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# Education and Labour Market Impacts of the Future to Discover Project: Technical Report

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## Executive Summary

This report presents long-term results from the Future to Discover project in New Brunswick and Manitoba. The project, which began 15 years ago, intended to tackle a key challenge provinces faced in meeting their future needs for skilled workers: engaging enough young people in postsecondary education (PSE). With a scientifically rigorous design, the project was established to test two interventions intended to overcome limitations posed by lack of financial resources and lack of information about the available pathways through PSE and their costs and benefits. SRDC published an earlier report (Ford et al., 2012) documenting outcomes observed by the participants' third postsecondary year. It was clear that not all postsecondary and economic impacts would be known by that point. This is the first report since 2012 that presents a full set of followup results, covering seven postsecondary years and including tax-linked income data for both provinces.

Future to Discover (FTD) tested two interventions in New Brunswick, separately and in combination to produce rigorous evidence about what works to increase access to PSE, particularly for lower-income students and those whose parents have little or no PSE experience. FTD offered either or both of two interventions in early high school:

- Explore Your Horizons (EYH) offered enhanced early career education in workshop sessions run after school for students in Grades 10, 11 and 12.
- Learning Accounts (LA) offered a “guarantee” of an \$8,000 grant to lower-income students to help them pursue PSE.
- Explore Your Horizons plus Learning Accounts (EYH+LA) allowed some students to participate in both interventions.

In Manitoba, FTD tested the intervention of EYH only. FTD offered EYH — enhancing early career education in workshop sessions run after school for Grades 10, 11 and 12 — to high school students in Manitoba.

Previous reports have found the interventions produced sustained postsecondary impacts in New Brunswick but no reliable postsecondary impacts in Manitoba. The research team was able to obtain administrative records from New Brunswick to continue evaluation of the long-term postsecondary impacts of the interventions for seven years following high school completion. The 2012 report found no significant change in PSE enrolment in Manitoba (based on administrative records and survey data) 18 months after high school completion.

This report makes additional use of seven years of tax returns filed by the project participants to evaluate whether the interventions have had any long-term impact on PSE enrolment in Manitoba and on subsequent economic outcomes in both provinces. The information on tax returns also helped the research team to confirm the findings for education outcomes from New Brunswick's administrative data.

The key objective of this report is to present the labour market returns of FTD interventions on “marginal” students — those who would not have attended PSE in the absence of the tested interventions — by means of estimated impacts on labour market outcomes as reported in participants' tax returns. Upon request from the research team, Statistics Canada successfully identified almost all project participants in their T1 Family File income tax return database as well as the T4 Supplementary File. The research team made use of

the tax return data to derive seven years of indicators of the labour market outcomes of interest: employment and self-employment, earnings, receipt of benefits and total income. These findings would be difficult to interpret out of context and so a full set of education impacts are included to the extent permitted by available data.

## The Key Findings

In general, the new evidence from tax returns confirms a significant increase in PSE participation in New Brunswick brought about by the interventions, also seen in results from administrative data. There is also evidence of impacts on earnings in New Brunswick. It is equivalently apparent that there was no substantive and conclusive long-term positive impact on PSE participation or employment attributable to the EYH intervention for Manitoba students. Therefore, later discussion of labour market returns from FTD interventions focuses solely on the outcomes observed in New Brunswick.

The labour market outcomes of FTD participants in New Brunswick follow a few important patterns:

- FTD interventions had no substantial impact on the proportion of students who reported employment earnings in each of the seven years of the postsecondary period, suggesting that most students did not withdraw from the labour market completely despite increased participation in PSE studies. Also, impacts on earnings in the first five years after high school were not large. The earnings forgone due to PSE study were likely less than half their earnings had they not participated in PSE.
- Regardless of the intervention received, impacts on earnings were small or negative in the first few years after high school and only changed to positive in later years. Although there were only a few statistically significant impacts on yearly earnings, the pattern of changing incomes adheres to the theoretically presumed effects of PSE participation on earnings.
- The impacts of FTD interventions on self-employment were small and inconsequential.
- There was some evidence of increased use of employment insurance benefits, though these could reflect side effects of the recession beginning in 2008–09. Taken as a whole, there were no long-term impacts on take-up of employment insurance. The short-term impacts were inconsequential in magnitude.

Based on the labour market and postsecondary outcomes of FTD in New Brunswick, this study found that all three interventions provided strong labour market returns to marginal students. Table ES1 summarizes the potential upper bounds of financial returns to PSE as well as the net present value of lifetime labour market impacts for a marginal student who participated in PSE because of a FTD intervention.<sup>1</sup> In terms of labour market returns, EYH seems to provide the best returns, followed by EYH+LA, and then LA alone. The results were not surprising since LA impacts on PSE were driven by college enrolment while the impacts of EYH were driven by the higher return university education. Regardless, all interventions provided good labour

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<sup>1</sup> We use the term upper bound to refer to the highest level an estimate might attain given the assumptions inherent in making different estimates and variation in the data. We use the term net present value to mean the current value of an investment (such as education) plus the current value of its future returns, minus the initial cost of the investment and the present value of any future costs. Present value is calculated by applying an appropriate discount rate to the expected future returns and costs. While our calculations took the study start (2004–05) as current, we adjusted the estimates to 2018 dollars using the Bank of Canada inflation calculator.

market returns. A marginal student from a lower-income family with low levels of parental education could make an additional \$22,533 per year if offered the opportunity to participate in EYH, \$12,230 more per year from being offered EYH+LA, and \$5,600 more per year with LA alone. These are estimated upper bounds of returns for the marginal student and suggest a lifetime payoff that would very likely be more than sufficient to cover the net costs of PSE. However, because of the low statistical power attributable to the earnings variable, the analysis is insufficiently precise to pinpoint actual labour market returns that may be lower than these values.

**Table ES1: Upper Bounds of Labour Market Returns (in 2018 dollars) of Future to Discover in New Brunswick**

	New Brunswick			
	All	Lower-income	FGF	LILE
Upper bounds of financial returns to PSE for a marginal student (\$/year – unadjusted 2012–14 dollars)				
EYH	\$50,316	\$29,649	\$28,601	\$22,533
LA		\$10,133	\$6,376	\$5,600
EYH+LA		\$17,994	\$21,442	\$12,230
Net present value of lifetime labour market outcome for a marginal student (in 2018 dollars)				
EYH	\$499,664	\$300,748	\$305,623	\$210,453
LA		\$67,709	\$29,416	\$28,971
EYH+LA		\$125,171	\$180,473	\$92,144

## Introduction

Future to Discover was established as a pilot project by the Canada Millennium Scholarship Foundation and the provincial governments of Manitoba and New Brunswick. It aims to develop evidence about what works to increase access to postsecondary education (PSE), particularly for lower-income students and those whose parents have little or no PSE experience. Research indicates that such students are underrepresented in PSE.

Future to Discover (FTD) was designed to find out whether either or both of the following interventions would increase access to PSE:

- Explore Your Horizons (EYH), a program which encompasses enhanced career education components designed to help high school students improve their knowledge of the role of PSE and how they might access it; explore their future options through career education; and provide guidance to their parents on how to support them through this process.
- Learning Accounts (LA), a financial incentive designed for high school students in New Brunswick with family incomes below the provincial median. It provides an early guarantee of a grant worth up to \$8,000, conditional upon high school completion and subsequent participation in PSE.

FTD tested three interventions in New Brunswick: EYH, LA, and a combination of EYH+LA. Students from lower-income families were randomly assigned into one of the three program groups or a control group. Students from higher-income families were randomly assigned into either the EYH group or a control group.

FTD tested only EYH in Manitoba. Students from lower-income and lower-education families were included primarily through site selection. At the end of project recruitment, roughly 30% of the Manitoba participants belonged to the targeted groups of students whose parents had not completed two or more years of PSE and whose household income fell below the provincial median (lower-income, lower-education families or LILE).

To date, there have been six reports on the implementation and impacts of FTD's interventions. The impact of FTD's interventions is measured using a rigorous random-assignment design, in which groups of students who are offered either or both of the interventions are compared to statistically identical groups of students who do not receive the interventions.

The complex research design takes linguistic and other population designations of interest into account. These designations identify groups with traditionally lower rates of PSE attendance. The main ones included here are: lower-income families where the participant lived in a family whose income fell below a threshold set at the provincial median for a family of its size; lower-income lower-education (LILE) families where the participant lived in a lower-income family where neither parent had completed two or more years of PSE; and first-generation families (FGF) where the participant lived in a family where neither parent had ever attended PSE. Data on outcomes was collected from numerous sources including surveys, observations and administrative data. Earlier reports found the interventions had been implemented with sufficient fidelity and thus given a fair test. Recruitment and random assignment were successful. There were impacts from EYH on participants' orientations toward the future, high school graduation and PSE enrolment. These

impacts differed considerably between groups (including provinces, linguistic sectors, and key subgroups). However, the benefit-cost analysis found EYH economically viable in New Brunswick but not in Manitoba.

This is the first FTD research report to use data from participants' tax returns to estimate long-term impacts for both provinces. More specifically, this report deals with the impacts of the EYH intervention on New Brunswick and Manitoba participants' PSE participation (in Manitoba this is through proxy indicators from participants claiming educational tax credits on their tax returns) and labour market outcomes. A wider range of outcomes was reported in the *Future to Discover: Post-secondary Impacts Report* (Ford et al., 2012), which was based on administrative data from high schools, PSE institutions and student financial aid along with responses to a 66-month followup survey. This report also includes updated postsecondary impacts and labour market impacts attributable to LA and EYH in New Brunswick, estimated using PSE administrative records and tax records. This report's results are estimated using linked datasets covering 10 years including seven postsecondary years.

## Overview of the Interventions

### *Explore Your Horizons*

Explore Your Horizons (EYH) was the career education intervention implemented in both Manitoba and New Brunswick.<sup>2</sup> It comprises six integrated components: (1) career focusing, (2) lasting gifts, (3) future in focus, (4) postsecondary ambassadors, (5) the Future to Discover website, and (6) the F2D magazine.<sup>3</sup> All participants in the intervention were offered all six components over three years of programming, through Grades 10, 11 and 12 of high school. EYH was intended to facilitate participants' development of their own PSE plans, based on their passions and interests. It engaged parents as allies and existing PSE students as role models, providing enhanced career education beginning in Grade 10.

Each component of EYH was designed to teach and reinforce key concepts of career exploration and development, whether these were personal (e.g., the concepts of resilience and adaptability), technical (e.g., how to network), or tactical (e.g., "manoeuvring" as a deliberate strategy to explore different career options). When feasible, the developers of the various components and the delivery personnel collaborated to ensure that EYH components were cohesive and well-integrated.

The involvement of parents/guardians was a fundamental feature of the EYH intervention, in terms of both their participation and their support for their child in the career exploration process. Parents/guardians were invited to attend sessions with their children at the start of the intervention, throughout its middle year and at the end.

All EYH workshops took place in classrooms at participating schools, after the last class of the day. The main exceptions were those to which parents were invited, which took place in the evenings to accommodate parents' schedules. Facilitators with a career counselling or education background were hired to animate

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<sup>2</sup> The enhanced career intervention was delivered in Manitoba under the name "Future to Discover." However, in this report, unless noted otherwise, Future to Discover refers to the larger Future to Discover Pilot Project, not to the career intervention. For consistency with other reports, we use the term Explore Your Horizons to refer to the enhanced career intervention delivered in Manitoba.

<sup>3</sup> For a description of the various components, see Ford et al. (2012).



the sessions, except for the Postsecondary Ambassador workshops, which were animated by students already enrolled in PSE. The sessions were voluntary and so did not reach everyone in the program groups assigned to receive them. Of the 20 workshops, 84% of participants attended at least one (76% in Manitoba), but only 60% (48% in Manitoba) attended six or more.

### *Learning Accounts*

Learning Accounts (LA) was implemented only in New Brunswick. Stakeholders in the project agreed on eligibility criteria for the LA intervention based on families having annual household income below the New Brunswick median.<sup>4</sup> A major assumption underlying development was that lower-income students anticipate having inadequate financial resources to pay for their PSE, particularly university and college. LA participants who attended a New Brunswick high school until graduation and who successfully enrolled in a PSE program (recognized by Canada Student Loans) would receive a maximum of \$8,000 over two years to subsidize their PSE expenses.

There was a graduated accumulation of funds over time in LA, intended to recognize each participant's continued commitment to education. Thus, participants in LA had to still be attending a New Brunswick high school at the end of Grade 10 to receive an instalment of \$2,000 in their account, and they had to still be attending such a school at the end of Grade 11 to receive another \$2,000. Thereafter, LA participants who successfully graduated from a New Brunswick high school would have another instalment of \$4,000 added to the account.<sup>5</sup> If they successfully enrolled in a PSE program, they could draw from the accumulated funds in their account. Once their enrolment status had been confirmed, LA participants could request a \$2,000 payment twice per academic year, for a total maximum of \$8,000 in a two-year period. The check on enrolment was performed by New Brunswick Student Financial Services or the New Brunswick Apprenticeship Bureau (for registered apprentices), and all funds had to be claimed within six years of the account being offered at the start of Grade 10.<sup>6</sup> Those who claimed student financial assistance would be expected to declare the Learning Account as a resource, which all else being equal in the needs assessment would produce a net reduction in loan funding relative to not receiving a Learning Account.

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4 Family income was determined from amounts reported for income tax purposes, and the median cut-off was derived from Census 2001 estimates for households with children aged 6–17 years and rounded up to the nearest \$5,000 level.

5 Access to the maximum amount is conditional on completion of secondary studies within four years of opening the account. Upon successful completion of secondary studies in New Brunswick through a high school diploma, Adult Education Diploma, or a general Education Development diploma, participants are entitled to the full bursary of \$8,000 in their accounts. Students not completing secondary studies within the timeframe remain entitled to past instalments in their accounts. Ford et al. (2012) report impacts on high school graduation rates, which were typically around 80 per cent for control group members from lower-income families. Both Learning Accounts in New Brunswick and Explore Your Horizons in both provinces significantly increased high school graduation rates.

6 It is important to note that, unlike Explore Your Horizons, there was no fixed year for Learning Accounts delivery; rather, instalments and payments could be made over several years. A student who took three years to complete grades 10 through 12 at a New Brunswick school was entitled to receive a payment in any two of the three years following his or her graduation, and the payment amount would depend on the number of instalments in the student's account. For example, a student who had accumulated \$4,000 in his or her account by the end of Grade 11 but who graduated from a Quebec school (rather than a New Brunswick school) before enrolling in a PSE education program would receive \$4,000, made available during the delivery period for Learning Accounts.

## Context of this Report

This report presents long-term impacts observed by the end of what would normally be the first term of the seventh year of PSE studies, assuming continuous school attendance and conventional progress. It relies on tax return data from calendar years 2008 through to 2014, and thus adds just over four extra years of data to the Future to Discover Report (Ford et al., 2012).

In addition to updating the results in Ford et al., 2012 with respect to PSE enrolment (through the proxy indicator of reported tuition fees paid and claiming of education tax credits), this report also analyzes impacts on employment, earnings, government benefit receipt and investment income. The ultimate goal is to understand the labour market return to the “marginal student” who would not have participated in PSE without FTD.

As the project’s design and implementation phases are over, the report concentrates on presenting updated impacts on employment outcomes drawn from tax records and postsecondary impacts drawn from administrative data. The report does not update evidence on specific university, college, apprenticeship and private vocational college participation included in Ford et al. (2012) since administrative and tax records do not contain that level of detail.

This report is primarily focused on the presentation of the interventions’ impacts. The next section provides an overview of the FTD research sample and outcomes of interest. Section 3 presents the results from each of the FTD interventions on educational tax credits, employment and earnings, and benefit receipt in New Brunswick and Manitoba. Section 4 presents the latest estimated postsecondary impacts in New Brunswick as well as previous estimates from Manitoba. Section 5 discusses the labour market returns attributable FTD in New Brunswick based on the estimated impacts. Section 6 concludes the report with a summary and assessment of the results.

## Overview of Future to Discover’s Research Samples and Outcomes of Interest

New Brunswick has two separate education systems for francophone and anglophone students, the former serves approximately half the number of students as the latter. Recruitment for FTD in New Brunswick took place over two years in order to secure a sufficiently large sample of participants to detect policy-relevant impacts. As a result, students in two successive Grade 9 years were recruited in 2004 and 2005 and became part of either cohort 1 or cohort 2, respectively. Recruitment for FTD in Manitoba took place just before the start of the 2005/06 academic year, coinciding with New Brunswick’s cohort 2. Because Grade 9 students do not proceed through education at the same rate (not taking the same number of years to reach Grade 12 for example), the report uses the term “relative year #” to refer to the equivalent academic year reached by each cohort in its educational experience. Since tax returns are filed per calendar year, information on a tax return may reflect the filer’s situations in across two academic years. For convenience, the “relative year #” was also used to refer to the equivalent tax year (when the academic year started). Table 1 shows the correspondence between the academic, tax and “relative years” used in this report.

### Research Samples

**Table 1: Table 1 Alignment of Academic Year, Relative Year and Data Coverage**

Academic year	Tax years	New Brunswick’s Cohort 1	New Brunswick’s Cohort 2 and Manitoba
2004/05	2004 & 2005	Relative year 1 = high school year 2 (i.e., Grade 10)	Grade 9
2005/06	2005 & 2006	Relative year 2 = high school year 3 (i.e., Grade 11)	Relative year 1 = high school year 2 (i.e., Grade 10)
2006/07	2006 & 2007	Relative year 3 = high school year 4 (i.e., Grade 12)	Relative year 2 = high school year 3 (i.e., Grade 11)
2007/08	2007 & 2008	Relative year 4 = PSE year 1 or tax year 2007	Relative year 3 = high school year 4 (i.e., Grade 12)
2008/09	2008 & 2009	Relative year 5 = PSE year 2 or tax year 2008	Relative year 4 = PSE year 1 or tax year 2008
2009/10	2009 & 2010	Relative year 6 = PSE year 3 or tax year 2009	Relative year 5 = PSE year 2 or tax year 2009
2010/11	2010 & 2011	Relative year 7 = PSE year 4 or tax year 2010	Relative year 6 = PSE year 3 or tax year 2010
2011/12	2011 & 2012	Relative year 8 = PSE year 5 or tax year 2011	Relative year 7 = PSE year 4 or tax year 2011

Academic year	Tax years	New Brunswick's Cohort 1	New Brunswick's Cohort 2 and Manitoba
2012/13	2012 & 2013	Relative year 9 = PSE year 6 or tax year 2012	Relative year 8 = PSE year 5 or tax year 2012
2013/14	2013 & 2014	Relative year 10 = PSE year 7 or tax year 2013	Relative year 9 = PSE year 6 or tax year 2013
2014/15	2014 & 2015		Relative year 10 = PSE year 7 or tax year 2014

### *Treatment of Income: LA-eligible and LA-ineligible Groups*

The sample allocation in FTD is complicated by the fact that LA can be offered only in New Brunswick to participants with a verified family income below the specified cut-off level for a given family size.<sup>7</sup> During in-home baseline interviews, Statistics Canada interviewers requested each parent's total income as recorded on Line 150 of their previous year's tax return(s). Parents in families providing this information and who were verified as below the required cut-off, signed the "LA-eligible" consent form. This form explained that they were eligible for assignment to one of four groups:

- A control group
- A group that would receive EYH only
- A group that would receive LA only
- A group that would receive both interventions combined

Families who were verified as having income above the required cut-off or who were unwilling to provide information from Line 150 were deemed ineligible for Learning Accounts ("LA-ineligible") and received a different consent form. That form established the possibility of assignment either to EYH or to the control group, but not LA.

One consequence of the above approach to determine project eligibility was that it placed some lower-income families — those unwilling to provide income information from their tax returns — in the otherwise higher-income "LA-ineligible" group. Survey data suggests that this was the case. The families who were unwilling to provide income information from Line 150 of their tax returns were asked to report income via a standard set of survey income questions, and virtually all did so. The proportion of families deemed "LA-ineligible" who nonetheless reported survey income that fell below the "LA-eligible" threshold was around one in seven. Among francophone LA-ineligible participants, 14.3% fell below the lower income threshold on the survey measure. Among anglophone LA-ineligible participants, 12.9% fell below the lower income threshold on the survey measure. A more complete explanation is provided in SRDC (2007

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<sup>7</sup> The cut-offs correspond to the median family income in New Brunswick from published 2001 Census data. Separate cut-offs were used for families of different sizes.

Because of the different participant compositions, the results of interventions with the LA component are only comparable to the subgroup results for other groups of NB lower-income students. It is important to note that the impacts of EYH on higher-income families and one in seven lower-income families are not being reported. On average these LA-ineligible families have higher PSE participation rates and so the interventions usually produce smaller or no impacts for such families.

Table 2 shows the different experimental contrasts or comparisons that can be examined. In the interests of brevity, the report focuses on the impacts of the interventions relative to “business-as-usual” career education and student aid experiences of control group students (the “counterfactual”) and does not include results comparing one type of intervention to another.

**Table 2: The Experimental Contrasts in this Future to Discover Report**

Sample	Experimental contrast(s)	Contribution to impact analysis
New Brunswick	EYH versus control group	Impacts of offering EYH
	LA versus control group	Impacts of offering LA to lower-income families
	EYH+LA versus control group	Impacts of offering EYH+LA to lower-income families
Manitoba	EYH versus control group	Impacts of offering EYH

The impact analysis presented in this report is always experimental: It compares outcomes across statistically equivalent program and control groups to determine the effects of the interventions. Random assignment of students to intervention groups ensures that the only systematic difference between the groups is the intervention offer that each group received. For example, in the following sections, the difference on any given outcome between the group offered EYH and the control group receiving no program offer is the estimate of the impact of EYH on the outcome (for verified lower-income families). The same is true for the impact estimates of LA, the statistically equivalent control group used in the analysis is precisely the same as the control group of the lower-income subgroup used in the EYH comparison.

### Subgroup Definitions

This report presents the principal results for New Brunswick and Manitoba separately. For simplicity, the estimation combines the francophone and anglophone samples.

The project seeks to determine the impacts of the interventions on students most likely to need additional support to access PSE. These were identified at the outset as those whose families have lower incomes and whose parents have little or no experience of PSE. Specifically, the results of the report are broken down across the following subgroups:

- The lower-income subgroup comprises students who were from families with income below median for the province.
- The FGF (first-generation families) subgroup comprises students whose parents have no PSE experience at all (that is, the highest education level of both parents at baseline was “high school or less”). Impacts for non-FGF are not discussed.

- The LILE (lower-income and lower parental education) subgroup. Among lower-income families the distinguishing feature of this group is lower parental education, which is defined as neither parent holding a PSE diploma, certificate or degree requiring two or more years of study.
- Students self-identifying as Aboriginal (15.5% of the Manitoba sample).

## Outcomes of Interest

The outcomes of interest cover seven relative years after high school. The seventh year for which tax data was obtained would also “normally” be the sixth or seventh year of PSE studies, assuming continuous school attendance and progression to PSE. However, some students may still have been in secondary education in the fifth and later relative years if they took more than one year to complete Grade 10, Grade 11 or Grade 12. Some students could also be working or unemployed in these years.

By design, there are 18 types of outcomes of interest based on the tax return data. However, it is sometimes not possible to report some of the estimated outcomes when the outcome does not meet the “dominance” requirement under Statistics Canada’s disclosure rules to protect individual privacy:

- **Education tax credits:** The education amounts included in the tax return provide proxy indicators of participation in education during the participants’ postsecondary years. There are two components of the non-refundable education tax credits during the covered period. The first component is the Tuition Tax Credit for tax filers to reduce their payable tax for tuition fees paid (over \$100) to a university, a college, other educational institution in Canada (on the CSLP Master List of Designated Education Institutions), a full-time university outside Canada, or an American PSE institution in close proximity across the Canada-United States border. The second component is the Education and Textbook Amount Tax Credits which allow students of qualifying programs at a designated educational institution to claim tax credits based on the number of months of full-time and/or part-time enrolment. Receipts of these tax credits, particularly the credit for tuition fees, proxy participation in PSE with some known shortfalls. Students may not report their costs due to a lack of knowledge of the credits and how the credits can benefit them (now or later) or their parents (see Frenette, 2017). Past studies (e.g., Finnie & Pavlic, 2013) also found that underrepresentation was particularly serious among college students since many did not reach the taxable income level in the years they were studying. Still, the schedule must be completed in the year of attendance to carry the credit forward, so this data is unlikely to be mistiming the education participation. Finally, this study also examined use of funding from Registered Education Savings Plans (RESP) through the indicator of reported withdrawal from a RESP account (Educational Assistance Payment) in box 42 of a T4A Income Tax Information slip provided to the participants.
  - **Proportion reporting tuition fees paid for each tax year:** This proxies PSE participation in a range of PSE institutions inside and outside Canada for each year through the reported tuition fees paid.<sup>8</sup>

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<sup>8</sup> Learning Accounts are paid to the student not the institution, so tuition payments would still be required of learning accounts recipients.

- **Proportion reporting education and textbook amounts for each tax year:** This indicator also proxies PSE participation in designated educational institutions in Canada for each year through the educational expenses paid.
- **Proportion in receipt of any education-related amount (including eligible tuition fees, textbook and education amounts claimed for oneself) for each tax year:** This indicator should capture some sort of PSE participation for each year given the tax credit could be carried over to future years.
- **Proportion in receipt of any education-related amount over seven years:** This indicator captures some sort of PSE participation during the seven years of the postsecondary period.
- **Proportion reporting RESP usage over seven years:** This indicator may capture any change in the use of savings to finance PSE during the seven years of the postsecondary period. Although the anticipated impact is ambiguous (positive due to increased enrolment; negative due to a lowered need to save), how RESP usage changes could have important implications for public finances. The Canada Education Savings Grant (CESG) is a 20% grant by government matching RESP contributions, so noting the impact on RESPs is important for calibrating interventions impact on the public purse.
- **Employment and earnings:** Since Canadians are supposed to report nearly all employment and self-employment income in their tax returns, the receipt of such income reported in each tax year represent good proxies for employment.<sup>9</sup> Postsecondary education is expected to affect employment during and after the study as captured in the following outcome indicators:
  - **Receipt of employment earnings in each tax year:** Full-time PSE students are expected to have less time to work and their employment rates may be lower during study. Effective PSE may increase subsequent employment.
  - **Total employment earnings by tax year:** Since full-time PSE students are expected to have less time to work, their earnings are expected to be lower in study years. Since PSE is associated with higher post-education earnings, if an FTD intervention had a positive impact on PSE participation, program group participants' earnings in later years would be expected to increase.
  - **Cumulative total employment earnings over seven years:** This is the sum of the year-by-year differences, reflecting the net result of foregoing earnings in early years and experiencing an earnings premium in later years, if a FTD intervention had an impact on PSE participation.
  - **Receipt of self-employment earnings in each tax year:** A FTD intervention may have an impact on the choice of PSE program and the subsequent choices of employment versus self-employment.
  - **Total self-employment earnings in each tax year:** Some of PSE's effects may be reflected in levels of self-employment earnings.
  - **Cumulative total of self-employment earnings over seven years:** This is the sum of the year by year difference.

