wives did not attend a postsecondary education institution in year  $t-1$  or year  $t$ .
- 7) In year  $t-1$ , the working spouse was not permanently laid off.
- 8) In year  $t$ , the working spouse was permanently laid off.

Other workers in single-earner couples must satisfy conditions 1) to 7), as well as the following condition:

- 9) From year  $t$  to year  $t+4$ , they had wages and salaries and were not permanently laid off. Combined with conditions 4) and 7), condition 9) implies that other workers earned wages and salaries from year  $t-1$  to year  $t+4$  and were not permanently laid off during that period.

### C) Dual-earner couples

Displaced workers in dual-earner couples must satisfy all of the following conditions:

- 1) Husbands were aged 30 to 54 in year  $t$  ( $t=2009, \dots, 2013$ ).
- 2) There was no restriction on the age of wives in year  $t$ .
- 3) Couples remained intact for six years, i.e., from year  $t-1$  to year  $t+4$ .
- 4) Husbands and wives had wages and salaries in year  $t-1$  and year  $t$ .
- 5) Husbands and wives did not attend a postsecondary education institution in year  $t-1$  or year  $t$ .
- 6) In year  $t-1$ , neither of the spouses was permanently laid off.
- 7) In year  $t$ , one of the spouses was permanently laid off.

Other workers in dual-earner couples must satisfy conditions 1) to 6), as well as the following condition:

- 8) From year  $t$  to year  $t+4$ , both spouses had wages and salaries and neither of them was permanently laid off. Combined with conditions 4) and 6), condition 8) implies that both spouses had wages and salaries from year  $t-1$  to year  $t+4$  and were never permanently laid off during that period.

The treatment group of displaced workers can be divided into two mutually exclusive groups, depending on whether the spouse who lost their job in year  $t$  was the main earner (case 1) in year  $t-1$  or the secondary earner (case 2) in year  $t-1$ . However, the comparison group of other workers cannot be divided into two mutually exclusive groups in a similar way (since neither of the spouses lost their job in year  $t$ ). For this reason, half of the other workers were randomly allocated to be used as a comparison group for displaced workers in case 1, while the other half were randomly allocated to be used as a comparison group for displaced workers in case 2.

All samples were linked to the data from 2006 Census long-form questionnaire, and only linked records were kept for analyses. Employees who worked in the territories and employees who were not permanent residents in 2006 were excluded from the analyses.

**Appendix Table 1**  
**Rates of entry into postsecondary education by family unit type and selected characteristics, broad postsecondary education definition**

Type of family unit	Unattached individuals		Lone parents		Single-earner couples		Dual-earner couples				
	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers	Main earners		Secondary earners		
							Displaced workers	Other workers	Displaced workers	Other workers	
	percent										
<b>Age in reference year t</b>											
Younger than 30 years	...	...	...	...	9.6	10.3	12.7	10.0	10.5	9.6	
30 to 44 years	9.2	6.4	10.6	6.9	7.7	4.9	7.4	5.7	8.0	6.0	
45 to 54 years	4.9	3.3	6.7	4.3	4.7	2.9	4.7	3.4	4.5	3.3	
55 years and older	...	...	...	...	3.3	1.9	3.2	2.3	2.3	2.1	
<b>Education in 2006</b>											
Less than high school	3.2	1.8	6.9	3.1	4.3	2.1	3.8	2.3	3.7	2.1	
High school	6.7	3.4	10.5	4.5	5.5	3.4	6.6	3.8	5.6	3.8	
Trades certificate or diploma	4.5	3.2	7.8	4.4	6.4	3.8	5.6	4.2	4.5	3.5	
PSE below bachelor's degree	8.7	5.3	9.1	6.9	7.4	4.9	7.1	5.4	8.1	5.6	
Bachelor's degree	11.6	6.5	10.9	7.0	7.7	4.1	7.2	5.2	8.9	6.1	
Above bachelor's degree	10.4	7.1	14.2	7.6	9.1	4.0	7.9	4.7	9.4	5.9	
<b>Immigrant status</b>											
Canadian-born	7.0	4.6	9.5	5.9	6.8	4.0	6.5	4.8	6.7	5.0	
Landed 10 years earlier or less	9.6	7.3	10.8	7.6	7.9	4.9	7.6	5.2	8.5	6.1	
Landed more than 10 years earlier	6.1	4.4	7.9	4.7	3.5	3.0	4.6	3.5	4.8	3.7	
<b>Population groups</b>											
South Asian	4.7	6.2	5.5	4.2	5.0	3.1	4.1	4.2	3.4	4.1	
Chinese	9.1	5.5	7.3	4.6	5.2	3.3	3.6	3.5	6.6	4.1	
Black	10.5	6.3	9.3	6.3	3.4	4.3	12.0	5.8	9.1	6.9	
Filipino	4.6	2.9	1.7	3.6	2.7	3.6	5.4	3.9	4.8	3.3	
Arab	5.6	4.6	10.4	8.9	4.9	4.6	4.7	4.2	5.5	5.1	
Latin American	6.0	6.8	6.1	5.7	3.0	4.1	9.7	4.9	7.9	5.7	
Southeast Asian	2.7	3.4	2.2	2.2	0.6	1.6	6.1	2.0	2.6	2.9	
Other	8.3	6.2	18.1	8.3	10.2	4.9	9.0	5.5	10.3	6.2	
White	6.9	4.5	8.9	5.7	6.3	3.9	6.2	4.6	6.6	4.9	
	numbers										
Sample size	11,430	254,895	5,680	115,620	7,460	178,020	23,685	430,660	33,315	427,625	