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<sup>9</sup> Individuals who earn less than \$500 and do not have any CPP/QPP, EI, income tax, or Quebec PPIP premiums deducted do not have to report their T4 earnings.

- **Cumulative total income over seven years:** The estimated impact on the total income over seven years reflects the net labour market effect of a FTD intervention over the period, regardless of the type of employment.
- **Government benefit receipt:** FTD’s impacts on PSE and employment may lead to secondary impacts on government benefit usage, though the direction of these impacts is not always clear. It is typical in cost-benefit analysis to take into account any program effects on government budgets including benefit use. Different types of benefit will be examined:
  - **Receipt of employment insurance benefits in each tax year:** FTD’s impacts on PSE may lead to increased subsequent employment, which could have two implications. On one hand, increased employment reduces unemployment and the incidence of claiming EI benefits. On the other hand, increased employment may increase the proportion of participants qualifying for EI benefits.
  - **Amount of employment insurance benefits by tax year:** Receipt of EI affects the average amount of EI benefits claimed. Since the amount of EI regular benefits is determined according to the pre-unemployment salary, FTD’s impact on earnings may lead to a higher average amount of EI benefits among recipients.
  - **Cumulative total employment insurance benefits over seven years:** The cumulative total reflects FTD’s impact on the medium-term government budget due to EI benefit receipt.
  - **Receipt of social assistance benefits in each tax year:** It is expected FTD’s impact on PSE participation will lead to a reduction in the receipt of social assistance benefits. Since SRDC only received the participant’s tax form, only social assistance reported by the participant is captured. If the participant had a family and claimed social assistance, the spouse with the higher net income would have reported social assistance on the tax form. There is a risk, therefore of a small bias in reported impacts on social assistance if FTD influenced which spouses had the higher income.
  - **Amount of social assistance benefits by tax year:** It is also expected FTD’s impact on PSE participation will lead to a reduction in the average amount of social assistance benefits received.
  - **Cumulative total social assistance benefits over seven years:** The cumulative total reflects FTD’s impact on the medium-term government budget due to social assistance benefit receipt.

To understand the FTD’s impacts on earnings on the marginal student, this report also presents postsecondary outcomes estimated using the latest available data. For New Brunswick, the results were estimated using administrative data for the full seven years of the postsecondary period. For Manitoba, the results repeat the last reliable estimates from Ford et al. (2012). There are six types of outcomes of interest discussed in Section 4:



- **Postsecondary participation:**
  - **Enrolment in university and college (or PSE):** Denotes enrolment by academic year in any university (bachelor’s program) or college institutions. Enrolments are analyzed cumulatively for the entire period.
  - **Enrolment in university:** Denotes enrolment by academic year in any university (bachelor’s program). Enrolments are analyzed cumulatively for the entire period.
  - **Enrolment in college:** Denotes enrolment by academic year. Enrolments are analyzed cumulatively for the entire period.
  - **Graduation from university or college:** Denotes graduation from university or college institutions. Graduation rates are analyzed cumulatively for the entire period. A student was counted as having graduated in a year if she or he graduated at any point up to the anniversary of enrolment.
  - **Graduation from university:** Denotes graduation from a university program.
  - **Graduation from college:** Denotes graduation from a college program.

There is a discrepancy in the analysis between the initial project definition of PSE enrolment as in Ford et al. (2012) and the reported impacts on university and college enrolment for the updated New Brunswick sample. SRDC does not receive up-to-date data covering participation in private vocational institutes and apprenticeship programs for New Brunswick or Manitoba beyond those reported in Ford et al. (2012).

## Estimated Long-term Impacts of Future to Discover Interventions Derived from Tax Records

### Impacts of Explore Your Horizons in New Brunswick

#### *Long-term Impacts on Education Tax Credits*

##### **Summary of Results on Education Tax Credits**

Offering EYH had no statistically significant impact on the proportion of students who reported tuition fees paid in their tax returns, neither for each tax year after high school (Figure 1), nor for the cumulative period of seven years for the overall sample (Table 3). Impacts on the proportion of students who reported education and textbook amounts are similar to the impacts on those who reported paying tuition fees. EYH increased the proportion of students from lower-income families reporting both paid tuition fees and education and textbook amounts in tax returns for year six by 5.4 and 6.4 percentage points, respectively (See Appendix A), even though impacts on the cumulative total over seven years were too small to be statistically significant.

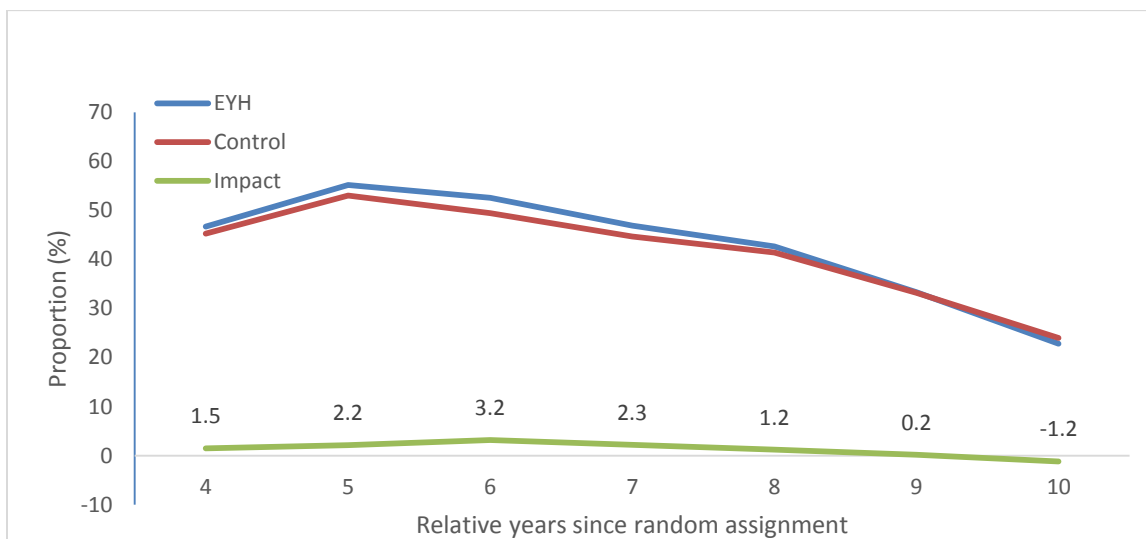
Similarly, EYH also increased the proportion of students from the LILE subgroup who reported tuition fees paid in years five and six by 5.1 and 7.4 percentage points, respectively. There was an 8 percentage point increase on the proportion of the LILE subgroup who reported educational and textbook amounts in year six.

Since educational tax credits are useful in reducing taxes only when one's income is sufficiently high, it is not surprising that a lower proportion of students claimed education-related amounts (at 63–66% in Table 5) than the proportion who reported tuition fees (74–75% in Table 3) or educational expenses paid (73–75% in Table 4). There was no statistically significant impact on the cumulative total of tax credits claimed over seven years for any subgroup. However, the impact of EYH on the proportion of students claiming educational tax credits was the largest in year six for the overall sample (at 6.1 percentage points), the lower-income subgroup (at 5.0 percentage points), the FGF subgroup (at 6.8 percentage points), and the LILE subgroup (5.8 percentage points). These findings correspond to previously identified postsecondary impacts at the 66-month point (Ford et al., 2012).

The proportion of participants who used RESPs over the seven years of the postsecondary period was lower among lower-income students, students from FGF families, or students from LILE families, than for participants overall (Table 6). EYH did not have a statistically significant impact on use of RESPs.

### Estimated Impacts of Offering Explore Your Horizons to New Brunswick Students

**Figure 1: EYH Impacts on the Proportion Reporting Tuition Fees Paid in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 3: EYH Impacts on Reporting Tuition Fees Paid Over Seven Years<sup>10</sup>**

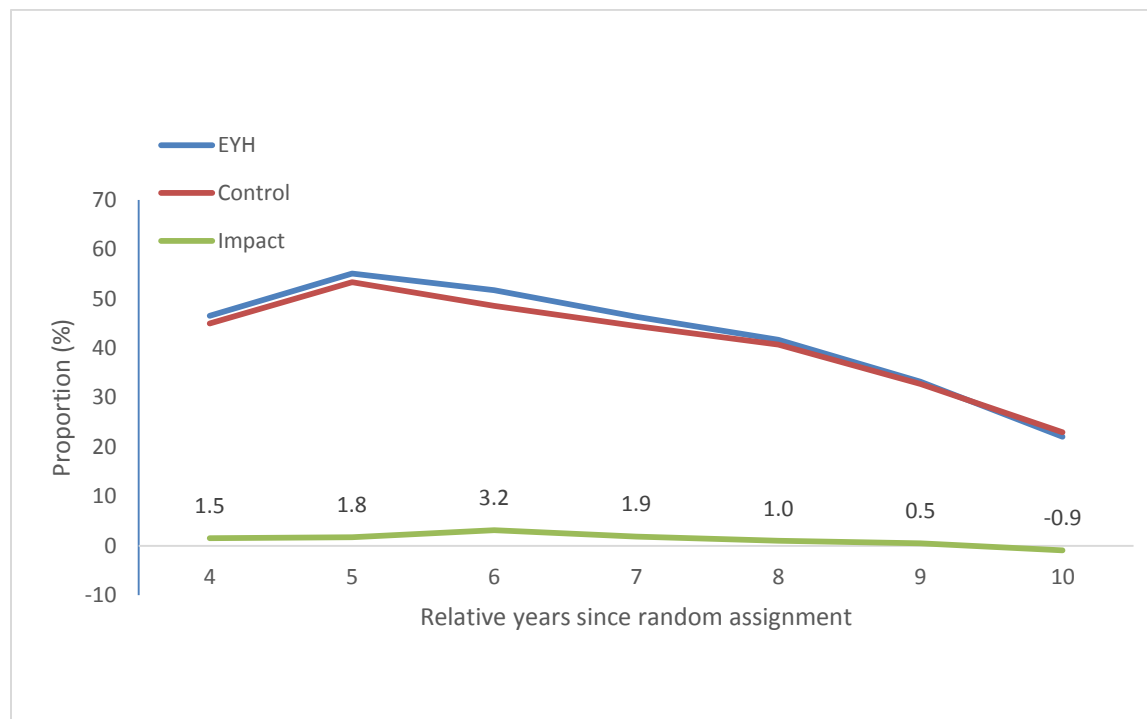
	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported tuition fees paid over seven years of the postsecondary period</b>			
ALL	75.24	73.52	1.72 (1.61)
Lower-income students	63.59	61.34	2.25 (2.84)
Parents with high school or less (FGF)	61.70	57.40	4.29 (3.62)
LILE	62.34	57.72	4.61 (3.22)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

<sup>10</sup> The final column in Table 3 and several following tables presents the standard error (s.e.) of the impact estimate, or the measure of uncertainty associated with it. The standard error is used to calculate the statistical significance of the impact, or the level of confidence that it represents a true program effect and is not the result of chance variation between the two groups. An impact is significant at the 10% level, for example, if there is less than a 10% chance that it could have arisen by chance, or from a program with no true effect.

**Figure 2: EYH Impacts on the Proportion Reporting Education and Textbook Amounts in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



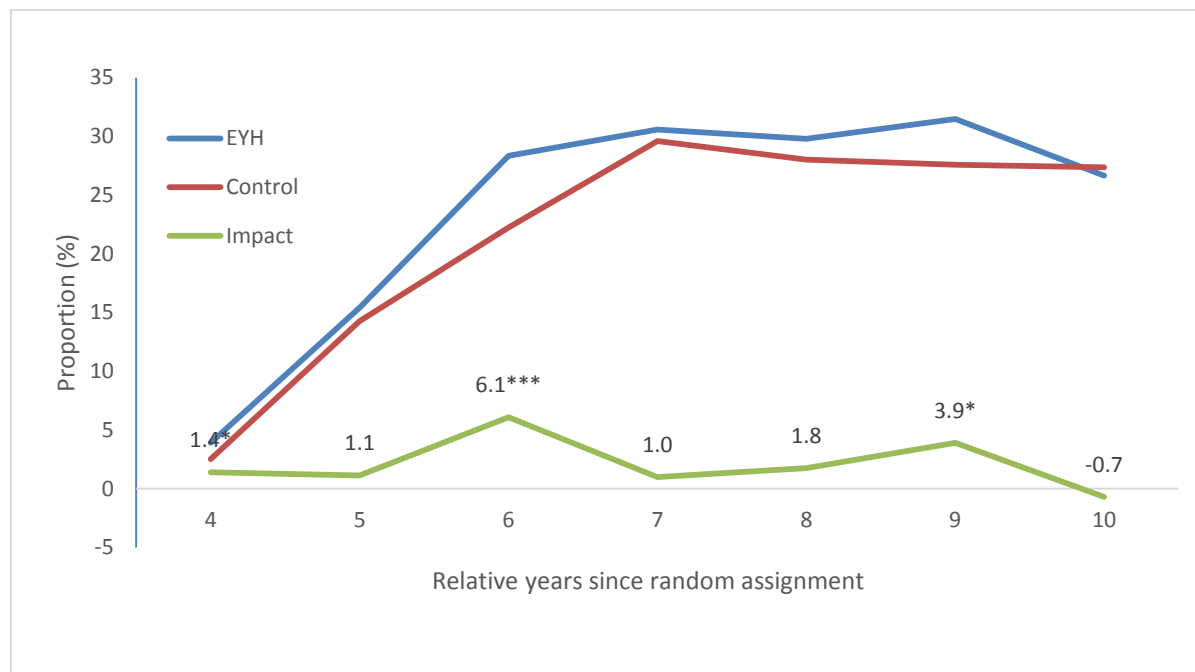
**Table 4: EYH Impacts on Reported Education and Textbook Amounts Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported education and textbook amounts over seven years of the postsecondary period</b>			
ALL	75.05	73.40	1.65 (1.61)
Lower-income students	63.12	61.50	1.62 (2.82)
Parents with high school or less (FGF)	61.24	57.93	3.31 (3.74)
LILE	61.81	57.61	4.21 (3.28)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 3: EYH Impacts on the Proportion Claiming Educational Tax Credits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 5: EYH Impacts on Receipt of Any Education-related Amounts Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received any education-related tax credit over seven years of the postsecondary period</b>			
ALL	65.81	62.69	3.12 (1.91)
Lower-income students	55.19	51.33	3.86 (2.99)
Parents with high school or less (FGF)	54.09	50.79	3.30 (3.51)
LILE	54.08	49.13	4.94 (3.17)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 6: EYH Impacts on Reported RESP Use Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported withdrawing from a RESP account over seven years of the postsecondary period</b>			
ALL	23.11	24.90	-1.79 (1.65)
Lower-income students	10.96	11.20	-0.24 (2.00)
Parents with high school or less (FGF)	8.03	8.36	-0.34 (1.91)
LILE	8.40	7.84	0.56 (1.77)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

### *Long-term Impacts on Employment and Earnings*

#### **Summary of Results**

In general, the majority of FTD participants in New Brunswick reported employment earnings from year four to year 10. There was no statistically significant impact of EYH on the proportion of students who reported employment earnings in their tax returns for any tax year after high school (Figure 4), nor was there any long-term impact (Table 7), in the overall sample or any subgroup.

In terms of the amount of employment earnings, Figure 5 shows that average earnings of participants from both program and control groups were increasing from year four to year 10, and that there were no significant impacts from years four through eight while there were significant positive impacts (up to \$1,407) in year nine. Subgroup results also display a similar pattern of small or negative impacts on average earnings in the early years of the postsecondary period shifting to positive impacts in years nine and 10 (see Appendix A), even though the yearly impact on average earnings was not statistically significant. EYH's positive impact on the average earnings of students from LILE peaked at \$2,920 in year 10. In general, the pattern of impacts on yearly earnings is consistent with the program theory that earnings would increase when EYH induces additional PSE participation. The results also suggest that analysis of financial returns to PSE for the marginal student in EYH should consider the impact on average earnings from year four to year eight as forgone earnings while year nine marks the beginning of when the financial returns to PSE begin.

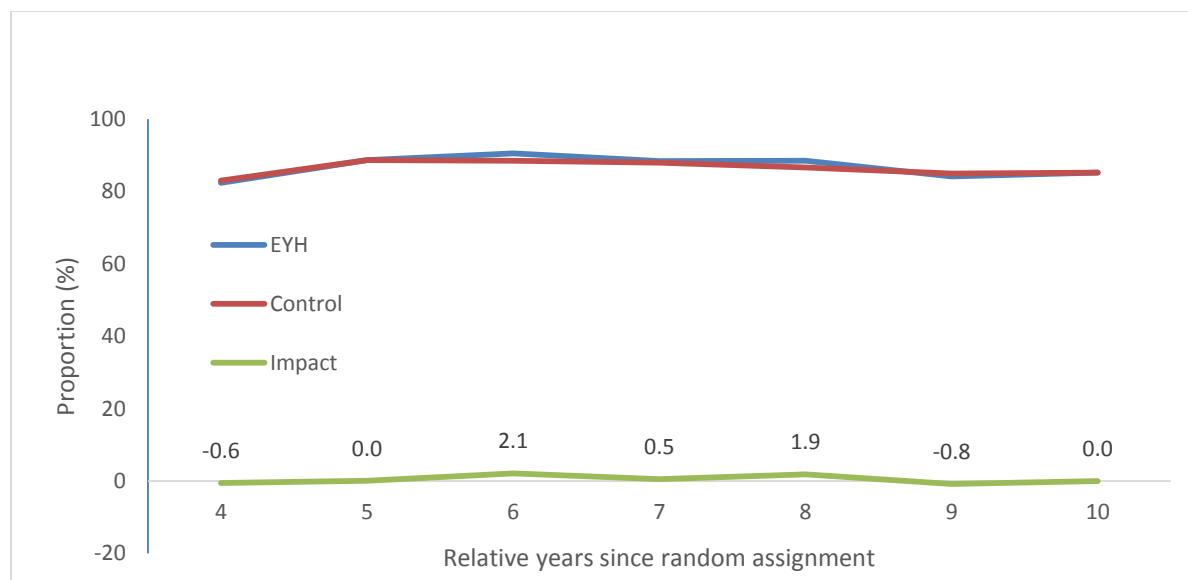
The impacts on cumulative earnings over seven years of the postsecondary period appear positive, yet they were not statistically significant in the overall sample nor in any of the three subgroups examined (Table 8).<sup>11</sup>

Figure 6 and Table 9 summarize impacts on reported self-employment earnings. In general, the level of self-employment was low. EYH has no long-lasting impact on self-employment. EYH had some small statistically significant impacts for subgroups on receipt of self-employment earnings in some years: a -0.8 percentage point impact on lower-income students in year five, a 2.1 percentage point impact on students from FGF in year 10, and a -1.0 percentage point impact on students from LILE (see Appendix A). Because of the low proportions of participants reporting self-employment, Statistics Canada only permitted release of the cumulative self-employment earnings for the overall sample. EYH had no significant impact on cumulative self-employment earnings (Table 10).

Impacts on before-tax income largely mirror those on earnings (Figure 7 and Table 11), without statistical significance. The only statistically significant impact of EYH on before-tax income was the increase of \$2,592 in year 10 for the LILE group.

**Estimated Impacts of Offering Explore Your Horizons to New Brunswick Students**

**Figure 4: EYH Impacts on the Proportion Reporting Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



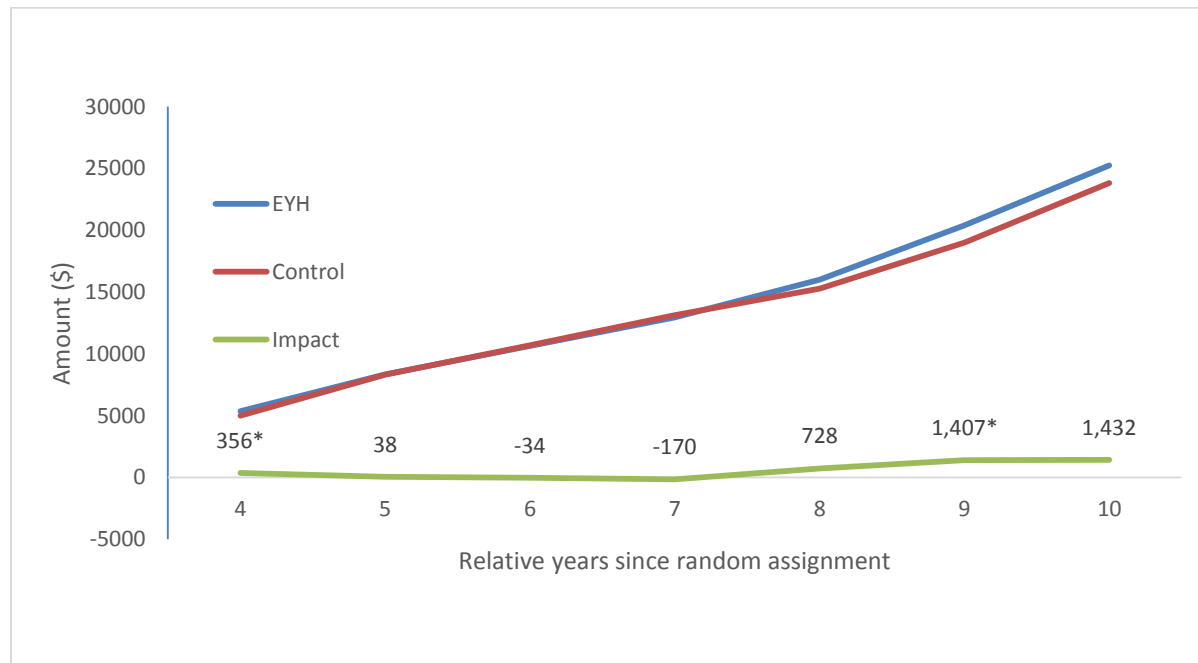
11 In general, compared to many other metrics, employment earnings have larger variance because of many different uncontrollable factors. Cumulative earnings over several years have an even larger variance than that of earnings in any particular year because of the variations in economy or the business cycle that would be reflected in the cumulative earnings. Because of the larger variance, statistical power of cumulative earnings is worse than that of the earnings in a year. Therefore, it is not inconsistent to observe a statistically significant impact on a particular year but no statistically significant impact in the cumulative earnings.

**Table 7: EYH Impacts on Receipt of Employment Earnings Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment earnings over seven years of the postsecondary period</b>			
ALL	98.86	99.10	-0.24 (0.45)
Lower-income students	98.00	98.06	-0.07 (0.92)
Parents with high school or less (FGF)	98.29	98.57	-0.28 (0.91)
LILE	98.12	97.97	0.15 (0.91)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 5: EYH Impacts on Reported Employment Earnings In Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.



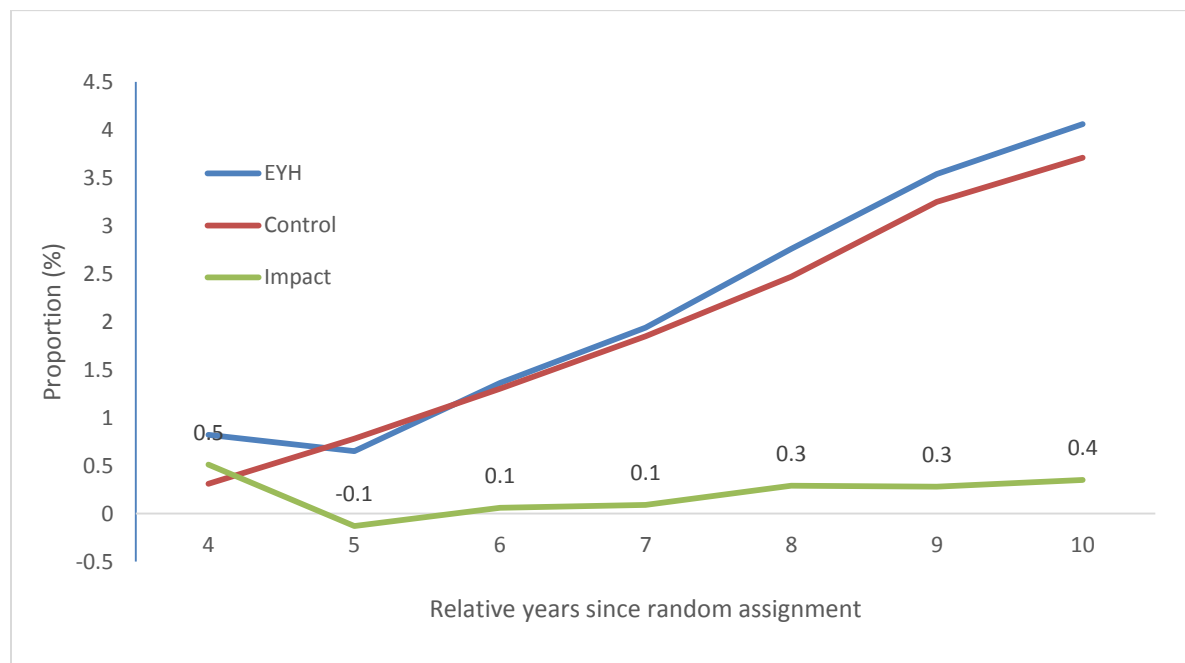
**Table 8: EYH Impacts on Total Employment Earnings Over Seven Years**

	New Brunswick			
	EYH group	Comparison group	Impact (s.e.)	
<b>Total employment earnings over seven years of the postsecondary period (\$)</b>				
ALL	98,919	95,161	3,758 (2,850)	
Lower-income students	94,202	89,605	4,597 (4,238)	
Parents with high school or less (FGF)	98,377	93,696	4,680 (5,047)	
LILE	94,918	90,358	4,560 (4,836)	
Anglophone	100,265	92,886	7,379 (3,839)	*
Francophone	93,992	99,612	-5,620 (3,958)	
<b>Sample size</b>	<b>1030</b>	<b>1430</b>		

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 6: EYH Impacts on the Proportion Reporting Self-employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 9: EYH Impacts on Receipt of Self-employment Earnings Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received self-employment earnings over seven years of the postsecondary period</b>			
ALL	8.42	7.30	1.12 (1.04)
Lower-income students	7.34	6.71	0.63 (1.49)
Parents with high school or less (FGF)	7.45	4.90	2.55 (1.76)
LILE	5.88	6.78	-0.90 (1.78)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

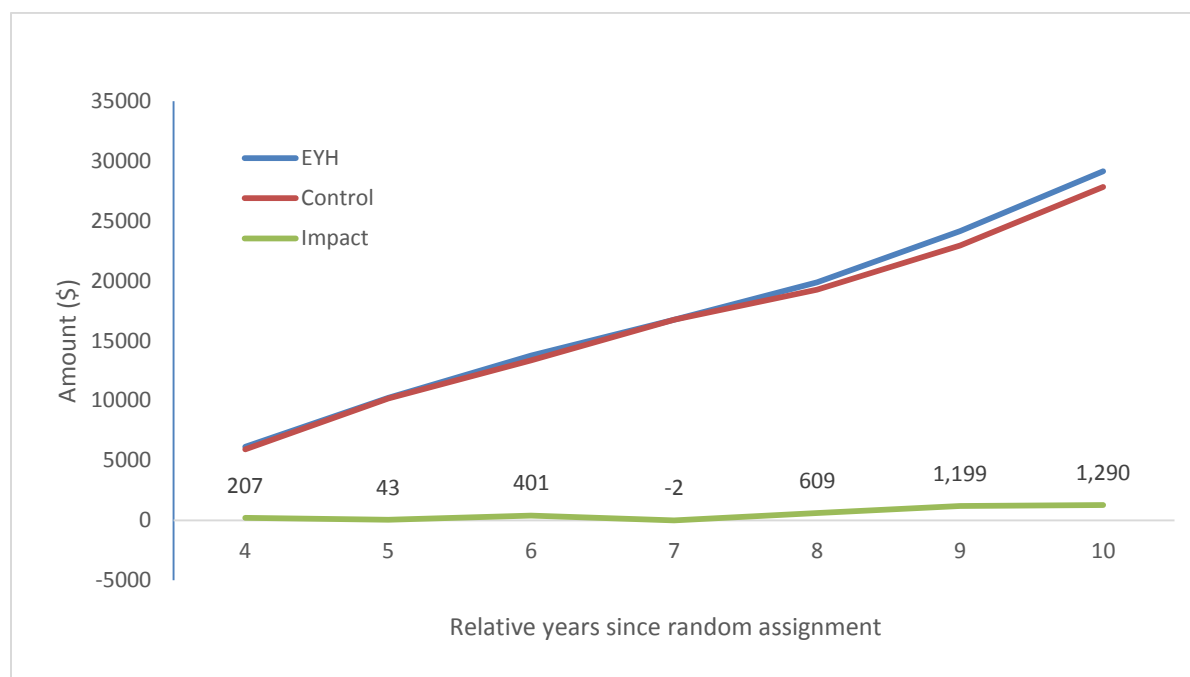
**Table 10: EYH Impacts on Total Self-employment Earnings over Seven Years**

	New Brunswick		
	EYH group	Comparison group	Impact (s.e.)
<b>Total self-employment earnings over seven years of the postsecondary period (\$)</b>			
ALL	802	916	-114 (252)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 7: EYH Impacts on the Total Before-tax Income in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 11: EYH Impacts on Total Before-tax Income Over Seven Years**

	New Brunswick		
	EYH group	Comparison group	Impact (s.e.)
<b>Total before-tax income over seven years of the postsecondary period (\$)</b>			
ALL	120,008	116,262	3,746 (2,888)
Lower-income students	115,896	111,548	4,348 (4,214)
Parents with high school or less (FGF)	121,660	116,850	4,810 (5,037)
LILE	116,569	112,856	3,714 (4,641)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## *Long-term Impacts on Benefit Receipt*

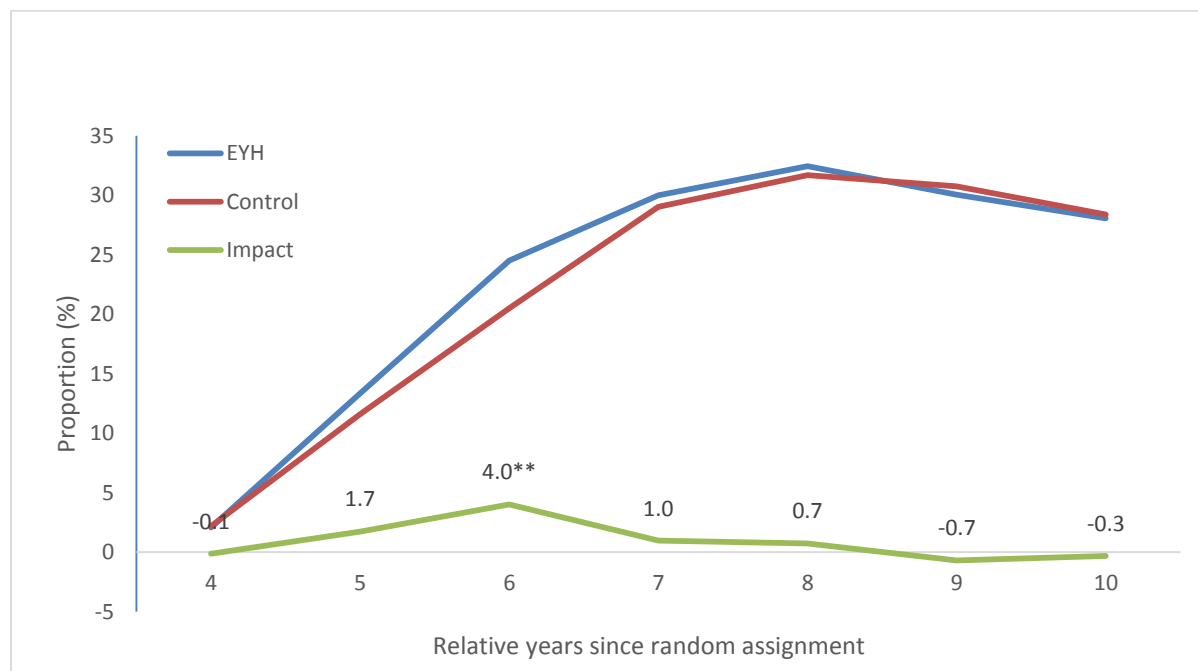
### **Summary of the Results**

EYH participants in New Brunswick were more likely (by 4.0 percentage points) to receive employment insurance (EI) benefits in year six (Figure 8). Among participants from FGF families, EYH produced increased receipt of EI by 7.4 percentage points in year six (see subgroup figures in Appendix A). The LILE subgroup experienced a similar impact on EI receipt in year six (at 6.1 percentage points). However, EYH was not associated with any increase in cumulative EI benefit receipt (Table 12). The amounts of EI benefits increased from year four through year 10 for both EYH and control groups, reflecting increasing eligibility from longer employment (Figure 9). The impacts of EYH on the amounts of EI benefits were similar to its impacts on proportions in receipt: there was no statistically significant impact on cumulative EI benefits received over seven years of the postsecondary period. The only statistically significant impacts were in year six; these impacts were \$310 for the overall sample, \$486 among lower-income students, \$494 among students from FGF families and \$576 among students from LILE families.

There is no program theory to predict whether EYH will contribute positively to EI benefit receipt in the first few years after high school. However, year six is 2009 for cohort 1 participants. If EYH increased participation in one-year college programs right after high school (which it did for francophone boys), those participants in Cohort 1 might have started working before the recession of 2008–09 and lost their jobs in 2009. Although one-year college program graduates of Cohort 2 would have difficulties finding the first job in year five, they probably would not be eligible for EI without accumulating sufficient insurable work hours. Figure 10 and Table 14 present the impacts of EYH on the receipt of social assistance benefits. EYH did not have any statistically significant impact on the receipt of social assistance in the overall sample or any subgroup, cumulatively or by year. Similarly, Figure 11 and Table 15 show that EYH had no impact on the amount of social assistance received.

**Estimated Impacts of Offering Explore Your Horizons to New Brunswick Students**

**Figure 8: EYH Impacts on the Proportion Receiving Employment Insurance in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

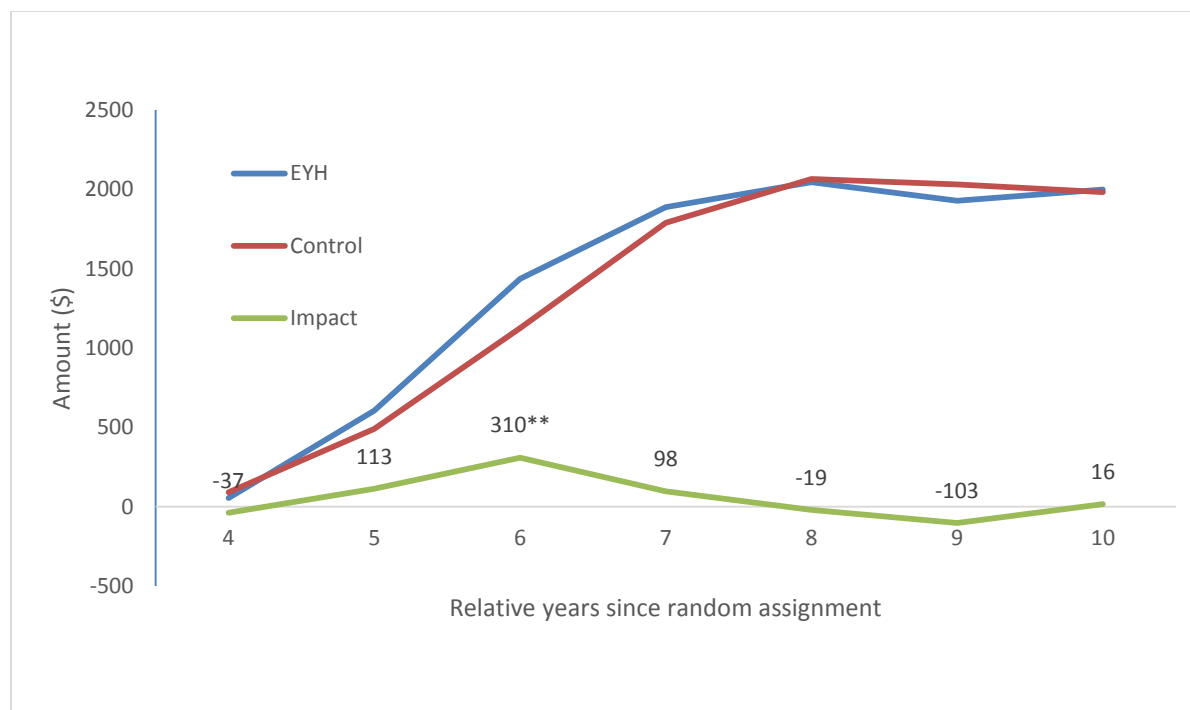
**Table 12: EYH Impacts on Receipt of Employment Insurance Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment insurance over seven years of the postsecondary period</b>			
ALL	54.94	55.50	-0.56 (2.06)
Lower-income students	56.67	57.19	-0.52 (3.09)
Parents with high school or less (FGF)	62.69	61.35	1.34 (3.54)
LILE	58.39	59.11	-0.72 (3.35)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 9: EYH Impacts on the Amount of Employment Insurance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight Discrepancies in sums and differences.

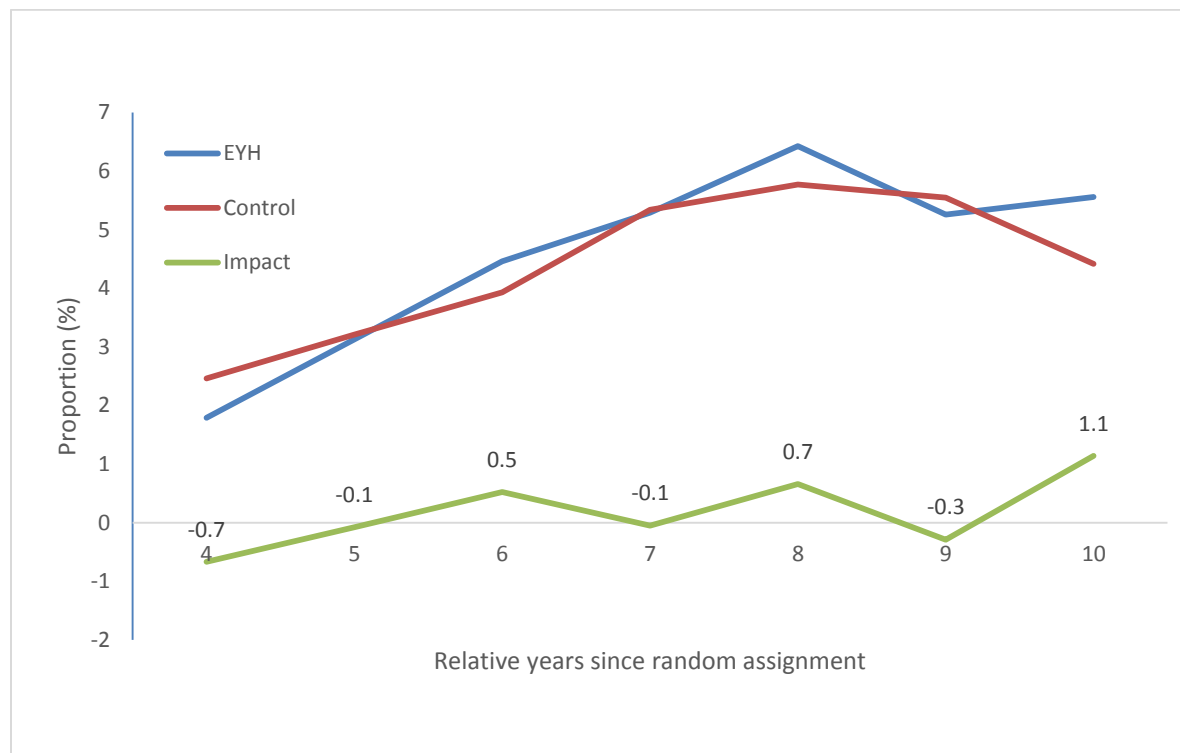
**Table 13: EYH Impacts on Amount of Employment Insurance Over Seven Years**

	New Brunswick		
	EYH group	Comparison group	Impact (s.e.)
<b>Amount of employment insurance received over seven years of the postsecondary period (\$)</b>			
ALL	9,955	9,577	378 (559)
Lower-income students	10,912	10,507	405 (832)
Parents with high school or less (FGF)	12,100	12,015	84 (1,041)
LILE	11,489	11,284	204 (1,020)
Sample size	1030	1430	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 10: EYH Impacts on the Proportion Receiving Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



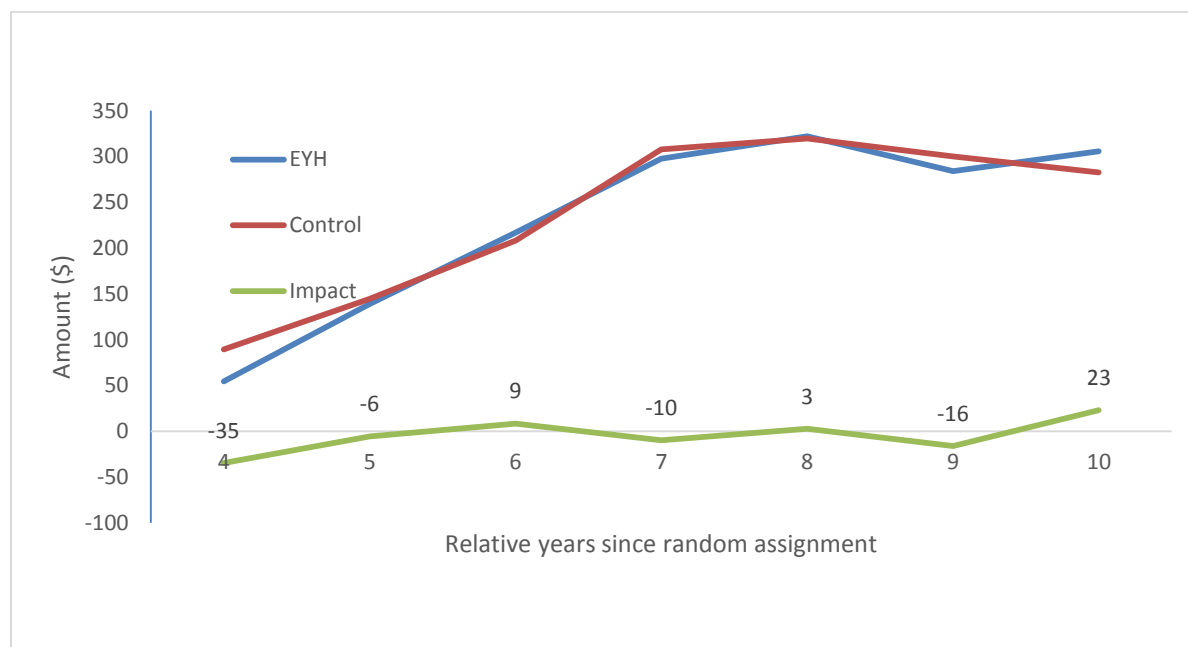
**Table 14: Impacts on Receipt of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received social assistance benefits over seven years of the postsecondary period</b>			
ALL	11.41	11.32	0.09 (1.35)
Lower-income students	18.09	18.74	-0.65 (2.46)
Parents with high school or less (FGF)	19.09	18.39	0.70 (3.03)
LILE	18.13	20.62	-2.49 (2.70)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 11: EYH Impacts on the Amount of Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 15: EYH Impacts on Amount of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	EYH group	Comparison group	Impact (s.e.)
<b>Cumulative total social assistance benefits over seven years of the postsecondary period (\$)</b>			
ALL	1,620	1,652	-32 (348)
Lower-income students	2,817	2,797	20 (669)
Parents with high school or less (FGF)	3,085	2,574	511 (787)
LILE	2,793	3,189	-396 (692)
<b>Sample size</b>	<b>1030</b>	<b>1430</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.



## Impacts of Learning Accounts in New Brunswick

### *Long-term Impacts on Education Tax Credits*

#### **Summary of Results**

Offering students LA had no statistically significant impact on the proportion who reported tuition fees paid in their tax returns over seven years of the postsecondary period (Table 16), but did produce positive impacts of 5.5, 7.3 and 5.9 percentage points in years four, five and six respectively (Figure 12). Impacts on the proportion of students who reported education and textbook amounts were also similar to the impacts on reported tuition fees paid.

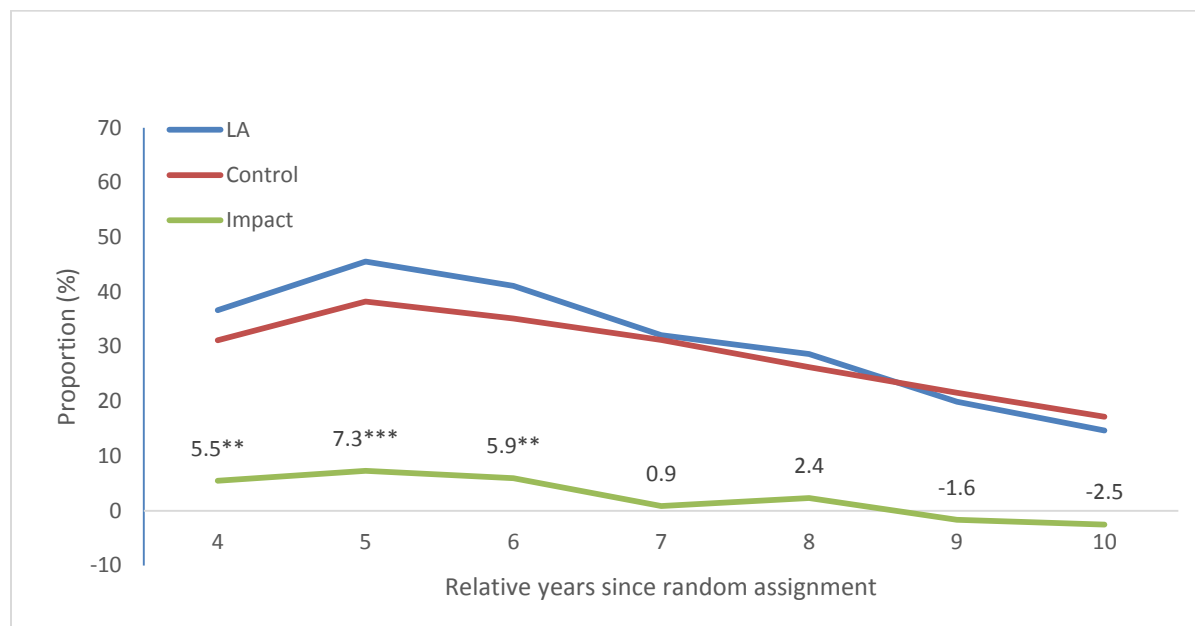
Similarly, LA also increased the proportion of students from the FGF subgroup who reported tuition fees paid in years four, five and six by 5.1 and 7.4 percentage points, respectively (See Appendix B). LA's impacts were strongest for the LILE subgroup, for whom it increased the proportion reporting tuition fees by 6.6, 8.5 and 7.9 percentage points in years four, five and six respectively. The pattern of LA's impacts on the reported education and textbook amounts mirrored the pattern for reported tuition fees.

A lower proportion of students claimed education-related amounts (at 51–56% in Table 18) than reported tuition fees (61–63% in Table 16) or educational expenses paid (62–63% in Table 17). Offering LA to students increased the proportion who claimed educational tax credits in the lower-income sample by 5.1 percentage points (Table 18). Also, LA's impact on proportion of students claiming educational tax credits was the largest in year six for the lower-income sample (at 9.1 percentage points), and the LILE subgroup (6.9 percentage points), while the impact peaked at 7.4 percentage points for FGF students in year nine. The pattern of findings for the early postsecondary years corresponds to previously identified 66-month postsecondary impacts (Ford et al., 2012).

The proportions of participants who used RESPs over seven years of the postsecondary period were not statistically significantly different between LA and control groups, regardless of the subgroup (Table 19).

**Estimated Impacts of Offering Learning Accounts to New Brunswick Students**

**Figure 12: LA Impacts on the Proportion Reporting Tuition Fees Paid in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

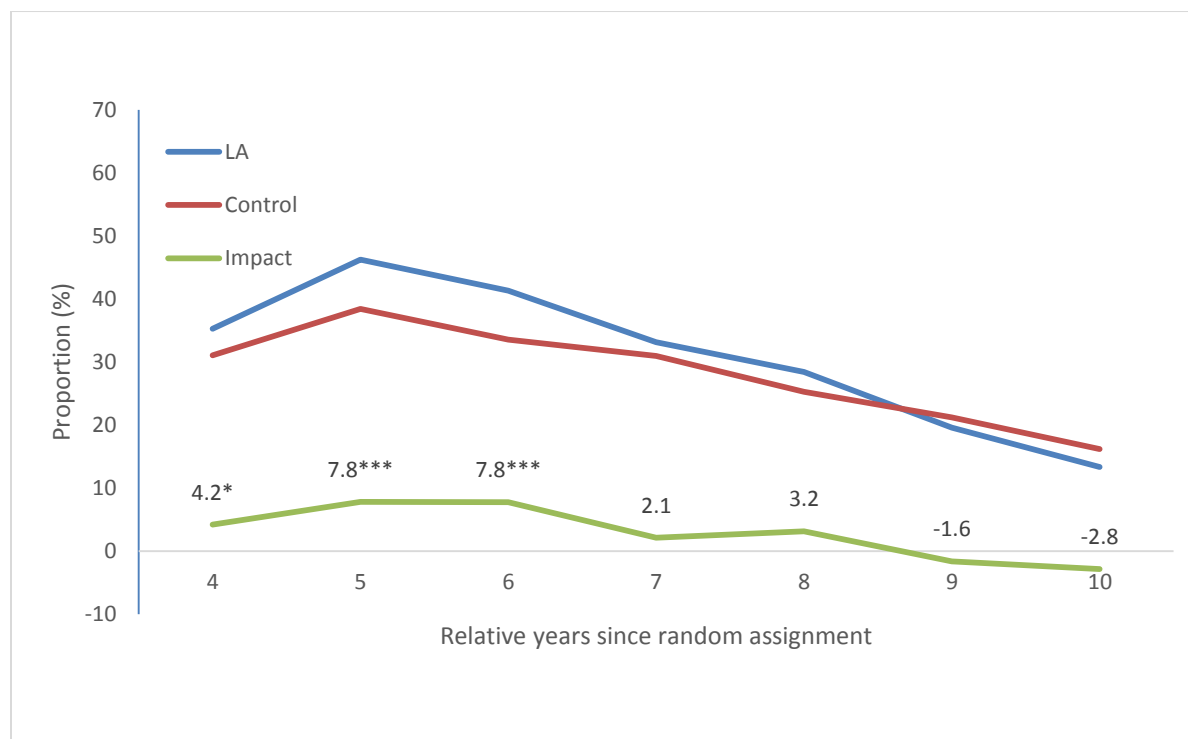
**Table 16: LA Impacts on Reporting Tuition Fees Paid Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported tuition fees paid over seven years of the postsecondary period</b>			
Lower-income students	62.98	61.37	1.61 (2.60)
Parents with high school or less (FGF)	53.90	52.58	1.32 (3.92)
LILE	60.33	57.55	2.78 (3.09)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 13: LA Impacts on the Proportion Reported Education and Textbook Amount in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

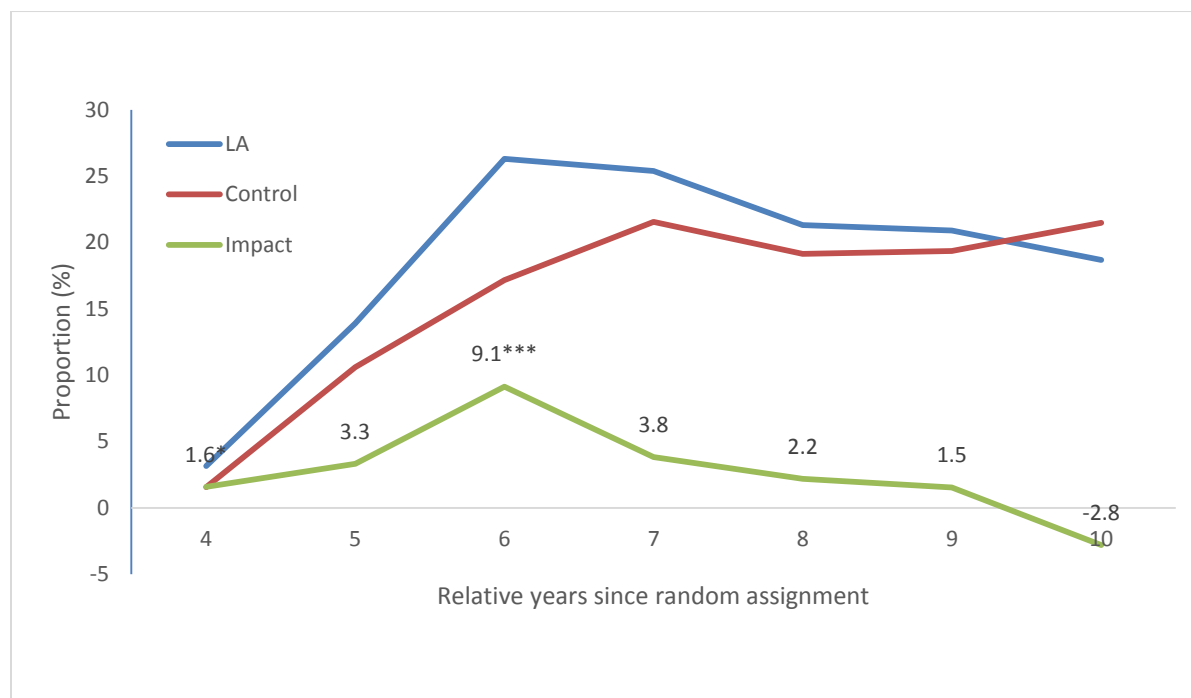
**Table 17: LA Impacts on Reported Education and Textbook Amounts Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported education and textbook amounts over seven years of the postsecondary period</b>			
Lower-income students	62.73	61.60	1.13 (2.55)
Parents with high school or less (FGF)	52.86	53.43	-0.57 (3.78)
LILE	59.75	57.85	1.90 (3.20)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 14: LA Impacts on the Proportion Claiming Educational Tax Credits In Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 18: LA Impacts on Receipt of Any Education-related Amounts Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received any education-related tax credit over seven years of the postsecondary period</b>			
Lower-income students	56.36	51.29	5.07 *
			(2.73)
Parents with high school or less (FGF)	47.33	45.18	2.15
			(3.78)
LILE	53.28	49.05	4.23
			(3.05)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 19: LA Impacts on Reported RESP Use Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported withdrawing from a RESP account over seven years of the postsecondary period</b>			
Lower-income students	11.83	11.31	0.51 (1.84)
Parents with high school or less (FGF)	6.86	4.69	2.17 (1.86)
LILE	9.89	8.04	1.84 (1.88)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

### *Long-term Impacts on Employment and Earnings*

#### **Summary of Results**

In general, the majority of participants in New Brunswick reported employment earnings from year four to year 10. Offering LA did not produce any statistically significant differences in the proportion of students who reported employment earnings in their tax returns for any tax year after high school (Figure 15), nor was there any long-term impact (Table 20) in the overall sample or for any subgroup.