... not applicable

**Notes:** The broad definition of postsecondary education (PSE) includes all transitions into PSE. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

**Appendix Table 2**  
**Rates of entry into postsecondary education by family unit type and selected characteristics, narrow postsecondary education definition**

Type of family unit	Unattached individuals		Lone parents		Single-earner couples		Dual-earner couples			
	Displaced workers	Other workers	Displaced workers	Other workers	Displaced workers	Other workers	Main earners		Secondary earners	
							Displaced workers	Other workers	Displaced workers	Other workers
	percent									
<b>Age in reference year t</b>										
Younger than 30 years	...	...	...	...	6.3	7.5	6.6	6.2	7.7	6.1
30 to 44 years	5.9	3.5	7.1	3.9	4.1	2.5	4.3	3.0	5.0	3.3
45 to 54 years	2.6	1.4	3.9	2.1	2.4	1.1	2.1	1.3	2.3	1.3
55 years and older	...	...	...	...	1.0	0.8	2.5	0.9	0.4	0.8
<b>Education in 2006</b>										
Less than high school	1.3	0.7	4.2	1.6	1.6	0.6	1.5	0.8	1.9	0.9
High school	4.0	1.6	7.5	2.3	3.2	1.4	3.6	1.6	3.3	1.8
Trades certificate or diploma	2.7	1.3	4.7	2.4	2.3	1.6	2.5	1.8	2.3	1.8
PSE below bachelor's degree	5.3	2.8	5.3	3.7	4.5	2.3	4.0	2.7	4.7	2.9
Bachelor's degree	7.4	3.4	8.2	4.2	5.1	2.2	4.2	2.7	5.8	3.2
Above bachelor's degree	6.4	3.5	9.4	4.2	5.6	2.1	5.1	2.3	5.8	2.8
<b>Immigrant status</b>										
Canadian-born	4.1	2.3	5.9	3.2	3.3	1.8	3.3	2.3	3.9	2.6
Landed 10 years earlier or less	6.3	4.6	7.8	4.7	5.2	2.8	5.5	2.8	6.0	3.3
Landed more than 10 years earlier	3.9	2.1	6.2	2.5	2.2	1.4	2.8	1.7	2.6	1.7
<b>Population groups</b>										
South Asian	3.2	3.6	3.7	2.6	3.5	1.6	2.9	2.0	2.0	2.0
Chinese	7.1	2.5	4.4	2.4	2.6	2.1	2.4	1.8	4.0	2.1
Black	6.2	3.5	8.8	3.6	2.6	2.5	7.0	3.3	6.8	4.0
Filipino	2.7	1.6	1.0	2.1	2.7	1.8	3.2	2.3	2.8	1.9
Arab	5.6	2.9	8.8	6.7	4.2	3.0	1.8	2.4	4.6	3.3
Latin American	3.9	3.9	4.4	3.4	3.0	3.0	6.3	2.5	6.5	2.9
Southeast Asian	1.7	2.7	0.0	0.7	0.0	1.1	5.4	1.0	2.4	1.5
Other	5.7	3.3	11.5	4.7	5.1	2.5	4.2	2.7	5.5	3.0
White	4.0	2.2	5.5	3.0	3.1	1.7	3.2	2.2	3.8	2.5
	numbers									
Sample size	11,430	254,895	5,680	115,620	7,460	178,020	23,685	430,660	33,315	427,625

... not applicable

**Notes:** The narrow definition of postsecondary education (PSE) excludes transitions into non-programs, regardless of whether these non-programs are associated with credits. Sample sizes are rounded to the nearest 5.

**Sources:** Statistics Canada, 2006 Census of Population; Longitudinal Worker File; T1 Family File; Postsecondary Student Information System.

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