In terms of the amount of employment earnings, Figure 16 shows that earnings of participants from both program and control groups were increasing from year four to year 10. While there were small positive or negative differences between the groups from year four through year eight the impact consistently changed in a positive direction in years nine and 10, though none of the estimated impacts were statistically significant. Subgroup results also display a similar pattern (see Appendix A), and some of the impacts on yearly earnings for subgroups were statistically significant. For example, LA reduced the average earnings of students in the FGF subgroup by \$915 in year four and \$1,520 in year six. For students in the LILE subgroup, LA reduced the average earnings in year four by \$625. In general, the pattern of impacts on yearly earnings is consistent with the theory that education participation reduces earnings while earnings would increase after any additional induced PSE participation. The results suggest again that the analysis of financial returns to PSE for the marginal student should consider impacts on earnings from year four to year eight as forgone earnings while the impacts from year nine onwards represent the start of the return, regardless of statistical significance.

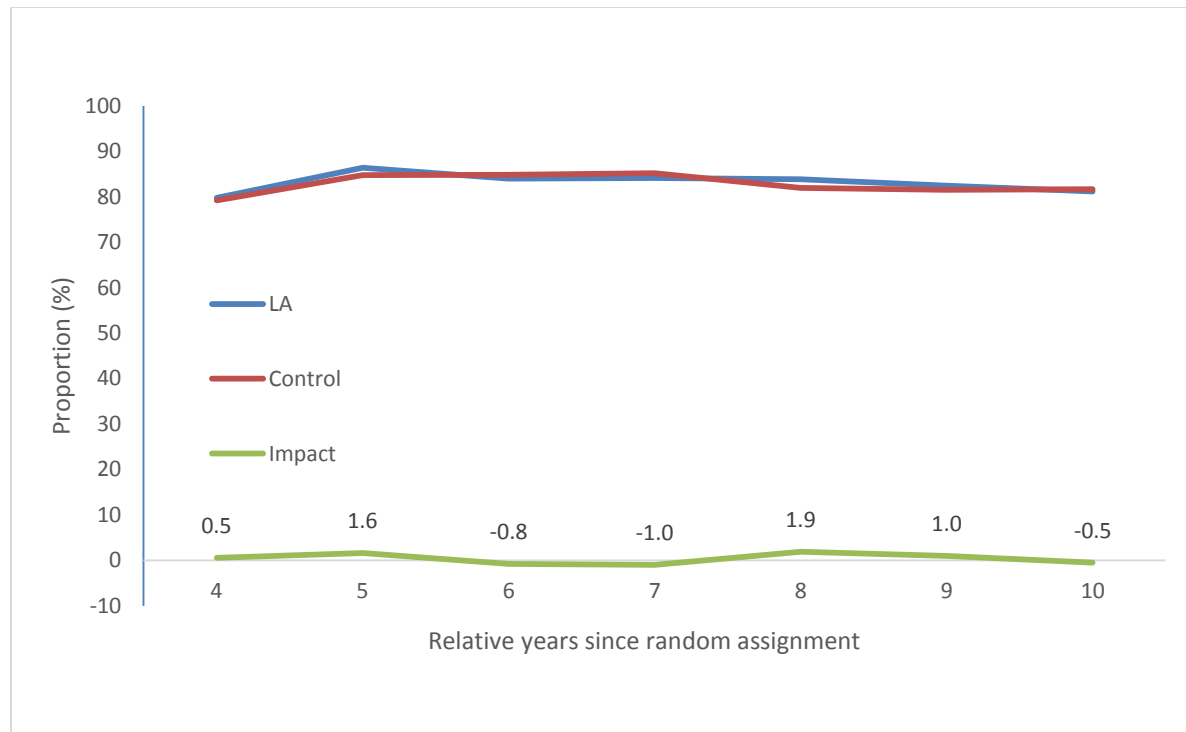
The impacts on cumulative earnings over seven years of the postsecondary period were negative but not statistically significant in the lower-income sample, in the FGF subgroup or the LILE subgroups (Table 21).

Figure 17 and Table 22 summarize LA’s impacts on reported self-employment earnings. In general, the level of self-employment was very low. LA has no impact on reported self-employment earnings in each tax year after high school or cumulatively over seven years of the postsecondary period. Because of the low proportions reporting self-employment, Statistics Canada only permitted release of statistics on cumulative self-employment earnings for the overall sample. LA had no significant impact on cumulative self-employment earnings (Table 23).

The impacts of LA on before-tax income largely mirror those on earnings (Figure 18 and Table 24). The only statistically significant impacts of LA on before-tax income were negative: -\$892 in year four of the FGF subgroup and -\$704 in year four of the LILE subgroup.

**Estimated Impacts of Offering Learning Accounts to New Brunswick Students**

**Figure 15: LA Impacts on the Proportion Reporting Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



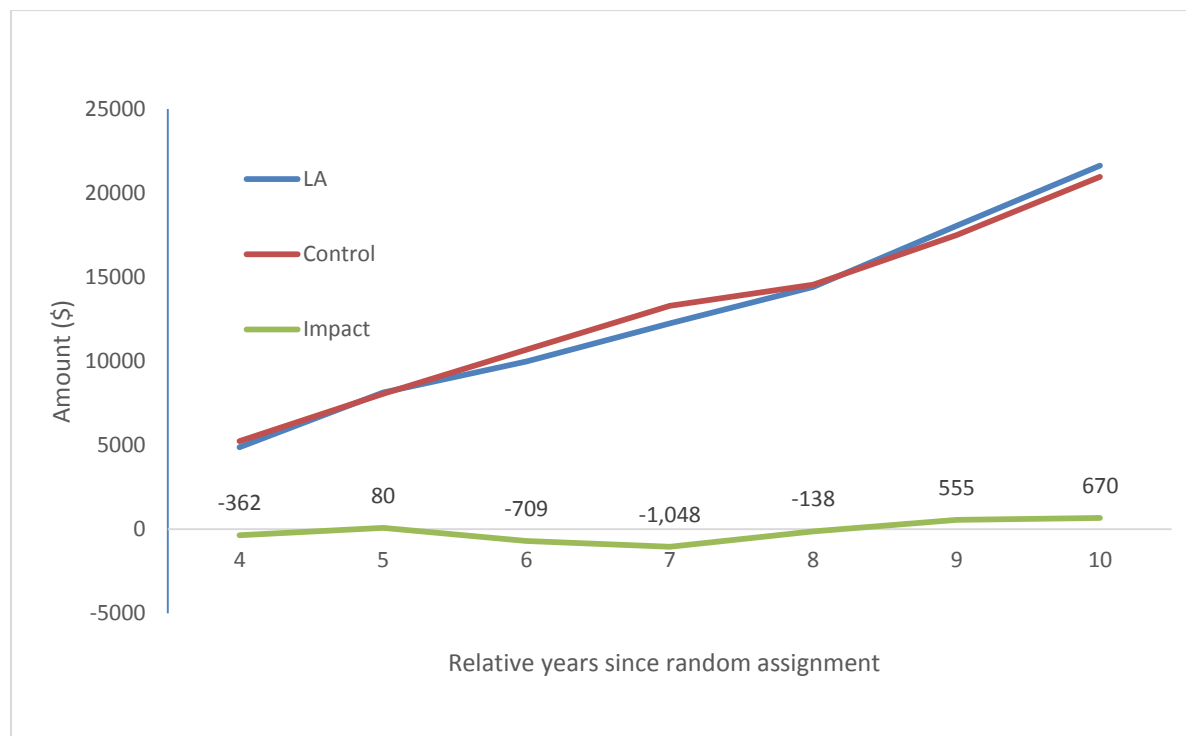
**Table 20: LA Impacts on Receipt of Employment Earnings Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment earnings over seven years of the postsecondary period</b>			
Lower-income students	97.62	98.42	-0.80 (0.93)
Parents with high school or less (FGF)	96.27	98.37	-2.10 (1.52)
LILE	96.89	98.40	-1.51 (1.08)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 16: LA Impacts on Reported Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



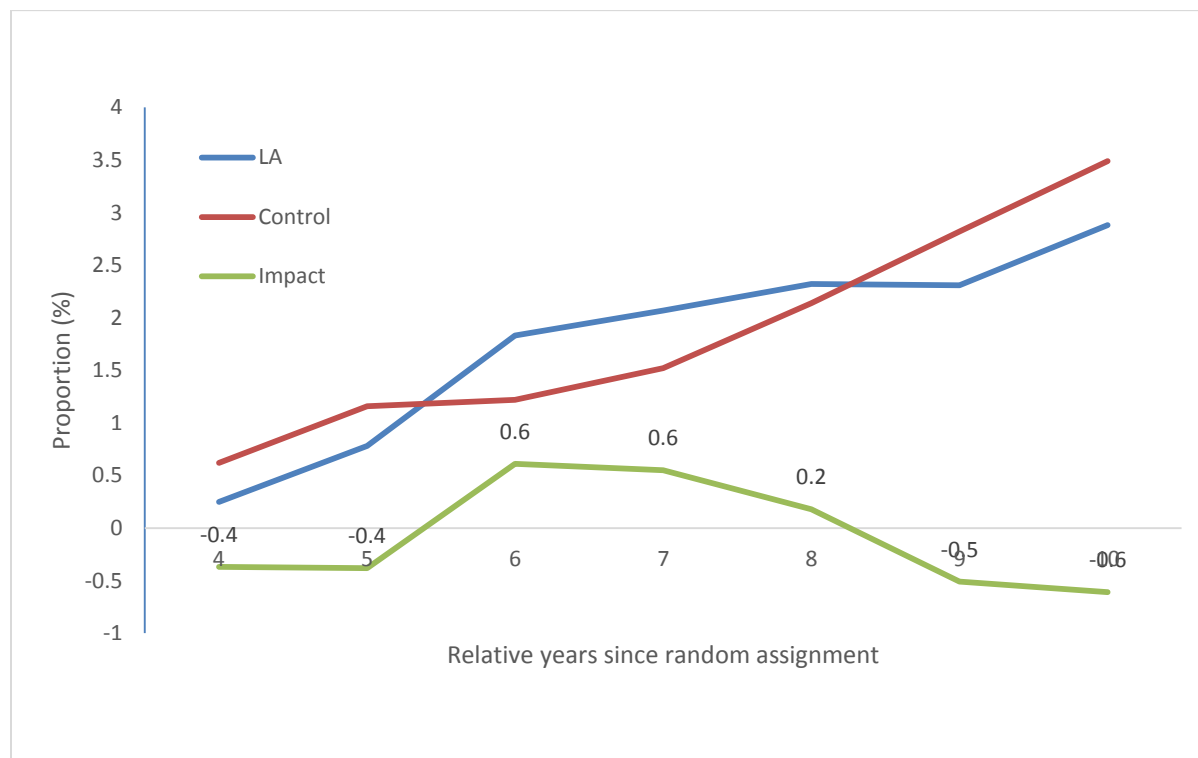
**Table 21: LA Impacts on Total Employment Earnings Over Seven Years**

	New Brunswick		
	LA group	Comparison group	Impact (s.e.)
<b>Total employment earnings over seven years of the postsecondary period (\$)</b>			
Lower-income students	89,338	90,290	-952 (4,033)
Parents with high school or less (FGF)	84,095	87,868	-3,773 (5,907)
LILE	87,983	89,883	-1,900 (4,384)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 17: LA Impacts on the Proportion Reporting Self-employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**





**Table 22: LA Impacts on Receipt of Self-employment Earnings Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received self-employment earnings over seven years of the postsecondary period</b>			
Lower-income students	7.48	7.12	0.36 (1.54)
Parents with high school or less (FGF)	6.15	6.51	-0.36 (2.11)
LILE	6.80	7.26	-0.46 (1.72)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

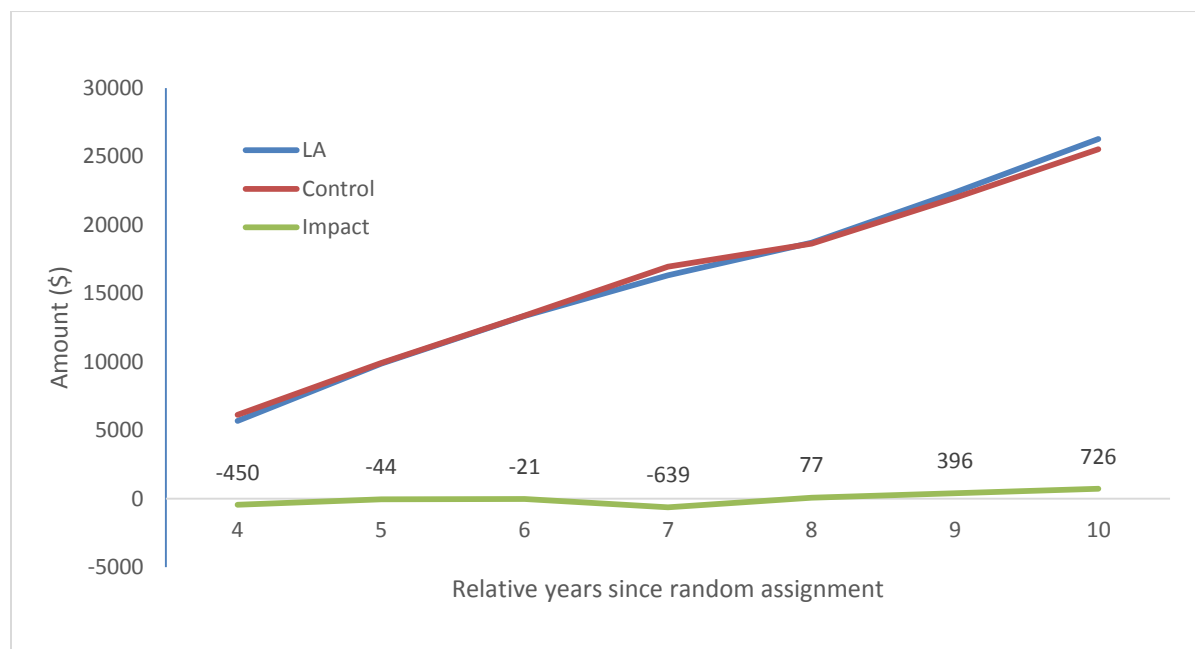
**Table 23: LA Impacts on Total Self-employment Earnings Over Seven Years**

	New Brunswick		
	LA group	Comparison group	Impact (s.e.)
<b>Total self-employment earnings over seven years of the postsecondary period (\$)</b>			
Lower-income students	468	449	20 (214)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 18: LA Impacts on Total Before-tax Income in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 24: LA Impacts on Total Before-tax Income Over Seven Years**

	New Brunswick		
	LA group	Comparison group	Impact (s.e.)
<b>Total before-tax income over seven years of the postsecondary period (\$)</b>			
Lower-income students	112,560	112,516	44 (3,918)
Parents with high school or less (FGF)	108,076	111,535	-3,459 (5,868)
LILE	111,473	113,187	-1,714 (4,158)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## *Long-term Impacts on Benefit Receipt*

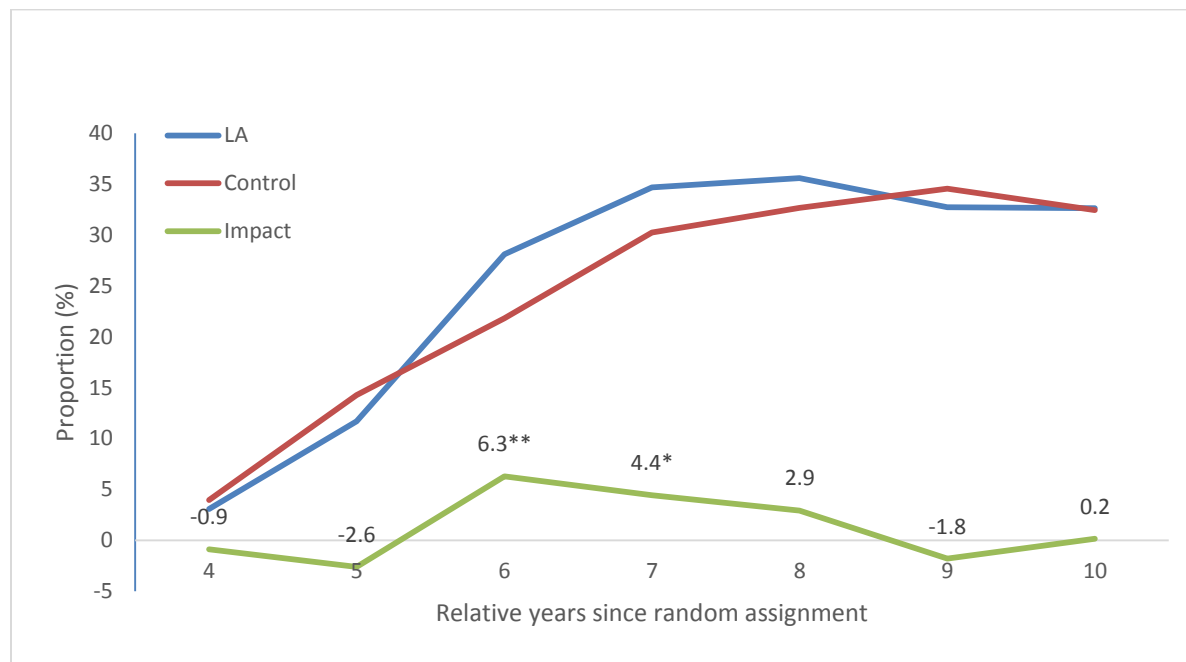
### **Summary of the Results**

LA participants were more likely (by 4.0 percentage points) to receive employment insurance (EI) benefits in years six and seven (Figure 19). Among participants from FGF families, LA increased the proportion receiving EI by 7.6 percentage points in year six (see subgroup figures in Appendix A). There were similar impacts on EI receipt in year six for the LILE subgroup (at 5.3 percentage points) albeit preceded by a negative 3.9 percentage point impact in year five. Cumulatively, LA was not associated with any statistically significant change in receipt of EI (Table 25). The amounts of EI benefits increased from year four to year 10 for both the LA group and the control group, reflecting the increasing eligibility from longer employment spells (Figure 20). LA's impacts on the amount of EI benefits received followed a similar pattern to the impacts on EI receipt: There was no statistically significant impact on cumulative EI benefits received over the seven years of the postsecondary period. However there were statistically significant impacts on the amounts of EI benefits in some years. Among students from lower-income families, LA reduced the amount of EI benefits by \$199 in year five, and increased the amounts by \$404 and \$454 in years six and seven respectively. Similarly, LA reduced the amount of EI benefits by \$344 in year five and increased the amounts by \$547 in year six and \$607 in year seven among students in FGF subgroup. For students from LILE families, LA was associated with a \$281 reduction in EI benefit in year five and a \$369 increase in year six. The reductions would be consistent with increased program group participation in education in the same years. The increases in year six for cohort 1 would have coincided with the recession of 2008–09. Cohort 1 participants who took a one-year college program due to LA could have been subject to an increased risk of job loss due to the recession (Ford et al., 2012; Ford & Kwakye, 2016 find that LA worked mainly to increase college enrolment).

Figure 21 and Table 27 present LA's impacts on the receipt of social assistance benefits. LA did not impact the receipt of social assistance in the overall sample or any subgroup, cumulatively or by year. Similarly, Figure 22 and Table 28 show that LA had no impact on the amount of social assistance received.

**Estimated Impacts of Offering Learning Accounts to New Brunswick Students**

**Figure 19: LA Impacts on the Proportion Receiving Employment Insurance in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

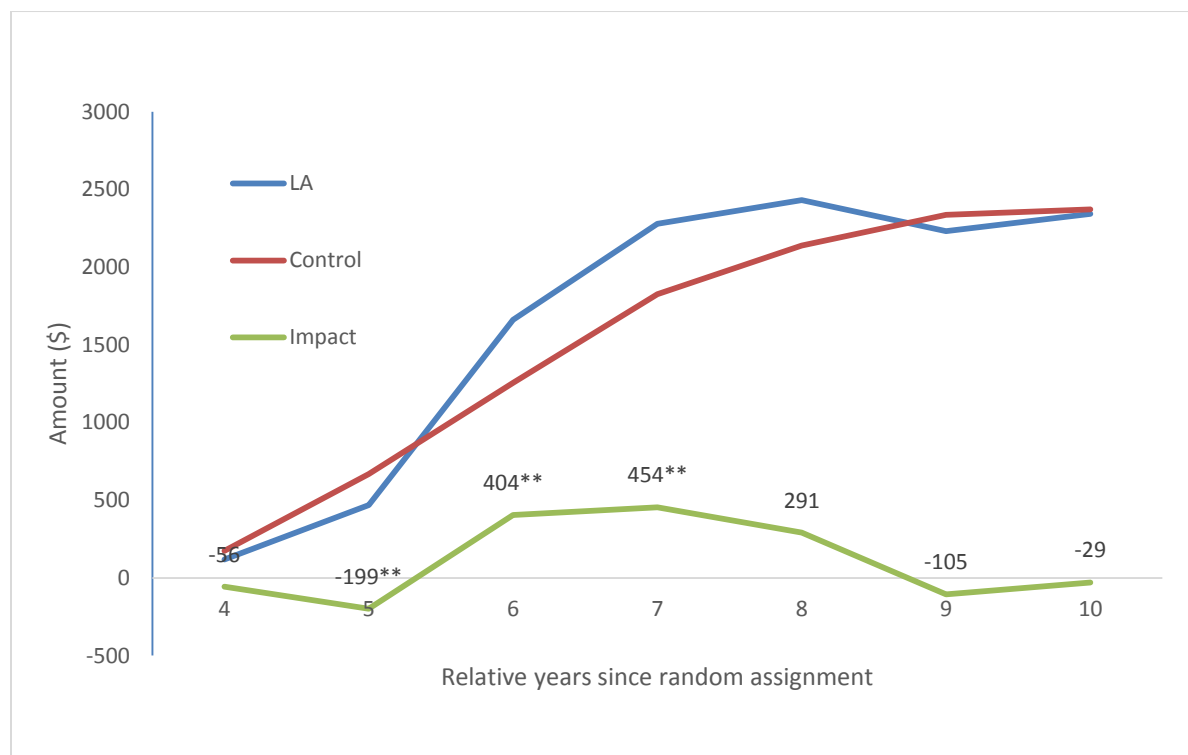
**Table 25: Impacts on Receipt of Employment Insurance Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment insurance over seven years of the postsecondary period</b>			
Lower-income students	60.58	58.30	2.28 (2.89)
Parents with high school or less (FGF)	60.95	60.53	0.42 (4.30)
LILE	60.26	59.47	0.79 (3.37)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 20: LA Impacts on the Amount of Employment Insurance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

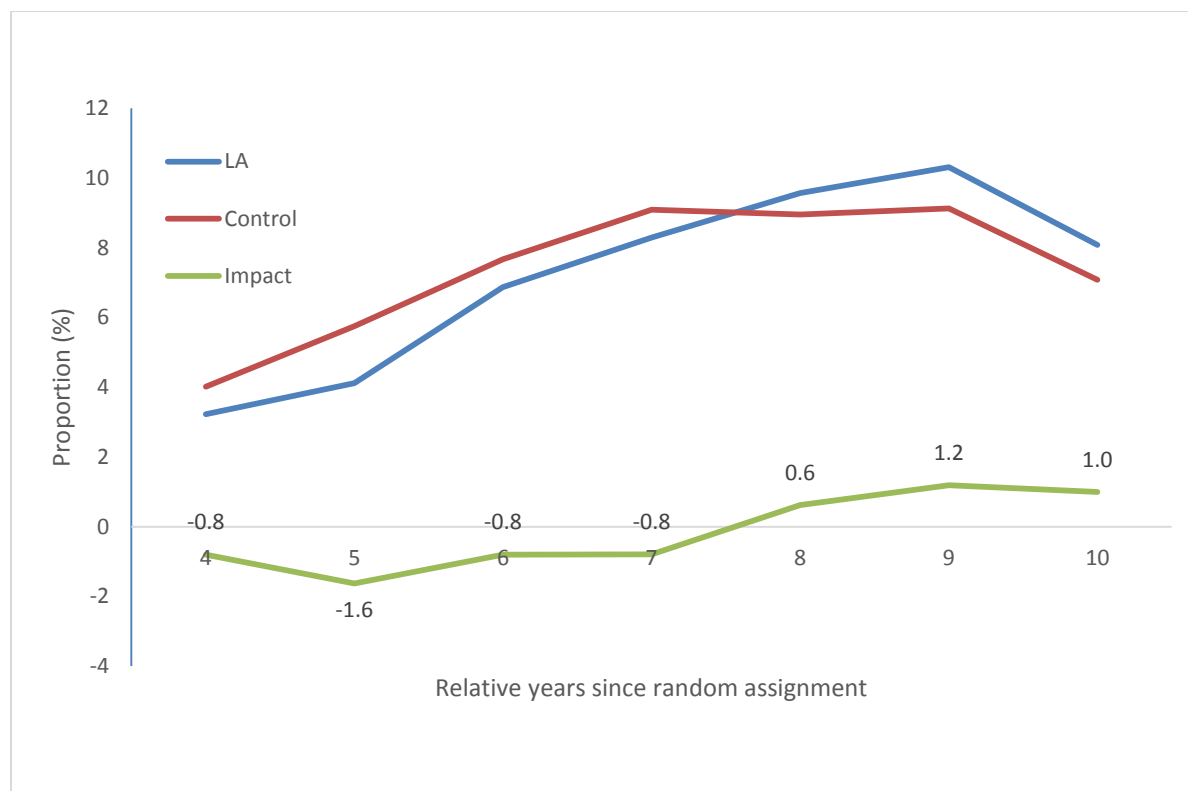
**Table 26: LA Impacts on Amount of Employment Insurance Over Seven Years**

	New Brunswick		
	LA group	Comparison group	Impact (s.e.)
<b>Amount of employment insurance received over seven years of the postsecondary period (\$)</b>			
Lower-income students	11,530	10,771	759 (818)
Parents with high school or less (FGF)	12,184	12,208	-24 (1,325)
LILE	11,537	11,686	-150 (1,003)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 21: LA Impacts on the Proportion Receiving Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



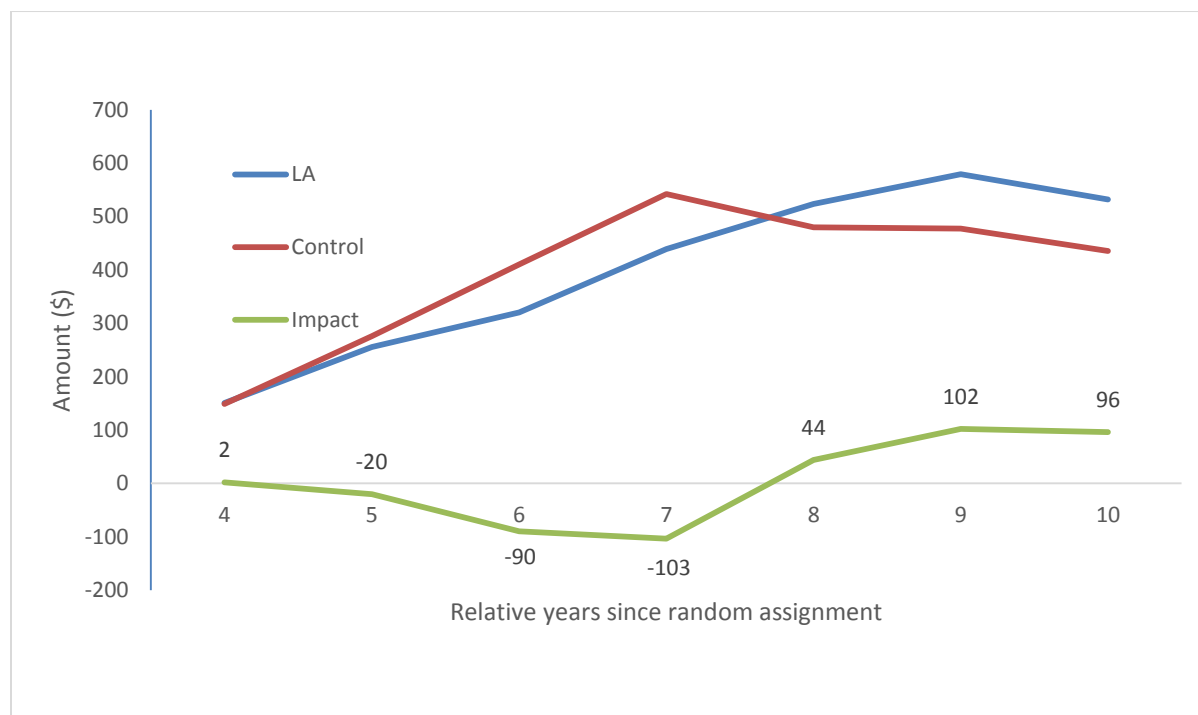
**Table 27: Impacts on Receipt of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received social assistance benefits over seven years of the postsecondary period</b>			
Lower-income students	19.63	18.81	0.82 (2.20)
Parents with high school or less (FGF)	22.77	21.61	1.16 (3.29)
LILE	21.05	20.77	0.29 (2.77)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 22: LA Impacts on the Amount of Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 28: LA Impacts on Amount of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	LA group	Comparison group	Impact (s.e.)
<b>Cumulative total social assistance benefits over seven years of the postsecondary period (\$)</b>			
Lower-income students	2,802	2,771	31 (612)
Parents with high school or less (FGF)	3,383	3,059	324 (927)
LILE	3,318	3,167	151 (712)
<b>Sample size</b>	<b>530</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## Impacts of EYH+LA in New Brunswick

### *Long-term Impacts on Education Tax Credits*

#### **Summary of Results**

There were statistically significant impacts from offering a combination of EYH+LA on the proportion of students who reported tuition fees paid in their tax returns over seven years of the postsecondary period (Table 29). There was an increase of 7.5 percentage points among the lower-income sample, 8.5 percentage points among students in the FGF subgroup, and 10.0 percentage points among students in the LILE subgroup. Impacts were concentrated in the early years after high school. For lower-income students, EYH+LA increased the proportion of students who reported tuition fees in year four by 8.3 percentage points, and in year five by 8.4 percentage points (Figure 23). The impact of EYH+LA on the proportion reporting education and textbook amounts was also similar to the impact on reported tuition fees paid.

Similarly, EYH+LA also increased the proportion of students from the FGF subgroup who reported tuition fees paid in years four and five by 9.9 and 9.8 percentage points, respectively (See Appendix C). EYH+LA's impacts were strongest for the LILE subgroup: increasing the proportion reporting tuition fees by 9.0 and 11.1 percentage points in years four and five, respectively. The pattern of EYH+LA's impacts on reported education and textbook amounts in each tax year mirrored that for reported tuition fees.

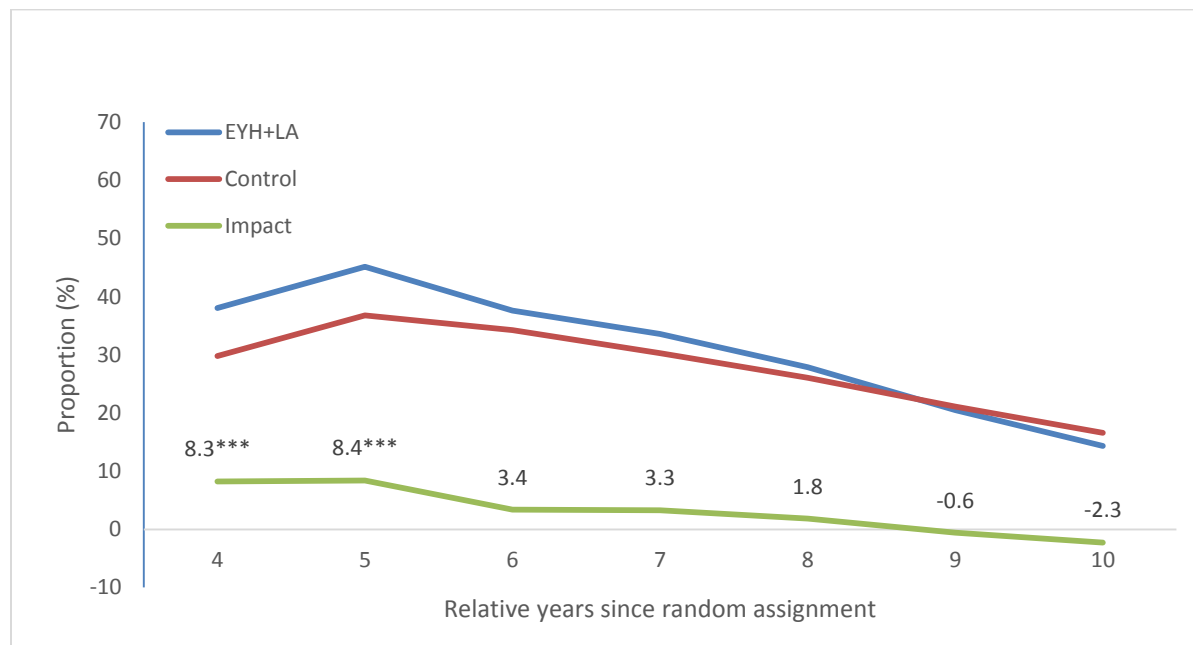
A lower proportion of students claimed education-related amounts (at 50–57% in Table 31) than reported tuition fees (60–68% in Table 29) or educational expenses paid (60–68% in Table 30). EYH+LA had a 7.6 percentage point impact on the proportion of students who claimed educational tax credits in the lower-income sample (Table 31). Also, EYH+LA's impact on the proportion of students claiming educational tax credits was the largest in year eight for the lower-income sample (at 7.2 percentage points), in year nine for the FGF subgroup (at 8.7 percentage points) and in year nine for the LILE subgroup (at 8.7 percentage points).

The proportions of participants in EYH+LA and control groups using RESPs over seven years of the postsecondary period showed no statistically significant difference, regardless of the subgroup (Table 32).



### Estimated Impacts of Offering EYH+LA to New Brunswick Students

**Figure 23: EYH+LA Impacts on the Proportion Reporting Tuition Fees Paid in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

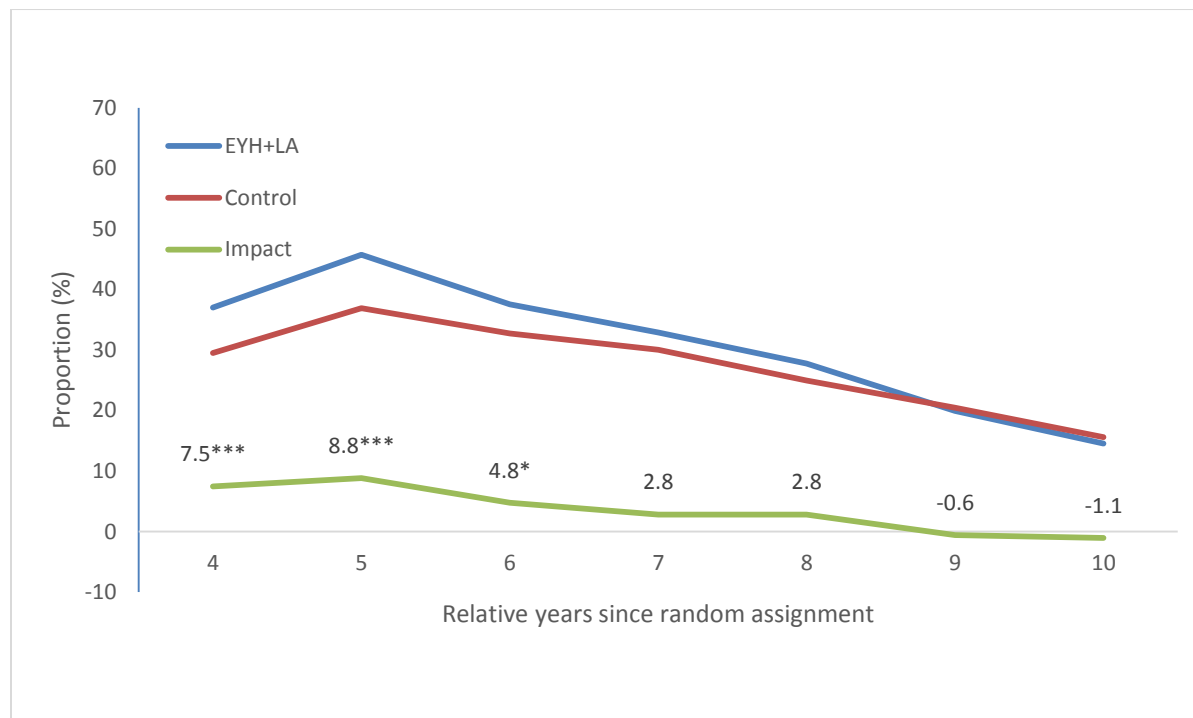
**Table 29: EYH+LA Impacts on Reporting Tuition Fees Paid Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported tuition fees paid over seven years of the postsecondary period</b>			
Lower-income students	67.57	60.05	7.52 *** (2.48)
Parents with high school or less (FGF)	61.18	52.72	8.46 ** (3.78)
LILE	65.93	55.97	9.96 *** (2.98)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 24: EYH+LA Impacts on the Proportion Reported Education and Textbook Amount in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

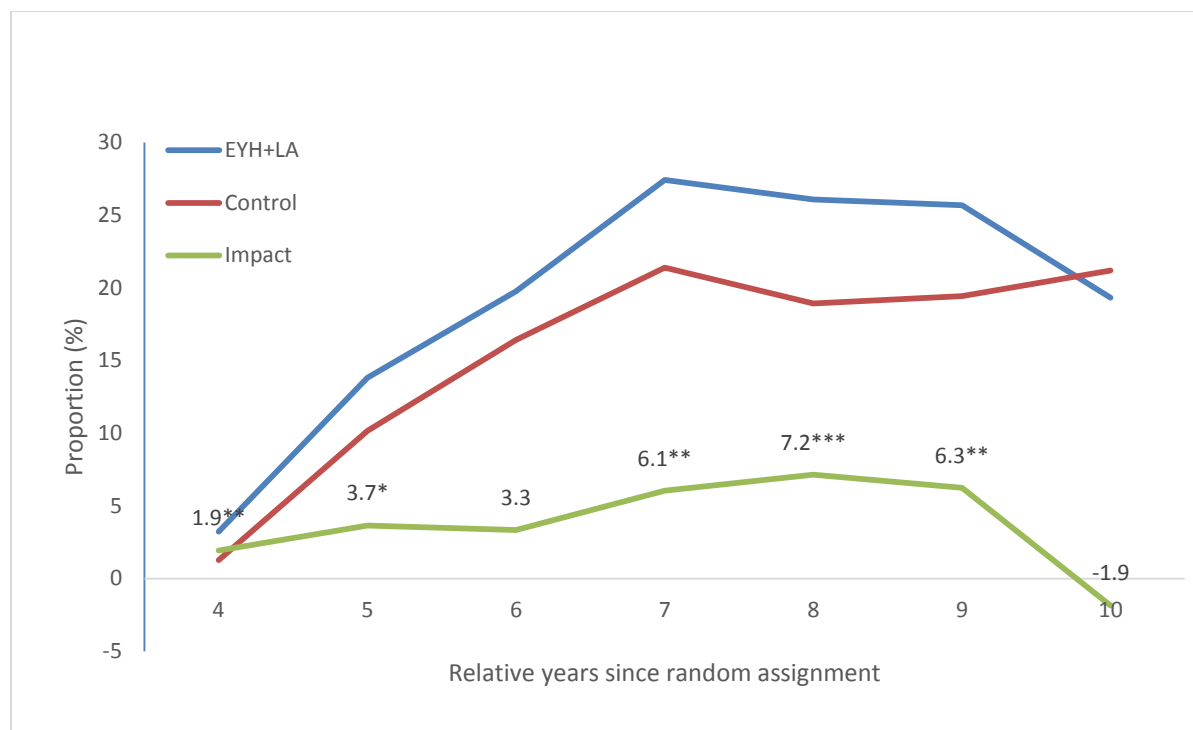
**Table 30: EYH+LA Impacts on Reported Education and Textbook Amounts Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported education and textbook amounts over seven years of the postsecondary period</b>			
Lower-income students	67.78	60.19	7.60 *** (2.44)
Parents with high school or less (FGF)	61.05	53.45	7.60 ** (3.72)
LILE	65.53	56.13	9.39 *** (3.19)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 25: EYH+LA Impacts on the Proportion Claiming Educational Tax Credits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 31: EYH+LA Impacts on Receipt of Any Education-related Amounts Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received any education-related tax credit over seven years of the postsecondary period</b>			
Lower-income students	57.33	50.48	6.86 ** (2.76)
Parents with high school or less (FGF)	51.49	46.09	5.40 (3.79)
LILE	56.14	48.26	7.88 ** (3.37)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 32: EYH+LA Impacts on Reported RESP Use Over Seven Years**

	New Brunswick		
	EYH+LA group	Comparison group	Impact in percentage points
	(%)	(%)	(s.e.)
<b>Ever reported withdrawing from a RESP account over seven years of the postsecondary period</b>			
Lower-income students	12.82	11.42	1.40 (1.97)
Parents with high school or less (FGF)	6.96	4.92	2.04 (1.98)
LILE	10.56	7.64	2.92 (1.92)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

## Long-term Impacts on Employment and Earnings

### Summary of Results

Similar to the results of EYH and LA separately, the majority of EYH+LA participants reported employment earnings from year four to year 10. There was no statistically significant impact of EYH+LA on the proportion of students who reported employment earnings in their tax returns for any tax year after high school (Figure 26), nor was there any long-term impact (Table 33) for any subgroup.

The pattern of impacts on the amount of employment earnings in Figure 27 shows earnings of participants from both program group and control groups increasing between years four and 10, starting with negative impacts from year four to year eight switching to positive at year nine, though no later-year impacts were statistically significant. Subgroup results also display a similar pattern of small positive or negative impacts on earnings in early years of the postsecondary period and positive impacts in years nine and 10 (see Appendix C). Some of the impacts on earlier yearly earnings were statistically significant. For example, EYH+LA reduced the earnings of students from lower-income families by \$584 in year four and \$1,249 in year six. For students in the FGF subgroup, EYH+LA reduced earnings in year four by \$1,035. For students in the LILE subgroup, EYH+LA reduced earnings in year four by \$692. In general, the pattern of impacts on yearly earnings was consistent with the theory that earnings would be depressed during the PSE participation induced by EYH+LA and would increase afterwards. The results again suggest that the analysis of financial returns to PSE for the marginal student should consider the impact on earnings from year four to year eight as forgone earnings and impacts from year nine onwards as the start of the financial returns to education, regardless of the level of statistical significance.

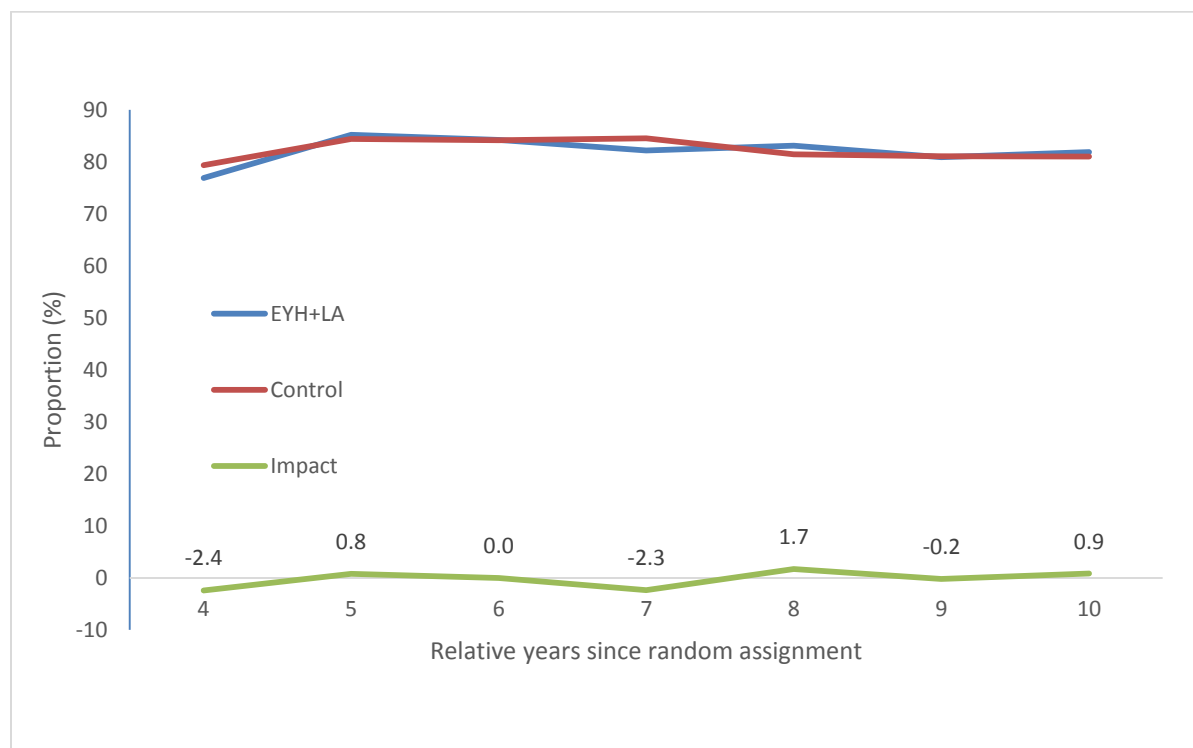
EYH+LA’s impacts on cumulative earnings over the seven years of the postsecondary period were not statistically significant for the lower-income sample, the FGF or LILE subgroups (Table 34).

Figure 28 and Table 35 summarize the impacts on reported self-employment earnings. In general, the level of self-employment was very low. EYH+LA had no impact on reported self-employment earnings in each tax year after high school nor cumulatively over seven years of the postsecondary period. Due to the low proportions reporting self-employment, Statistics Canada has only permitted release of the cumulative self-employment earnings of the overall sample. EYH+LA had no significant impact on cumulative self-employment earnings (Table 36).

Impacts on before-tax income largely mirror those on earnings (Figure 29 and Table 37). The only statistically significant impacts of EYH+LA on before-tax income were decreases in year four (-\$603 among lower-income students, -\$1335 for the FGF subgroup and -\$717 for the LILE subgroup), consistent with increased program group participation in education in that year.

**Estimated Impacts of Offering EYH+LA to New Brunswick Students**

**Figure 26: EYH+LA Impacts on the Proportion Reporting Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



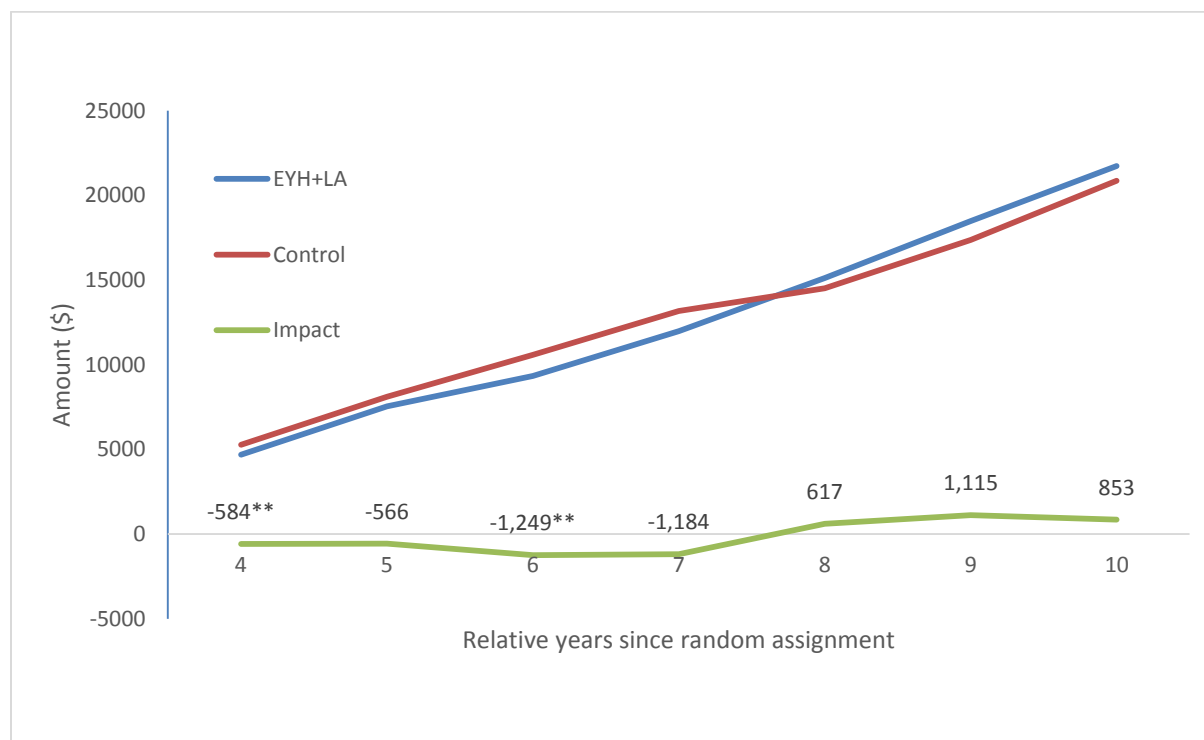
**Table 33: EYH+LA Impacts on Receipt of Employment Earnings Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment earnings over seven years of the postsecondary period</b>			
Lower-income students	97.33	98.22	-0.88 (0.93)
Parents with high school or less (FGF)	96.33	98.79	-2.46 (1.55)
LILE	97.39	98.22	-0.84 (1.08)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 27: EYH+LA Impacts on Reported Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

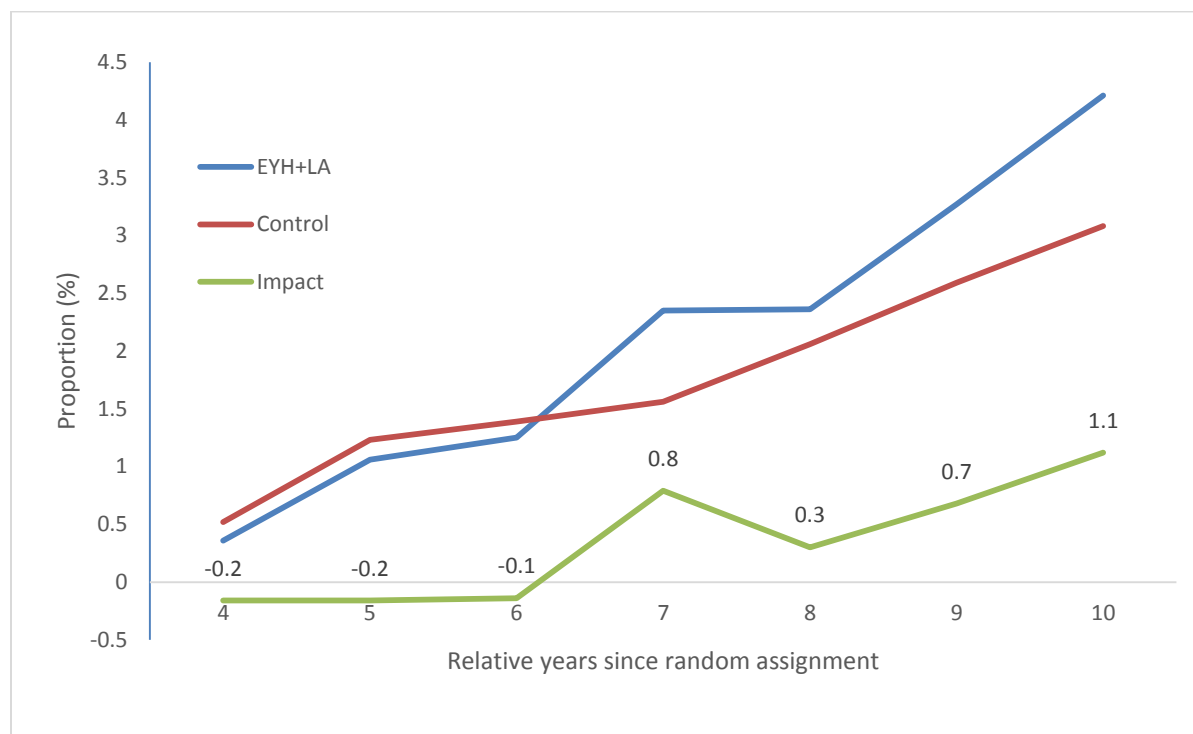
**Table 34: EYH+LA Impacts on Total Employment Earnings Over Seven Years**

	New Brunswick		
	EYH+LA group	Comparison group	Impact (s.e.)
<b>Total employment earnings over seven years of the postsecondary period (\$)</b>			
Lower-income students	88,882	89,880	-998 (3,817)
Parents with high school or less (FGF)	89,947	88,509	1,438 (5,466)
LILE	89,921	90,278	-358 (4,592)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 28: EYH+LA Impacts on the Proportion Reporting Self-employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 35: EYH+LA Impacts on Receipt of Self-employment Earnings Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received self-employment earnings over seven years of the postsecondary period</b>			
Lower-income students	8.70	6.75	1.95 (1.55)
Parents with high school or less (FGF)	7.33	6.78	0.55 (2.36)
LILE	8.34	7.17	1.17 (1.80)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 36: EYH+LA impacts on Total Self-employment Earnings Over Seven Years**

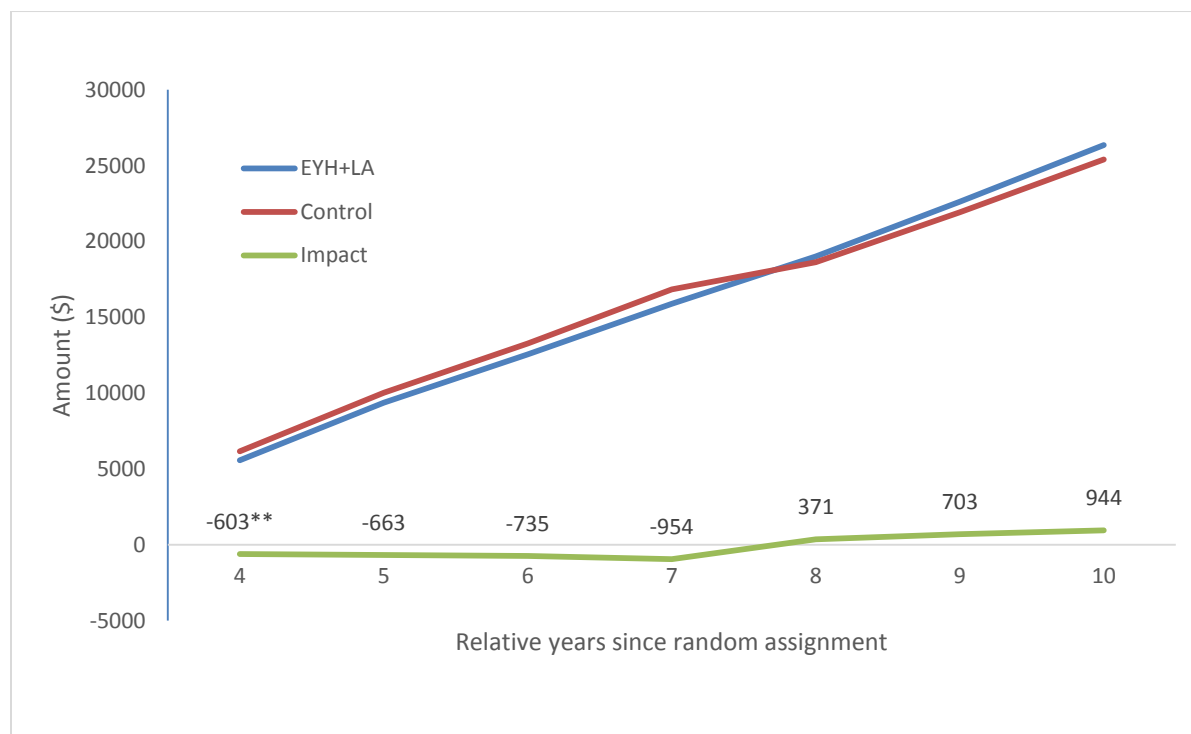
	New Brunswick		
	EYH+LA group	Comparison group	Impact (s.e.)
<b>Total self-employment earnings over seven years of the postsecondary period (\$)</b>			
Lower-income students	637	430	207 (218)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.



**Figure 29: EYH+LA Impacts on the Total Before-tax Income in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 37: EYH+LA Impacts on Total Before-tax Income Over Seven Years**

	New Brunswick		
	EYH+LA group	Comparison group	Impact (s.e.)
<b>Total before-tax income over seven years of the postsecondary period (\$)</b>			
Lower-income students	111,370	112,306	-936 (3,646)
Parents with high school or less (FGF)	112,747	112,096	650 (5,490)
LILE	112,705	113,807	-1,102 (4,325)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## *Long-term Impacts on Benefit Receipt*

### **Summary of Results**

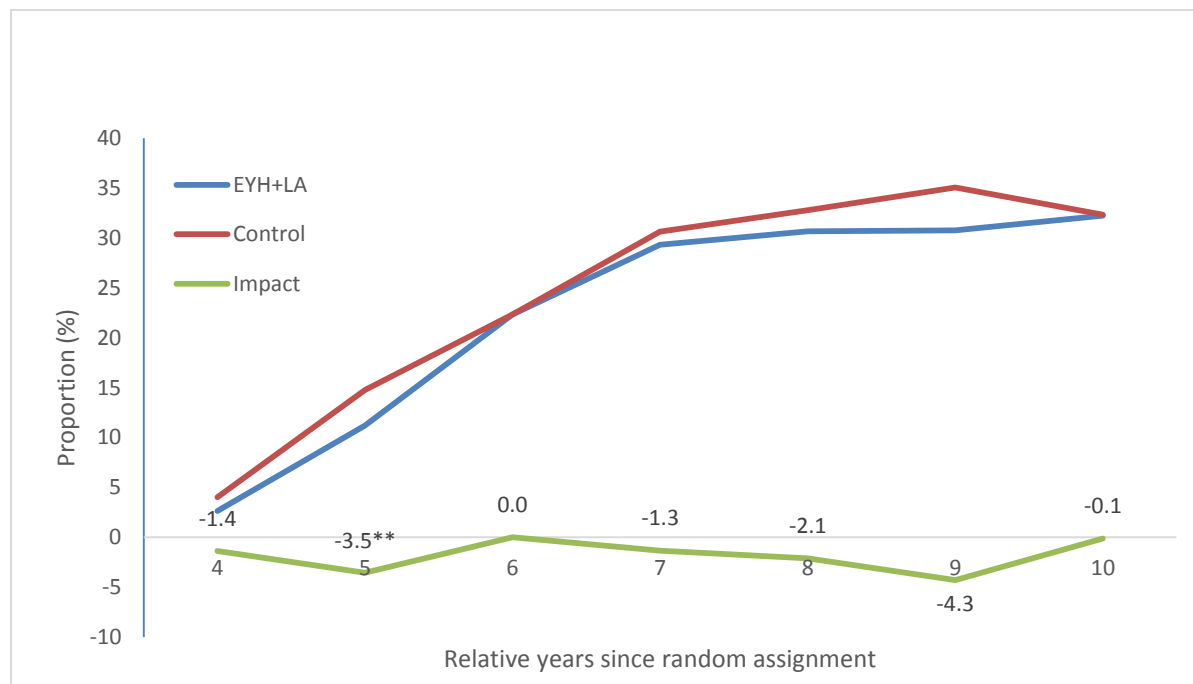
Patterns of benefit receipt were similar for EYH+LA as for EYH and LA separately. Those offered EYH+LA were less likely (by 3.5 percentage points) to receive EI benefits in year five (Figure 30). Among participants from FGF families, EYH+LA reduced the receipt of EI by 8.3 percentage points in year nine (see subgroup figures in Appendix C). For students in the LILE subgroup, the intervention also reduced EI benefit receipt by 2.3 percentage points in year four, 4.7 percentage points in year five, and 5.2 percentage points in year nine. However, cumulatively EYH+LA was not associated with any statistically significant change in EI benefit receipt (Table 38). The amounts of EI benefits were increasing from years four through 10 for both EYH+LA and control groups, reflecting increasing eligibility due to longer employment (Figure 31). Impacts on the amounts of EI benefits were similar to impacts on EI receipt: There was no statistically significant impact on cumulative EI benefit received over seven years of the postsecondary period. However there were statistically significant impacts on the amounts of EI benefits in some years. Among students from lower-income families, EYH+LA reduced the amount of EI benefits by \$208 in year five and \$413 in year nine. It also reduced the amount of EI benefits by \$599 in year 10 among students in the FGF subgroup. For students from LILE families, EYH+LA was associated with a \$108 reduction in EI benefit in year four, a \$271 reduction in year five and a \$467 reduction in year nine.

In contrast to the findings for EYH and LA separately, the combination of EYH and LA together yielded no spike in EI use during the recession of 2008–09. As Ford et al. (2012) reported, EYH+LA increased enrolment in university programs. Given typical undergraduate program durations, participants affected by the program may have entered the labour market full-time some years after the recession.

Figure 32 and Table 40 present the impacts of EYH+LA on receipt of social assistance benefits. EYH+LA did not have any statistically significant impact on the receipt of social assistance cumulatively or by year among lower-income students or students of the FGF subgroup. However, EYH+LA reduced the receipt of social assistance cumulatively over the seven years by 4.6 percentage points among students from the LILE subgroup. In particular, EYH+LA decreased use of social assistance in year seven (by 3.8 percentage points) and year eight (by 4.2 percentage points) for students from LILE families. Decreased receipt translated into an average reduction of \$228 in the amount of social assistance received by students of the LILE group in year seven (see Appendix C).

## Estimated Impacts of Offering EYH+LA to New Brunswick Students

**Figure 30: EYH+LA Impacts on the Proportion Receiving Employment Insurance in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

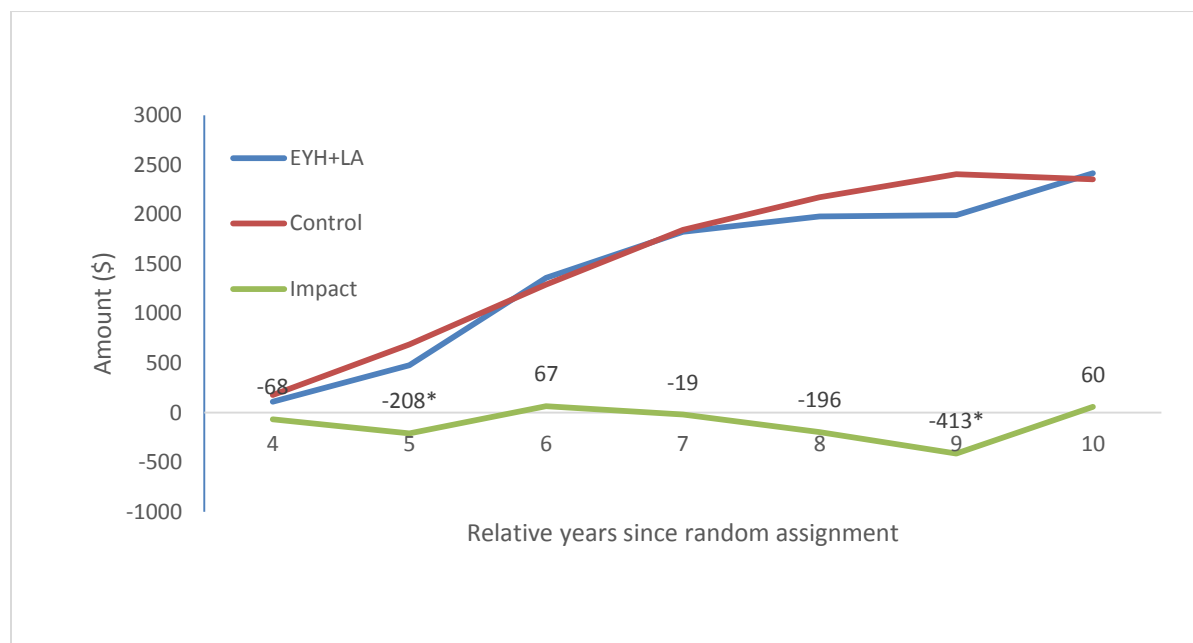
**Table 38: EYH+LA Impacts on Receipt of Employment Insurance Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment insurance over seven years of the postsecondary period</b>			
Lower-income students	58.04	58.62	-0.58 (2.91)
Parents with high school or less (FGF)	59.81	61.97	-2.16 (4.06)
LILE	59.74	59.95	-0.21 (3.34)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 31: EYH+LA Impacts on the Amount of Employment Insurance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

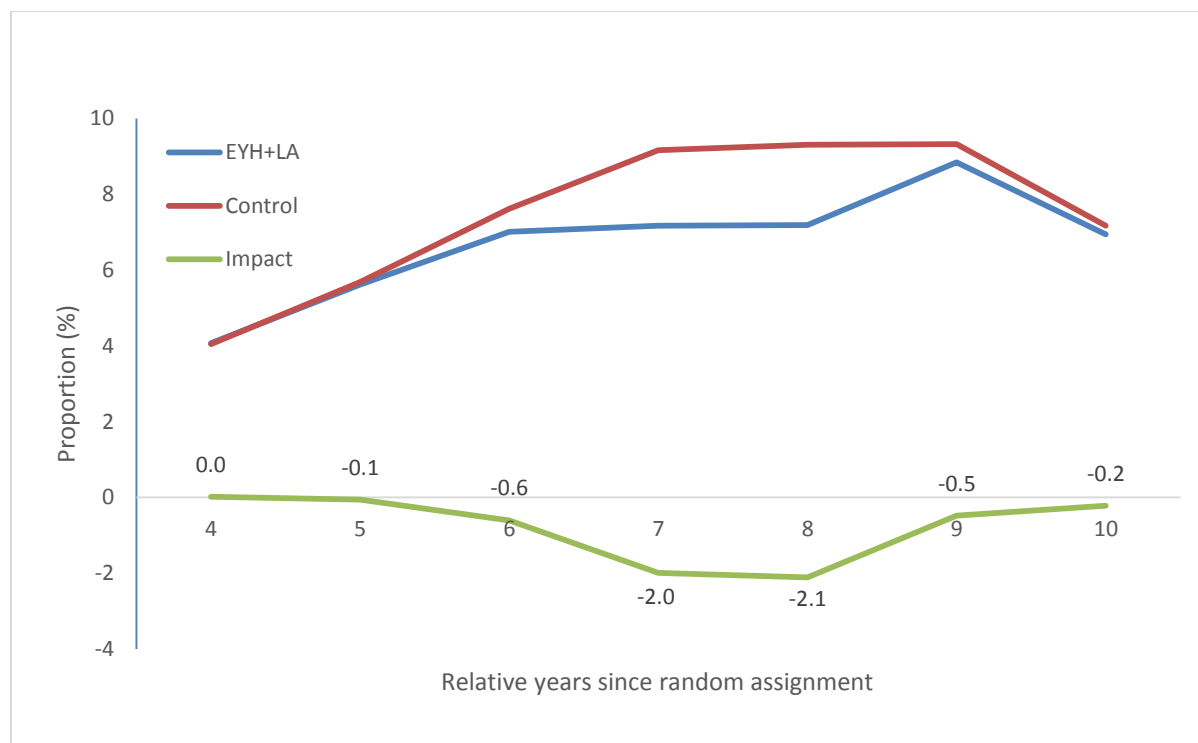
**Table 39: EYH+LA Impacts on Amount of Employment Insurance Over Seven Years**

	New Brunswick		
	EYH+LA group	Comparison group	Impact (s.e.)
<b>Amount of employment insurance received over seven years of the postsecondary period (\$)</b>			
Lower-income students	10,168	10,945	-777 (775)
Parents with high school or less (FGF)	11,260	12,366	-1,106 (1,290)
LILE	10,826	11,778	-952 (917)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 32: EYH+LA Impacts on the Proportion Receiving Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



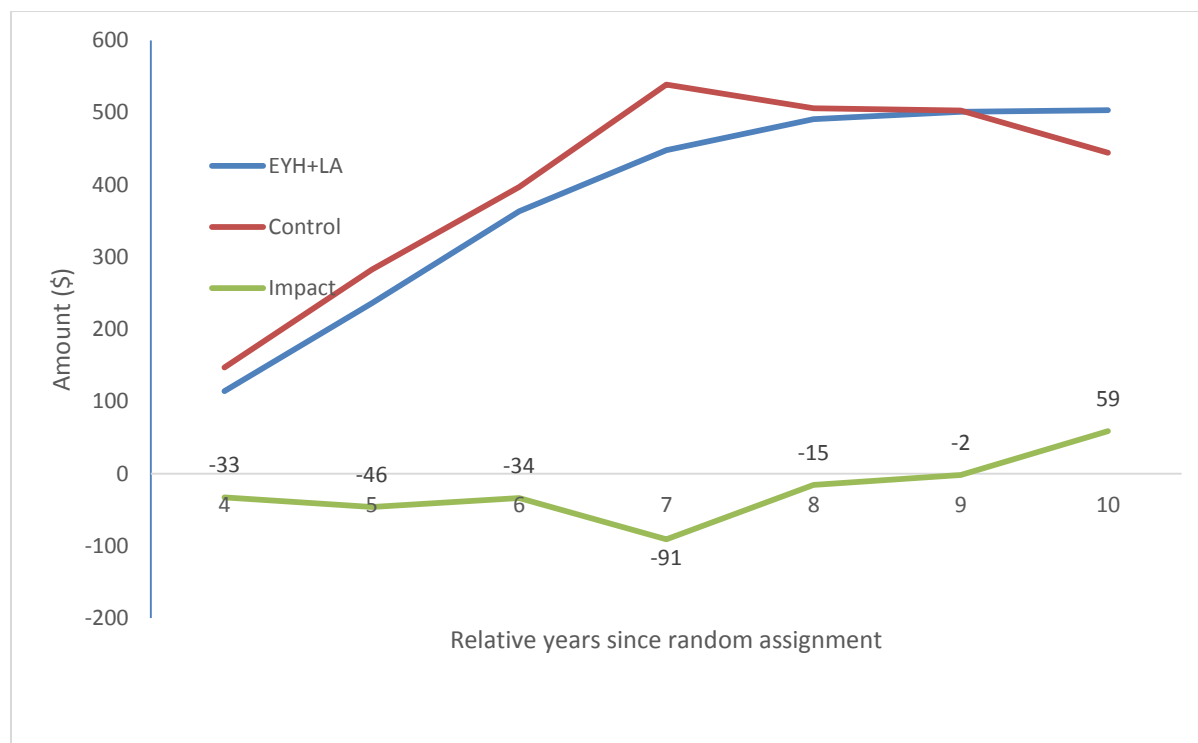
**Table 40: EYH+LA Impacts on Receipt of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received social assistance benefits over seven years of the postsecondary period</b>			
Lower-income students	16.61	18.94	-2.32 (2.20)
Parents with high school or less (FGF)	18.17	21.13	-2.96 (3.49)
LILE	16.63	21.24	-4.61 (2.64)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 33: EYH+LA Impacts on the Amount of Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (New Brunswick)**



**Table 41: EYH+LA Impacts on Amount of Social Assistance Benefits Over Seven Years**

	New Brunswick		
	EYH+LA group	Comparison group	Impact (s.e.)
<b>Cumulative total social assistance benefits over seven years of the postsecondary period (\$)</b>			
Lower-income students	2,657	2,818	-161 (605)
Parents with high school or less (FGF)	2,740	2,963	-222 (840)
LILE	2,626	3,303	-677 (689)
<b>Sample size</b>	<b>540</b>	<b>590</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## Impacts of Explore Your Horizons in Manitoba

### *Long-term Impacts on Education Tax Credits*

#### **Summary of the Results**

There was no statistically significant impact from offering EYH on the proportion of Manitoba students who reported tuition fees paid in their tax returns, not for each tax year after high school (Figure 34) and not for the cumulative total over seven years (Table 42). Impacts on the proportion of students who reported education and textbook amounts were also similar to the impacts on reported tuition fees paid. EYH reduced the proportion of students from lower-income families reporting tuition fees paid or education and textbook amounts in tax returns for year four by 11 percentage points, but the program's impacts on these students increased gradually to 7 percentage points by year nine (See Appendix D). The initial reduction and subsequent increase could both plausibly represent impacts of EYH although some chance variation in unrelated life events cannot be fully ruled out.

EYH also reduced the proportion of students from the LILE subgroup who reported tuition fees paid over the seven years of the postsecondary period, by 9 percentage points (Table 42). The proportion reporting tuition fees paid year by year followed a similar pattern to that of the subgroup of students from lower-income families (see Appendix D) yielding a negative impact at year four that became increasingly positive to year nine, though the estimated yearly impact was not statistically significant.

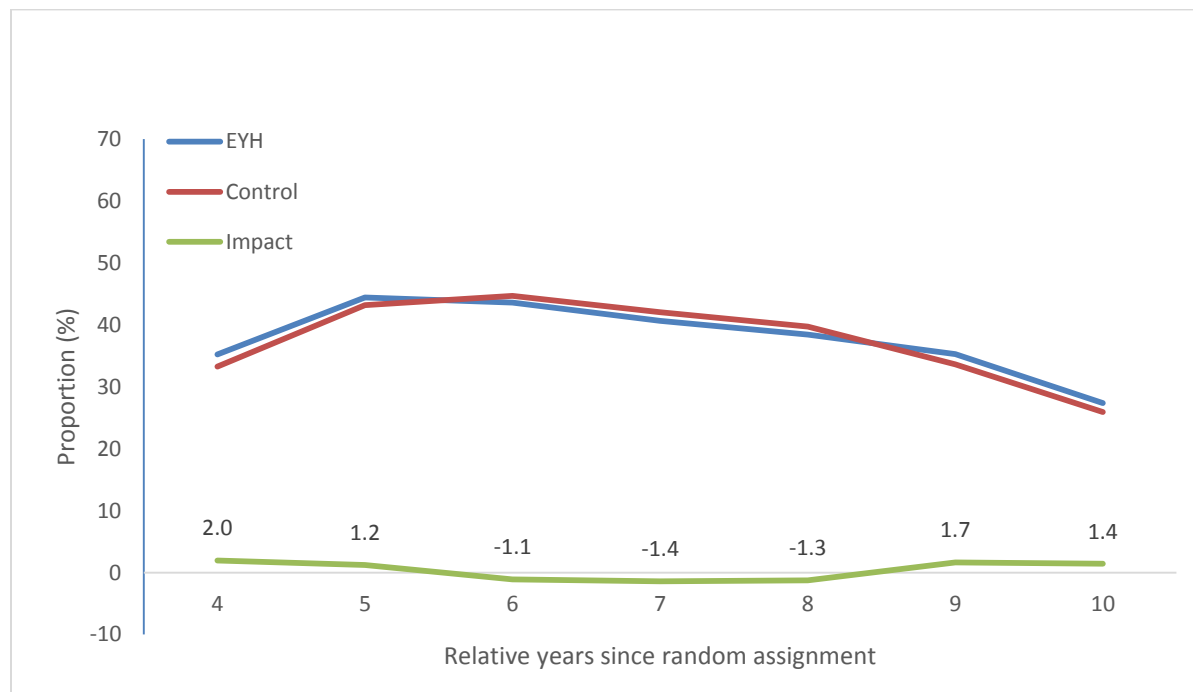
It seems that EYH might have had a negative impact on reported tuition fees paid/educational expenses among Aboriginal students (Tables 43 and 44, and subgroup figures in Appendix D), although the estimated impacts were not statistically significant in most cases due to small sample sizes.

Since educational tax credits are useful in reducing taxes only when the student's income is sufficiently high, it is not surprising that a lower proportion of students claimed education-related amounts (at 60–62% in Table 44) than the proportion who reported tuition fees (69% in Table 42) or educational expenses paid (67–68% in Table 43). There was no statistically significant impact on the claimed tax credits, regardless of the subgroup or year.

The proportions of participants who used RESPs over the seven years of the postsecondary period were lower among lower-income students, students from FGF families, LILE and Aboriginal students than for all participants (Table 45). EYH did not have any statistically significant impact on use of RESPs.

### Impacts of Offering Explore Your Horizons to Manitoba Students

**Figure 34: EYH Impacts on the Proportion Reporting Tuition Fees Paid in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Table 42: EYH Impacts on Reporting Tuition Fees Paid Over Seven Years**

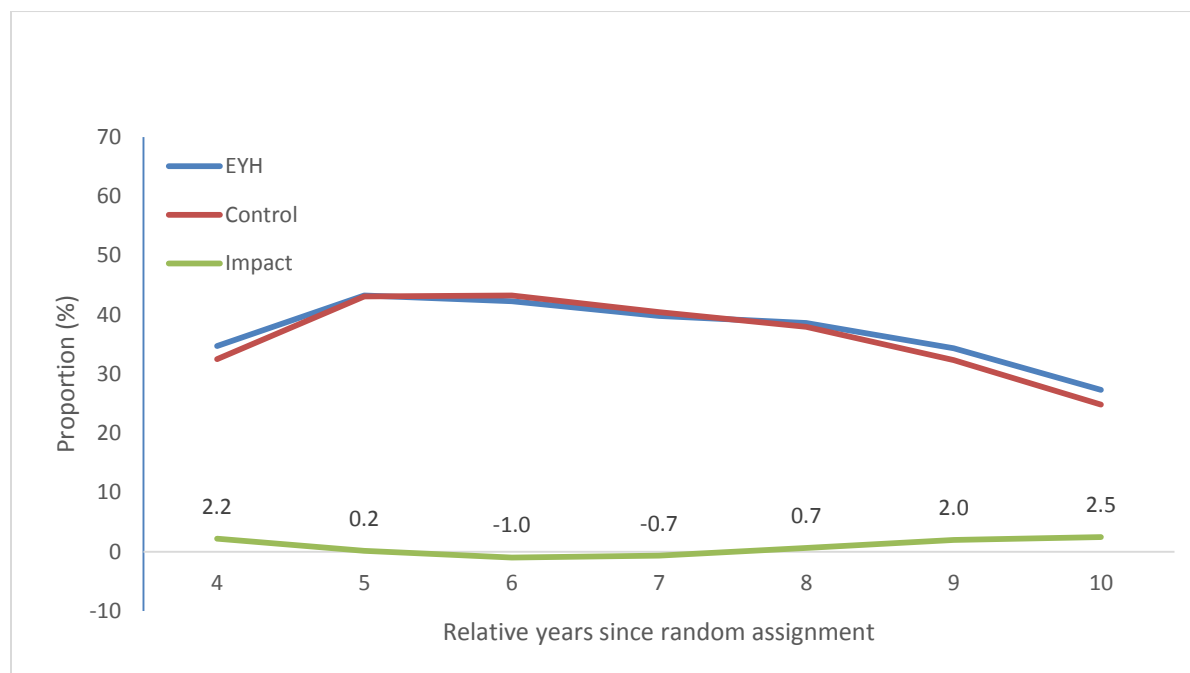
	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Ever reported tuition fees paid over seven years of the postsecondary period (%)</b>			
ALL	68.62	69.20	-0.58 (2.65)
Lower-income students	54.20	60.94	-6.73 (4.72)
Parents with high school or less (FGF)	52.69	52.12	0.57 (5.37)
LILE	47.32	56.44	-9.12 * (5.52)
Aboriginal students	46.23	61.54	-15.31 (10.17)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.



**Figure 35: EYH Impacts on the Proportion Reported Education and Textbook Amount in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



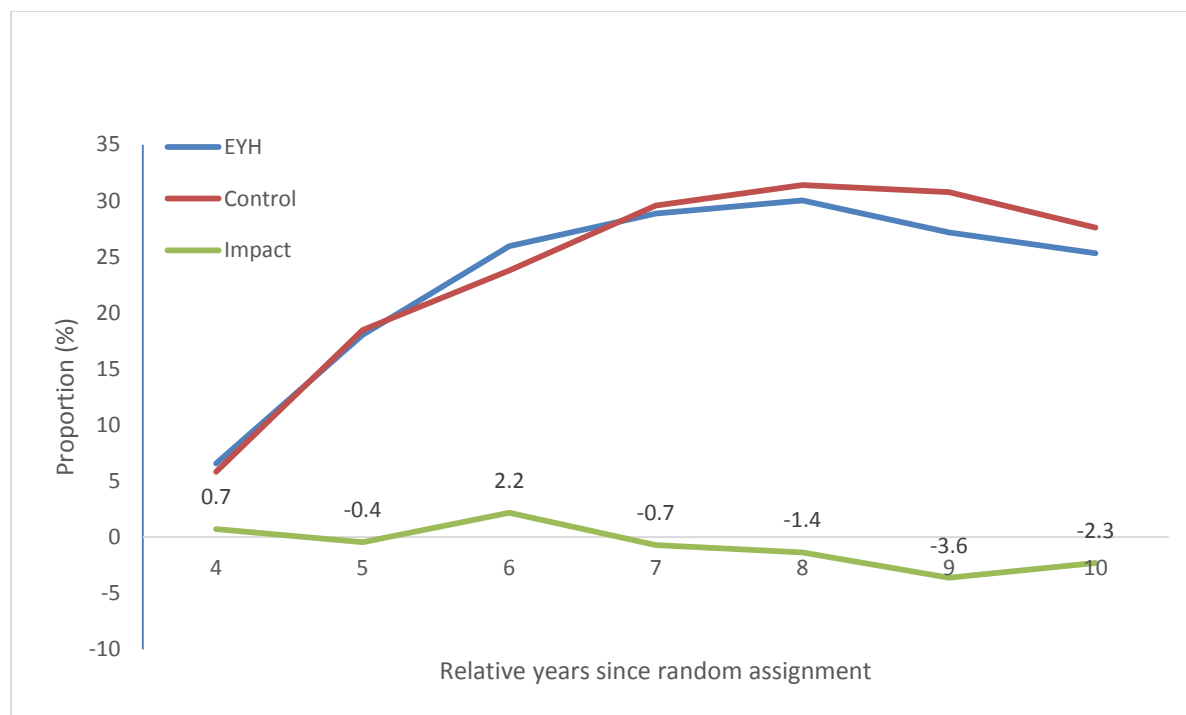
**Table 43: EYH Impacts on Reported Education and Textbook Amounts Over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Ever reported education and textbook amounts over seven years of the postsecondary period (%)</b>			
ALL	67.65	67.12	0.53 (2.65)
Lower-income students	53.94	60.06	-6.12 (4.64)
Parents with high school or less (FGF)	52.49	51.67	0.83 (5.40)
LILE	47.76	55.12	-7.36 (5.37)
Aboriginal students	47.20	61.70	-14.50 (10.21)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 36: EYH Impacts on the Proportion Claiming Educational Tax Credits in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Table 44: EYH Impacts on Receipt of any Education-related Amounts Over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received any education-related tax credit over seven years of the postsecondary period</b>			
ALL	59.98	61.55	-1.57 (3.01)
Lower-income students	47.85	50.96	-3.11 (4.76)
Parents with high school or less (FGF)	47.56	44.61	2.94 (5.20)
LILE	42.22	48.23	-6.01 (5.55)
Aboriginal students	38.84	48.35	-9.52 (8.85)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 45: EYH Impacts on Reported RESP Usage Over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever reported withdrawing from RESP over seven years of the postsecondary period</b>			
ALL	25.02	22.96	2.06 (2.48)
Lower-income students	10.37	14.50	-4.13 (3.77)
Parents with high school or less (FGF)	13.40	9.25	4.15 (3.69)
LILE	9.01	11.29	-2.28 (3.41)
Aboriginal students	6.02	2.20	3.83 (3.57)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

### *Long-term Impacts on Employment and Earnings*

#### **Summary of the Results**

In general, the majority of Manitoba FTD participants reported employment earnings from year four to year 10. There was a small negative impact of EYH on the proportion of students who reported employment earnings in their tax returns for some tax years immediately after high school (Figure 37). However, there was no evidence of long-term impact on reported employment earnings in the seven years following high school (Table 46). EYH reduced the proportion of students from lower-income families reporting employment earnings for year four by 9 percentage points, but the program's impacts on these students later increased and then decreased to 7 percentage points in year 10 (See Appendix D). The pattern of impacts for students in the LILE subgroup largely mirrored that of students from lower-income families.

In terms of the amount of employment earnings, Figure 38 shows that earnings of participants from both program and control groups were increasing from year four to year 10, and the negative impact of EYH on earnings peaked at \$2,154 in year eight. The negative impact on cumulative earnings over seven years was about \$7,345 (Table 47), though the negative impact on cumulative earnings was not significant for lower-income or LILE subgroups. In contrast to the results for New Brunswick, there is weak evidence of postsecondary impacts in Manitoba and no evidence that any additional education induced by EYH in Manitoba affected earnings substantially in the seven years after high school.

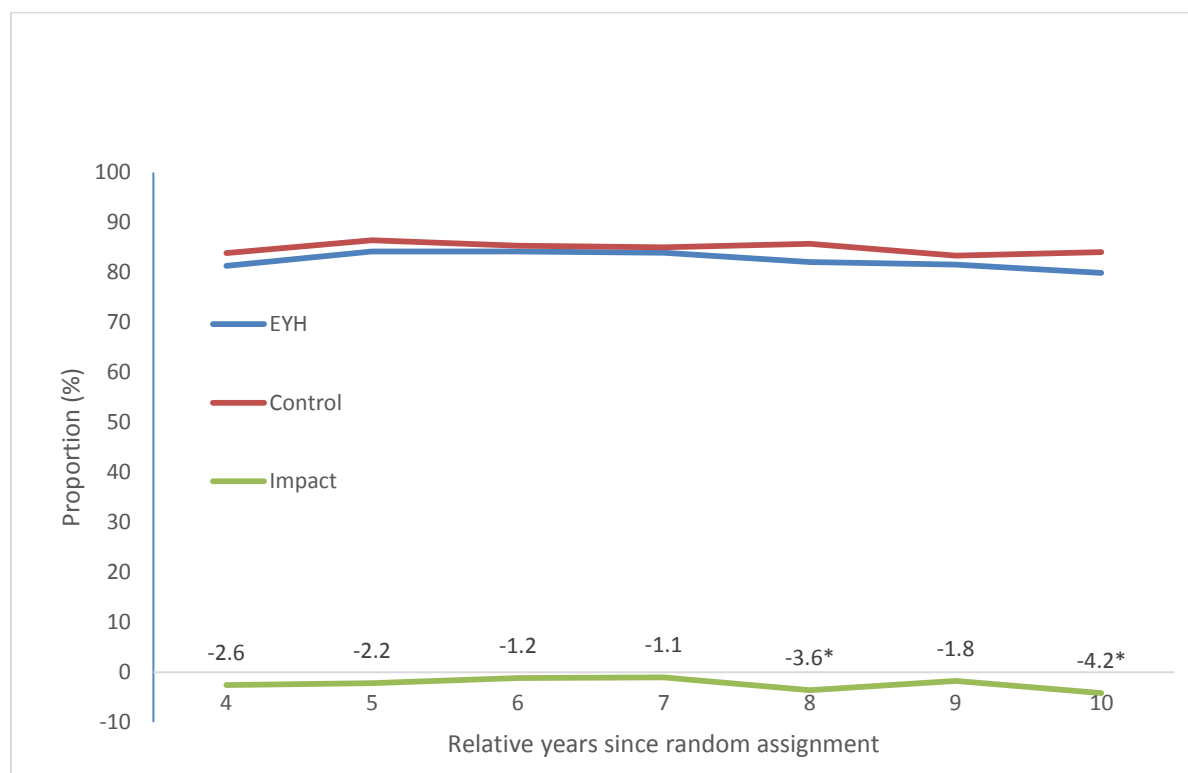
It seems that EYH might have had a negative impact on reported employment earnings among Aboriginal students in year four (subgroup figures in Appendix D), though it is possible the estimated negative difference could reflect chance variation in some unrelated life events due to the small sample size.

Figure 39 and Table 48 summarize the impacts on reported self-employment earnings. In general, the level of self-employment was very low. The only statistically significant impact on receipt of self-employment earnings was a small negative impact in year five, one year after typical high school completion. However, EYH had no long-lasting impact on self-employment. Because low proportions reported self-employment, Statistics Canada has only permitted release of the cumulative self-employment earnings of the overall sample. EYH had no significant impact on cumulative self-employment earnings (Table 49).

Impacts on before-tax income largely mirror those on earnings (Figure 40 and Table 50). EYH’s negative impact on before-tax income peaked at \$1,947 in year eight. The negative impact on cumulative before-tax income over the seven years was about \$7,223, though the negative impact on cumulative income was not significant among lower-income, LILE, or Aboriginal subgroups.

**Impacts of Offering Explore Your Horizons to Manitoba Students**

**Figure 37: EYH Impacts on the Proportion Reporting Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

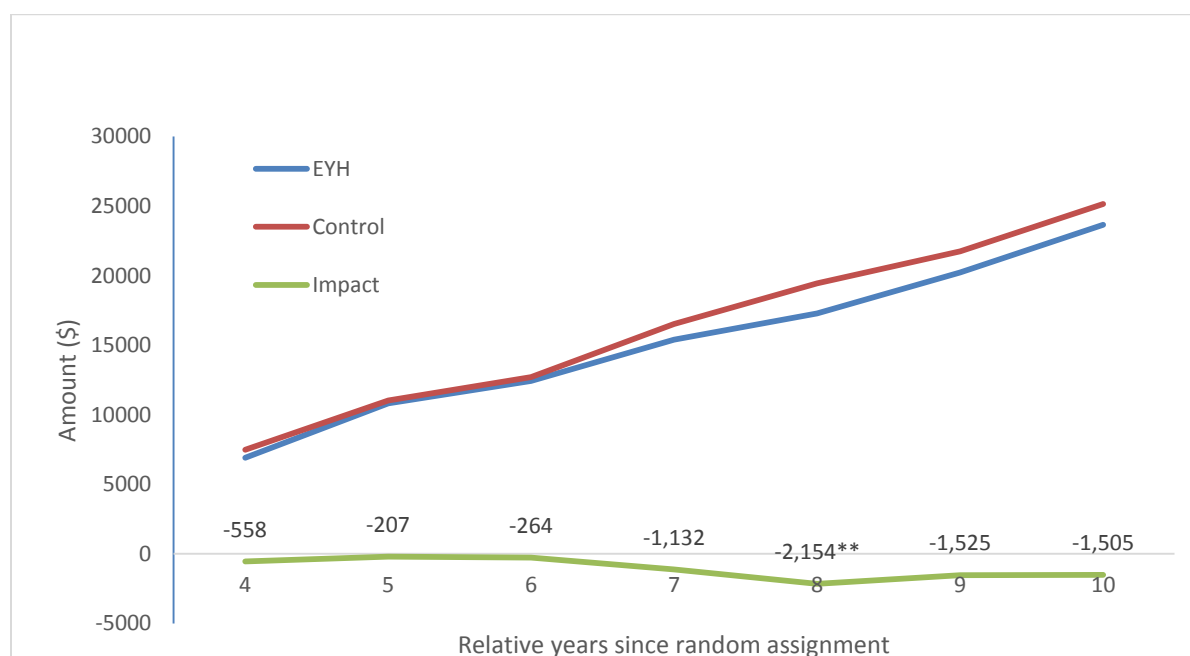
**Table 46: EYH Impacts on Receipt of Employment Earnings Over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment earnings over seven years of the postsecondary period</b>			
ALL	98.27	97.77	0.50 (0.82)
Lower-income students	95.69	97.69	-2.00 (1.75)
Parents with high school or less (FGF)	95.58	94.43	1.15 (2.32)
LILE	95.03	95.33	-0.31 (2.36)
Aboriginal students	94.06	97.68	-3.62 (3.98)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 38: EYH Impacts on Reported Employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

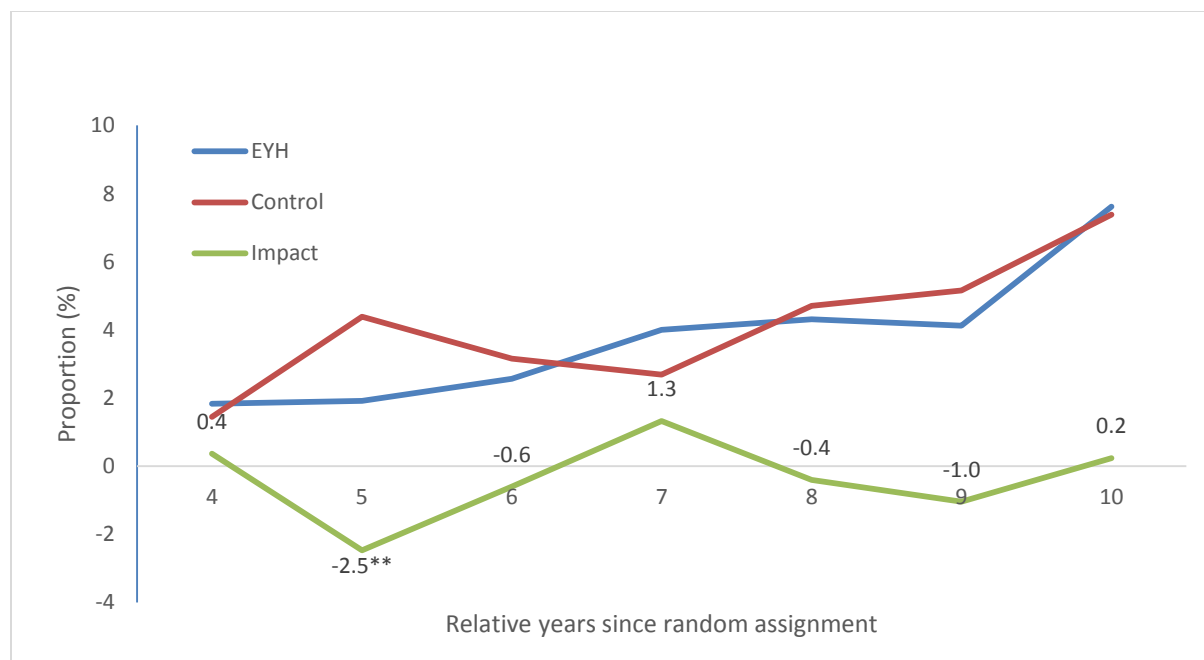
**Table 47: EYH Impacts on Total Employment Earnings Over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Total employment earnings over seven years of the postsecondary period (\$)</b>			
ALL	106,708	114,053	-7,345 *
Lower-income students	99,683	101,740	-2,057 (7,405)
Parents with high school or less (FGF)	102,920	101,461	1,459 (8,189)
LILE	98,677	103,318	-4,642 (9,268)
Aboriginal students	85,014	109,302	-24,287 (16,129)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 39: EYH Impacts on the Proportion Reporting Self-employment Earnings in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 48: EYH Impacts on Receipt of Self-employment Earnings Over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received self-employment earnings over seven years of the postsecondary period</b>			
ALL	11.64	14.41	-2.77 (2.34)
Lower-income students	9.92	12.65	-2.74 (3.14)
Parents with high school or less (FGF)	14.48	15.79	-1.32 (4.44)
LILE	9.97	14.48	-4.51 (4.10)
Aboriginal students	7.99	9.00	-1.01 (5.25)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

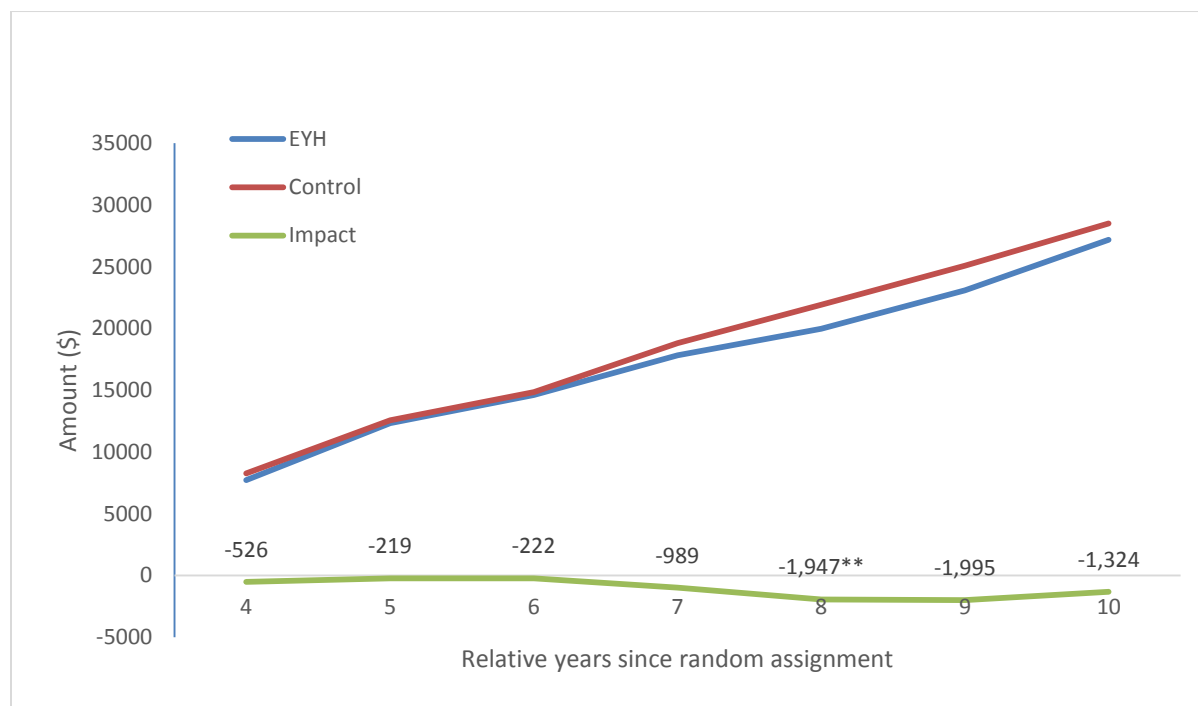
**Table 49: EYH Impacts on Total Self-employment Earnings Over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Total self-employment earnings over seven years of the postsecondary period (\$)</b>			
ALL	2,425	2,011	413 (888)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 40: EYH Impacts on the Total Before-tax Income in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 50: EYH Impacts on Total Before-tax Income Over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Total before-tax income over seven years of the postsecondary period (\$)</b>			
ALL	122,730	129,953	-7,223 * (4,351)
Lower-income students	116,664	119,449	-2,785 (7,717)
Parents with high school or less (FGF)	118,753	120,232	-1,479 (8,052)
LILE	117,697	121,839	-4,141 (9,069)
Aboriginal students	105,517	126,361	-20,845 (16,376)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.



## Long-term Impacts on Benefit Receipt

### Summary of the Results

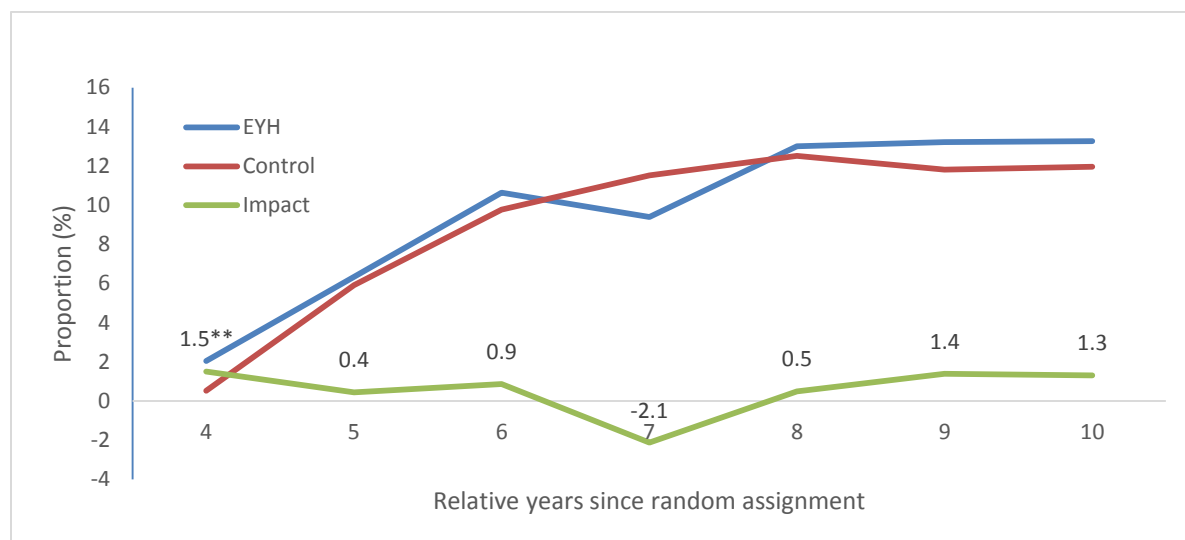
EYH participants in Manitoba were more likely (by 1.5 percentage points) to receive EI benefits in year four (Figure 41). Among participants from lower-income families, EYH produced an increase in receipt of EI of 2.9 and 4.4 percentage points in years four and five respectively (see subgroup figures in Appendix D). Similarly early EI receipt was found for the FGF and LILE subgroups. Cumulatively, EYH increased EI benefit receipt among participants from lower-income families by 8.4 percentage points (Table 51) and increased cumulative EI benefits by \$378 for participants from the LILE subgroup (Table 52). There is no program theory that predicts whether EYH will make a positive contribution to EI benefit receipt in early years after high school, making this result difficult to interpret. Possibly those who experienced the program were finding it more difficult to secure permanent employment. On the other hand, taking findings for EI together with the results for social assistance below, it's possible that employment spells for EYH recipients were more frequently in insurable employment, meaning unemployment spells for EYH participants were more often associated with EI than social assistance receipt.

Among Aboriginal students, EYH reduced receipt and amount of EI benefits in year nine (by 15.2 percentage points and \$1,324 respectively). For this subgroup, results are in line with the program theory that would predict lower unemployment among those receiving enhanced career education.

Figure 43 and Table 53 present impacts on the receipt of social assistance benefits. EYH seemed to reduce receipt of social assistance among students in the FGF subgroup, though the reduction over seven years was not statistically significant. When the impacts on social assistance receipt are examined by each tax year, EYH reduced the proportions and amounts in years eight, nine and 10 among FGF students (by 5.4, 5.2 and 4.3 percentage points, and \$469, \$448 and \$357, respectively). The total reduction in cumulative social assistance benefits over seven years among the FGF group was \$2,123 (Table 54). This result is in line with the program theory.

## Impacts of Offering Explore Your Horizons to Manitoba Students

**Figure 41: EYH Impacts on the Proportion Receiving Employment Insurance in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Notes:** Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

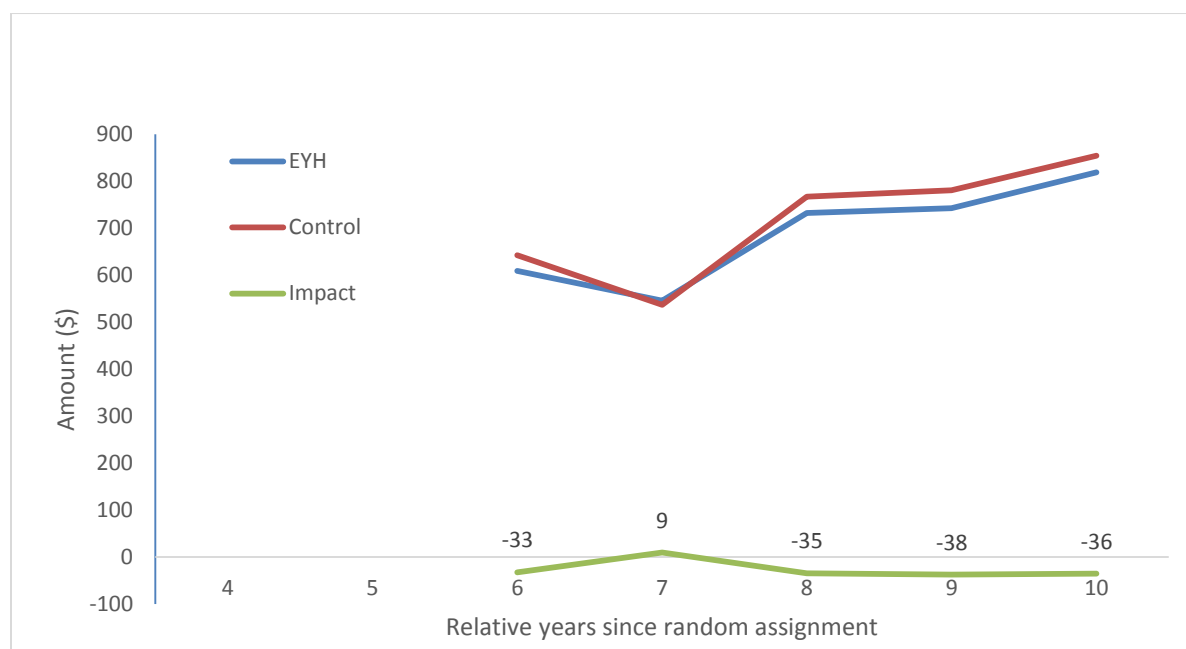
**Table 51: EYH Impacts on Receipt of Employment Insurance Over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received employment insurance over seven years of the postsecondary period</b>			
ALL	31.56	29.50	2.06 (2.91)
Lower-income students	35.43	27.00	8.43 * (4.81)
Parents with high school or less (FGF)	35.77	31.67	4.10 (4.95)
LILE	35.15	28.51	6.64 (6.07)
Aboriginal students	34.73	38.29	-3.56 (9.29)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 42: EYH Impacts on the Amount of Employment Insurance Benefits in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



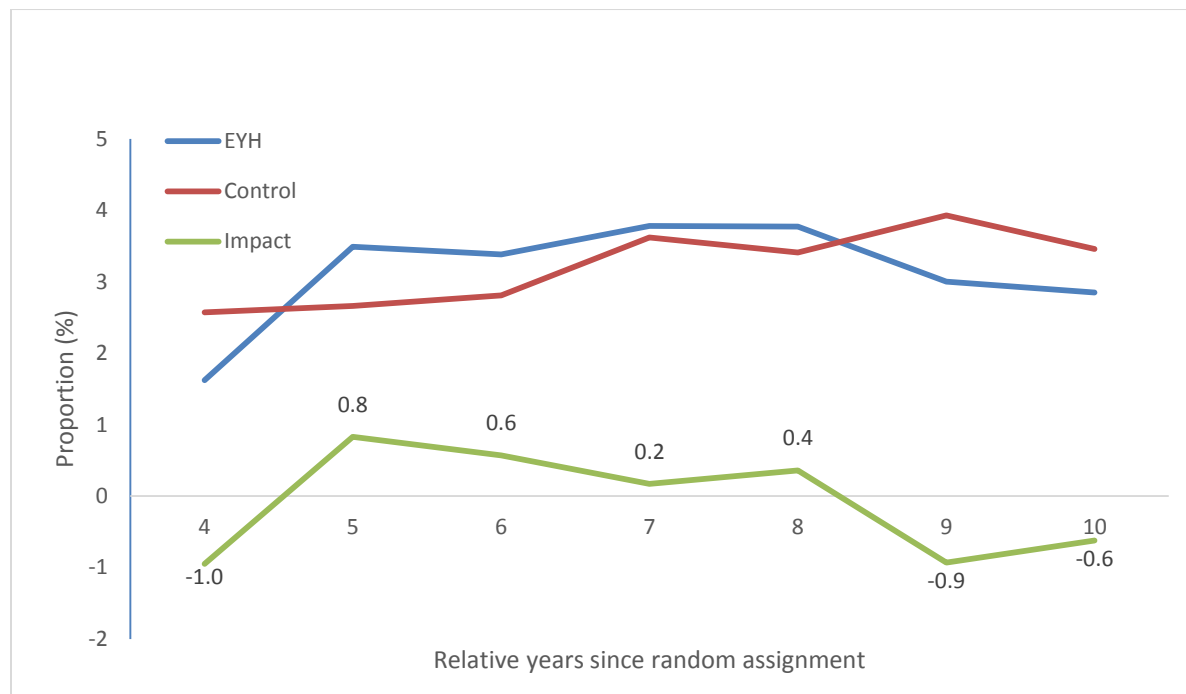
**Table 52: EYH Impacts on Amount of Employment Insurance over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Amount of employment insurance received over seven years of the postsecondary period (\$)</b>			
ALL	3,830	3,820	10 (518)
Lower-income students	4,586	3,274	1,312 (893)
Parents with high school or less (FGF)	4,600	3,216	1,384 (1,023)
LILE	4,688	3,035	1,653 (1,018)
Aboriginal students	3,858	5,832	-1,974 (1,709)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

**Figure 43: EYH Impacts on the Proportion Receiving Social Assistance Benefits in Each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



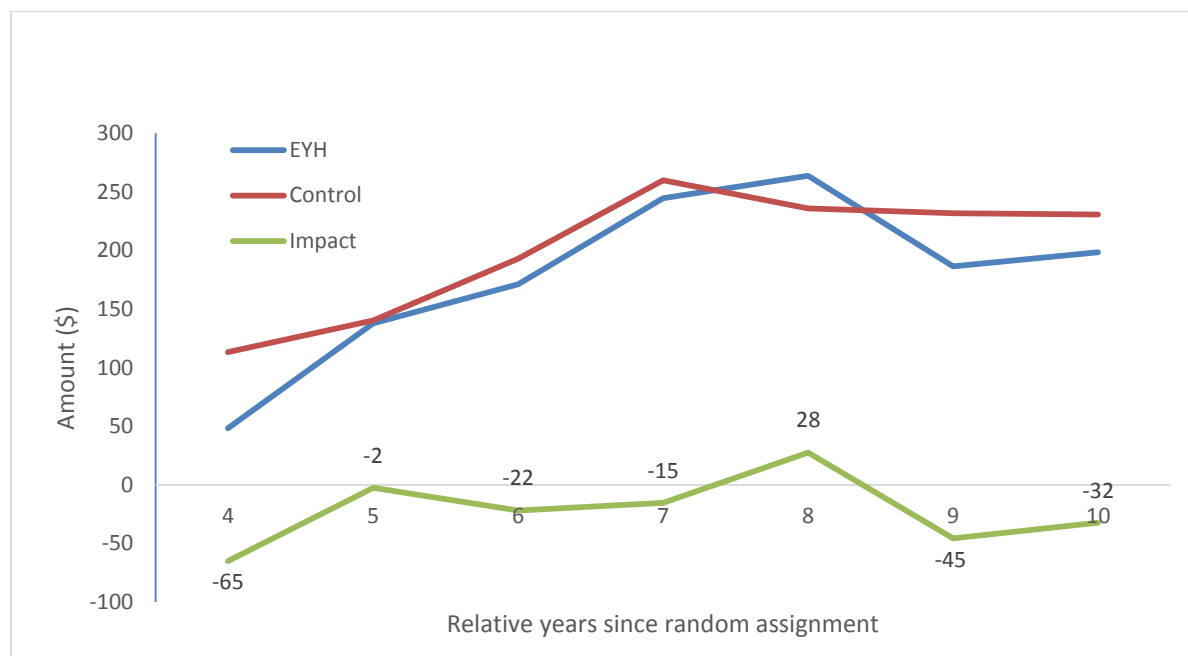
**Table 53: EYH Impacts on Receipt of Social Assistance Benefits over Seven Years**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever received social assistance benefits over seven years of the postsecondary period</b>			
ALL	7.51	7.29	0.22 (1.53)
Lower-income students	12.32	11.97	0.35 (3.41)
Parents with high school or less (FGF)	12.43	16.43	-4.01 (3.64)
LILE	15.06	13.07	1.99 (3.51)
Aboriginal students	24.42	14.82	9.60 (6.69)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Figure 44: EYH Impacts on the Amount of Social Assistance Benefits in each Tax Year Four to 10 Years After Random Assignment (Manitoba)**



**Table 54: EYH Impacts on Amount of Social Assistance Benefits over Seven Years**

	Manitoba		
	EYH group	Comparison group	Impact (s.e.)
<b>Cumulative total social assistance benefits over seven years of the postsecondary period (\$)</b>			
ALL	1,251	1,405	-154 (436)
Lower-income students	1,702	2,382	-680 (867)
Parents with high school or less (FGF)	1,564	3,687	-2,123 ** (1,051)
LILE	2,406	2,620	-213 (1,036)
Aboriginal students	4,961	2,689	2,272 (2,134)
<b>Sample size</b>	<b>570</b>	<b>460</b>	

**Source:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Notes:** Estimates regression adjusted. Sample sizes were rounded to base 10 as requested by Statistics Canada. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences. Cumulative amounts over seven years were calculated in nominal value without discounting.

## Estimated Postsecondary Impacts of Future to Discover Interventions in New Brunswick from Administrative Records

### Postsecondary Impacts of Explore Your Horizons in New Brunswick

#### *Summary of Results*

The results from this section apply to the overall (higher- and lower-income) New Brunswick sample. To compare results from this section to the lower-income sample featured in the two sections that follow (impacts for LA and EYH+LA, i.e., students potentially eligible for LA), only results for the subgroup of students from lower-income families should be considered. Appendix E presents a comprehensive set of such subgroup results using education data for the lower-income sample.

Students offered EYH were significantly more likely to enrol in PSE (Table 55). This was particularly true for LILE students, who experienced an increase in PSE participation of 11.4 percentage points. Marginal increases in PSE participation were also observed for the FGF subgroup. The increase in university and college enrolments was largely driven by university enrolments. Indeed, it can be seen that the intervention's impacts on university enrolments (Table 56) were similar to those on both types of PSE combined (Table 55).

Over the period covered by this report, students offered EYH were not more likely than the control group to have graduated from university or college (Table 58). This result can be explained to some degree by EYH increasing university enrolment rates more than college enrolment rates. Specifically, the EYH intervention encouraged students differentially to take up university programs and it takes longer to graduate university. This can be seen in results for university graduation (Table 59) and college graduation (Table 60). One possible explanation for the results is that, in the time window so far available, relatively few of the students additionally motivated to take up PSE by the intervention have graduated. However, this is increasingly unlikely as the window has reached seven years of possible PSE study. Another possible explanation is that some whom EYH induced to enrol in university dropped out from their studies at a faster rate. However, the low rate of graduation in the control group (40% out of 62%<sup>12</sup>) suggests that almost 35% of NB PSE students drop out even without EYH, which is unusually high compared to published statistics for PSE persistence in Canada. A third possible explanation is that a substantial proportion of PSE students transferred out of the original institution into other PSE institutions and the administrative data lost track of their graduation. Given that the administrative data in this report is linked by the Maritime Provinces Higher Education Commission, New Brunswick Community College and Collège communautaire du Nouveau-Brunswick, students' final graduations may be "unobserved" if students completed studies in community colleges outside New Brunswick or universities located in non-Maritime jurisdictions. It is plausible data shortfalls might lead to underestimation of EYH's impact on the PSE graduation rate.

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<sup>12</sup> Relative to all students in the sample.  $40.46$  (from Table 58)  $\div$   $61.92$  (from Table 55). Graduation rate is 65.3% in the control group

*Postsecondary Impacts of Offering Explore Your Horizons in New Brunswick***Table 55: EYH Impacts on University and College Enrolment**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in university and college</b>			
ALL	64.96	61.92	3.04 * (1.82)
Lower-income	54.24	48.61	5.63 * (2.98)
Parents with high school or less (FGF)	49.15	43.85	5.30 (3.40)
LILE	53.82	42.40	11.42 *** (3.21)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC's estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 56: EYH Impacts on University Enrolment**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in university</b>			
ALL	39.19	38.06	1.13 (1.70)
Lower-income students	29.30	23.57	5.73 ** (2.66)
Parents with high school or less (FGF)	20.79	18.12	2.67 (2.84)
LILE	27.44	18.29	9.15 *** (2.61)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC's estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 57: EYH Impacts on College Enrolment**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in college</b>			
ALL	29.81	29.48	0.33 (1.84)
Lower-income students	26.37	27.85	-1.48 (2.76)
Parents with high school or less (FGF)	28.18	27.06	1.12 (3.06)
LILE	26.77	26.31	0.45 (2.88)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC’s estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 58: EYH Impacts on Graduating from University or College**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from PSE</b>			
ALL	40.58	40.46	0.12 (1.86)
Lower-income students	28.90	28.69	0.21 (2.55)
Parents with high school or less (FGF)	29.18	27.29	1.89 (3.11)
LILE	28.89	26.24	2.65 (2.58)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC’s estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.



**Table 59: EYH Impacts on Graduating from University**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from university</b>			
ALL	22.16	22.03	0.13 (1.56)
Lower-income students	12.90	11.71	1.18 (2.10)
Parents with high school or less (FGF)	9.43	9.86	-0.43 (2.25)
LILE	11.59	9.57	2.02 (1.98)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC’s estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 60: EYH Impacts on Graduating from College**

	New Brunswick		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from college</b>			
ALL	19.49	19.65	-0.16 (1.55)
Lower-income students	16.77	17.92	-1.15 (2.18)
Parents with high school or less (FGF)	20.58	17.88	2.70 (2.42)
LILE	17.71	17.27	0.44 (2.28)
<b>Sample size</b>	<b>1041</b>	<b>1448</b>	

**Source:** SRDC’s estimation using FTD administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

## Postsecondary Impacts of Learning Accounts in New Brunswick

### Summary of Results

Lower-income New Brunswick students who were offered LA were significantly more likely to enrol in PSE programs over the period covered in this report (Table 61). This increase in enrolment was seen for francophone students (16 percentage points), LILE students (11 percentage points), FGF students (15 percentage points) and boys (10 percentage points). Appendix F presents a comprehensive set of subgroup results using education data, including results by gender.

The patterns observed for university and college enrolments were driven by additional community college enrolments, which contrasts with EYH where the combined enrolment results were driven by additional university enrolments (previous section). College enrolment impacts followed the same patterns as combined impacts, although the impacts were somewhat smaller (Table 63). Those offered LA were not markedly induced to enrol more than they would otherwise in university (Table 62).

Students offered LA were significantly more likely to graduate from university or college (Table 64). LA significantly increased graduation rates for FGF group and LILE students by 13.1 and 9.5 percentage points, respectively. These represent substantial impacts over levels of graduation in the control group. The patterns observed for combined university and college graduations were driven by college graduation (Table 65 and Table 66). More graduation at earlier ages can be explained by the additional enrolment in college induced by LA.

### Postsecondary Impacts of Offering Learning Accounts

**Table 61: LA Impacts on University and College Enrolment**

	New Brunswick		Impact in percentage points (s.e.)	
	LA group (%)	Comparison group (%)		
<b>Ever enrolled in university and college</b>				
Lower-income students	55.42	48.91	6.51 (2.92)	**
LILE	53.41	42.76	10.65 (3.36)	** *
Parents with high school or less (FGF)	52.62	37.60	15.02 (4.39)	** *
<b>Sample size</b>	<b>544</b>	<b>601</b>		

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 62: LA Impacts on University Enrolment**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in university</b>			
Lower-income students	22.59	23.02	-0.43 (2.48)
LILE	19.28	18.27	1.01 (2.65)
Parents with high school or less (FGF)	19.50	13.60	5.90 (3.22) *
<b>Sample size</b>	<b>544</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 63: LA Impacts on College Enrolment**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in college</b>			
Lower-income students	35.36	27.94	7.42 (2.51) ***
LILE	35.07	25.91	9.15 (2.66) ***
Parents with high school or less (FGF)	33.85	24.02	9.83 (3.52) ***
<b>Sample size</b>	<b>544</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 64: LA Impacts on Graduating from University or College**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from university or college</b>			
Lower-income students	36.06	29.31	6.75 (2.51) ***
LILE	34.51	24.97	9.54 (2.75) ***
Parents with high school or less (FGF)	33.30	20.17	13.13 (3.74) ***
<b>Sample size</b>	<b>544</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 65: LA Impacts on Graduating from University**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from university</b>			
Lower-income students	10.28	11.85	-1.56 (1.78)
LILE	8.27	8.61	-0.34 (1.78)
Parents with high school or less (FGF)	7.48	6.50	0.99 (2.21)
<b>Sample size</b>	<b>544</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 66: LA Impacts on Graduating from College**

	New Brunswick		
	LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from college</b>			
Lower-income students	26.78	18.55	8.22 *** (2.25)
LILE	27.43	17.15	10.28 *** (2.39)
Parents with high school or less (FGF)	26.29	14.52	11.77 *** (3.22)
<b>Sample size</b>	<b>544</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences

## Postsecondary Impacts of EYH+LA in New Brunswick

### Summary of Results

This section presents the impacts of offering both EYH and LA interventions to New Brunswick students from lower-income families, relative to offering neither. Appendix G presents a comprehensive set of subgroup results using education data.

Students offered EYH+LA were significantly more likely to enrol in university and college (Table 67). This is particularly notable for LILE students (enrolment increased by 10.7 percentage points). As with the findings for EYH offered on its own, the impacts on university and college enrolments combined were driven largely by university enrolments. Indeed, it can be seen that the students who were offered EYH+LA experienced a similar increase in university enrolment (Table 68) but only a marginally significant increase in college enrolment (Table 69).

Overall, offering EYH+LA did not lead to more lower-income students graduating from university or college (Table 70). However, graduation impacts were seen for the LILE group (whose graduation rate increased by 7 percentage points). The pattern observed for university and college graduations shows impacts were driven by college graduation (Table 71 and Table 72) similar to the pattern for those who received only the offer of LA.

*Postsecondary Impacts of Offering Explore Your Horizons and Learning Accounts*

**Table 67: EYH+LA Impacts on University and College Enrolment**

	New Brunswick			
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)	
<b>Ever enrolled in university and college</b>				
Lower-income students	53.91	48.01	5.90 (2.80)	**
LILE	51.98	41.33	10.65 (3.22)	***
Parents with high school or less (FGF)	45.97	37.63	8.35 (4.13)	**
<b>Sample size</b>	<b>547</b>	<b>601</b>		

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 68: EYH+LA Impacts on University Enrolment**

	New Brunswick			
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)	
<b>Ever enrolled in university</b>				
Lower-income students	27.87	22.26	5.60 (2.36)	**
LILE	24.08	16.87	7.22 (2.47)	***
Parents with high school or less (FGF)	21.15	13.01	8.15 (3.06)	***
<b>Sample size</b>	<b>547</b>	<b>601</b>		

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 69: EYH+LA Impacts on College Enrolment**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in college</b>			
Lower-income students	29.34	27.58	1.76 (2.70)
LILE	30.23	25.42	4.81 (2.93)
Parents with high school or less (FGF)	28.22	24.49	3.73 (3.58)
<b>Sample size</b>	<b>547</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 70: EYH+LA Impacts on Graduating from University or College**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from university or college</b>			
Lower-income students	33.11	28.81	4.30 (2.71)
LILE	31.70	24.29	7.41 (2.79) ***
Parents with high school or less (FGF)	27.05	21.80	5.25 (3.12) *
<b>Sample size</b>	<b>547</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences

**Table 71: EYH+LA Impacts on Graduating from University**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from university</b>			
Lower-income students	11.26	11.57	-0.30 (1.77)
LILE	8.12	8.00	0.13 (1.69)
Parents with high school or less (FGF)	6.54	6.71	-0.17 (1.99)
<b>Sample size</b>	<b>547</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 72: EYH+LA Impacts on Graduating from College**

	New Brunswick		
	EYH+LA group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever graduated from college</b>			
Lower-income students	22.34	18.14	4.20 * (2.24)
LILE	23.91	16.82	7.08 *** (2.49)
Parents with high school or less (FGF)	20.97	15.62	5.35 * (2.76)
<b>Sample size</b>	<b>547</b>	<b>601</b>	

**Source:** FTD administrative data from relative years one to ten

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values. Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences



## Previously Estimated Impacts of Explore Your Horizons in Manitoba

### Summary of Results

This section presents impacts on Manitoba students who were offered EYH. The impacts on PSE enrolments were estimated using a 66-month followup survey and administrative data from institutions up to 2011. There was no administrative data linkage in subsequent years of the kind used to produce the previous section’s results for New Brunswick. The figures for any PSE enrolments, regardless of the type, were previously published in Ford et al. (2012). Due to the short window of the postsecondary period at the time of the 66-month followup survey (two years), any estimates on the proportion of students who had graduated would substantially underestimate eventual graduation rates and are not included.

In general, EYH had no statistically significant impact on PSE enrolment (Table 73). All of the estimated impacts on PSE enrolment were positive, though they were not sufficiently large to be statistically significant. The estimated impacts on university enrolment were small (Table 74). There were some statistically significant impacts on college enrolment for students from the FGF and LILE subgroups. However, given the results presented earlier for claimed educational tax credits in participants’ tax returns, it is doubtful there was an overall increase in postsecondary enrolment due to EYH in Manitoba.

### Postsecondary Impacts of Offering Explore Your Horizons in Manitoba

**Table 73: EYH Impacts on PSE Enrolment in Manitoba (66-month)**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in PSE</b>			
ALL	73.05	68.31	4.74 (3.02)
Lower-income students	62.03	58.64	3.39 (5.87)
Parents with high school or less (FGF)	62.97	56.48	6.49 (6.34)
LILE	63.09	53.66	9.43 (7.08)
Aboriginal students	63.72	61.67	2.06 (11.13)
<b>Sample size</b>	<b>478</b>	<b>395</b>	

**Source:** SRDC’s estimation using FTD 66-month survey, FTD 66-month proxy survey and FTD Administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 74: EYH Impacts on University Enrolment in Manitoba (66 month)**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in university</b>			
ALL	51.33	47.40	3.93 (3.20)
Lower-income students	37.69	36.47	1.22 (5.80)
Parents with high school or less (FGF)	34.69	32.81	1.87 (5.85)
LILE	34.55	33.78	0.77 (6.81)
Aboriginal students	35.87	36.41	-0.54 (12.24)
<b>Sample size</b>	<b>464</b>	<b>390</b>	

**Source:** SRDC's estimation using FTD 66-month survey, FTD 66-month proxy survey and FTD Administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

**Table 75: EYH Impacts on College Enrolment in Manitoba (66 month)**

	Manitoba		
	EYH group (%)	Comparison group (%)	Impact in percentage points (s.e.)
<b>Ever enrolled in college</b>			
ALL	27.68	22.67	5.01 (3.09)
Lower-income students	27.92	20.34	7.58 (5.60)
Parents with high school or less (FGF)	30.01	18.93	11.08 * (5.96)
LILE	28.79	17.36	11.44 * (6.39)
Aboriginal students	30.45	27.01	3.44 (12.29)
<b>Sample size</b>	<b>458</b>	<b>376</b>	

**Source:** SRDC's estimation using FTD 66-month survey, FTD 66-month proxy survey and FTD Administrative data.

**Notes:** Estimates regression adjusted. Sample sizes vary for individual measures because of missing values.

Statistical significance levels are indicated as \* = 10%; \*\* = 5%; \*\*\* = 1%. Rounding may cause slight discrepancies in sums and differences.

Across all students, the offer of EYH thus had little to no impact on PSE enrolment in Manitoba while the same EYH intervention produced enrolment impacts for New Brunswick students. As reported in 2012, there are several possible reasons for little sign of net impact in Manitoba relative to New Brunswick.

- **A different “business-as-usual” model.** The typical experience of high school students in both provinces is represented by the respective control groups. Plausibly the experience is very different in these jurisdictions, although FTD surveys during high school found little evidence of this. If Manitoba high school students already received equivalent encouragement to attend PSE from their existing career education as is available from EYH (but New Brunswick students did not), then EYH would not be able to have an incremental benefit for Manitoba students (and might still do so for New Brunswick students).
- **Differences in the tested program’s universality.** EYH was tested on students across the socioeconomic spectrum, many of whom would attend PSE without any additional intervention. Evidence to date suggests EYH can change outcomes for target groups with traditionally lower rates of PSE attendance. The LILE group (students from lower-income and lower-educated families) among whom rates of PSE enrolment have risen from 42% to 54% for those offered EYH in New Brunswick, represented only 30% of the sample in Manitoba schools.
- **Implementation and attendance in EYH.** The effectiveness of EYH may have been limited by the fact that workshops were voluntary and held after school. Attendance began to decline significantly after the first year, especially in Manitoba, and this may have prevented the full benefits of the workshops from materializing. Fewer than half of Manitoban students (48%) attended six or more of the 20 sessions offered, compared to 60% of New Brunswick students. And while in both provinces, participants from LILE families were typically less likely to attend than other groups, the drop off in attendance was larger for Manitoba LILE families than their counterparts in New Brunswick.

Given the absence of substantive impacts for EYH in Manitoba, the next section of this report exploring the impact of the intervention for the marginal student (who would not have attended PSE but for the intervention) will focus on results for New Brunswick. The analysis will not be possible for Manitoba.

## Labour Market Returns from the Future to Discover Interventions

The key objective of this report is to present the labour market returns of FTD interventions on “marginal” students — those who would not have attended PSE in the absence of the tested interventions — by means of estimated impacts on labour market outcomes as reported in participants’ tax returns. Such labour market returns can be estimated when FTD interventions cause some high school students to go to PSE who would not otherwise have done so and also cause their average incomes from the labour market to increase. FTD has done these things, but not universally. Earlier results on FTD’s impacts on PSE participation indicate that the interventions were effective in increasing PSE participation in New Brunswick but were not convincingly so in Manitoba. Furthermore, the estimated differences in average earnings between EYH participants and control group members in Manitoba were mostly statistically insignificant or negative. Results to date thus indicate that EYH did not change education or employment outcomes for the better in Manitoba. This means the Manitoba arm of the experiment cannot contribute meaningfully to measurement of the financial returns to additional education. The discussion of labour market returns of FTD interventions (EYH, LA and EYH+LA) in this section thus focuses solely on the results from New Brunswick.

The analysis of labour market returns will focus only on impacts on employment earnings. There are several reasons for this focus. Section 3 results on FTD’s impacts on employment earnings, self-employment earnings, and income suggest that any labour market returns from the intervention would be detectable only in employment earnings. Self-employment was generally uncommon in the study sample and there were only a handful of participants who had substantial self-employment earnings. Furthermore, Statistics Canada did not allow release of many self-employment earnings results to protect the privacy of the participants. The patterns of FTD’s impacts on income were very similar to those for employment earnings. While FTD interventions seem to have some impacts on EI benefits, the impacts were small and mainly appear around the time of the recession of 2008–09. There was no evidence of long lasting impacts on EI use.

Estimated earnings impacts provide the most convincing evidence of labour market returns from PSE access interventions. However, the analysis of employment earnings is problematic due to several challenges.

Firstly, since each intervention was designed to increase participation in PSE, earnings may in fact be lower during the early postsecondary period. When there is an improved return to the PSE choices made by participants in the enhanced career education program, then later earnings are expected to be higher for the program group, and exhibit more growth from year to year compared to the control group. There were no statistically significant impacts on cumulative employment earnings. There were some statistically significant impacts on yearly employment earnings and the pattern of impacts on employment earnings generally fits a theoretical pattern expected when additional enrolment in PSE occurs: earnings are foregone during postsecondary studies and any return materializes only following the studies. Therefore, the analysis here assumes the impacts on average earnings from years four through eight are “foregone earnings” while the impacts on years nine and 10 are the start of the “return.”

A second challenge is the low statistical power of the earnings outcome. Although FTD was designed to provide sufficient statistical power to detect PSE enrolment outcomes, the large variation in earnings across the sample makes it difficult to estimate precise impacts on earnings with much certainty. The point estimates (comparison of average impacts and proportions) provide the best available information for the analysis of labour market return, but the lack of statistical power in earnings variable limits potential further examination of patterns of earnings change more typical in empirical economics, such as Blinder-Oaxaca decomposition.

A third and final challenge arises in attributing impacts appropriately to changes in the behaviour of the “marginal student” (the primary policy target who would not have attended PSE but for the intervention). In a well-run rigorous evaluation like Future to Discover, impacts can be reliably attributed to the intervention. But who precisely benefits is more difficult to estimate. This is because the impacts are calculated as differences in mean outcomes.

This is best illustrated through a hypothetical example. Mean earnings of 1,000 program group members might be \$52,000 in the final year, compared to \$50,000 for 1,000 control group members, yielding a mean impact of \$2,000: across 1,000 people that is \$2,000,000. Let’s say the average earnings of those who had attended PSE in both program and control groups is \$60,000 and \$40,000 for those who had not. Let’s further say the proportion who attended PSE was larger, at 50% in the program group compared to 40% in the control group.

How the mean earnings impact is distributed is not readily discerned from these numbers. The intervention may have raised everyone’s earnings by a similar proportion (4% in this case, from \$50,000 to \$52,000) or it may raise the incomes only of those who newly engaged in PSE. After all, those who would have attended PSE without the intervention and those who did not attend PSE even with the intervention were likely unaffected by the intervention. In this case, all the extra earnings in the program group would be attributable to the marginal students: the 100 people newly motivated to attend PSE by the access program. That means the \$2,000,000 increase in earnings for the entire program group is due to the changed behaviour of just 100 people. They are each on average earning \$20,000 more than without the access program. This makes sense in this example as the average earnings of those attending PSE is \$60,000 compared to \$40,000 for those without.

While the above provides a plausible way to estimate and attribute the impact on earnings to the marginal student, other explanations are possible. One other possible explanation is that the intervention may increase earnings of those who would have attended PSE anyway. It might increase earnings of those who did not attend, perhaps by ensuring they performed better in high school.

A quantitative exploration was conducted to examine whether it is appropriate to attribute the entire dollar value of impacts on earnings to the marginal students. For each intervention and each sample or subgroup, an impact estimation was conducted using a linear regression: regressing the earnings on a program group 0–1 indicator variable and a series of covariates (characteristics such as demographics) measured at baseline. The estimated coefficient on the program group 0–1 indicator variable produced by the regression is the difference accounted for by the program offer, that is, the estimated impact. This exploration was undertaken using the combined earnings in years nine and 10 as outcomes. In the analysis SRDC observed the statistical significance of the estimated program-control difference when the university and college enrolments were included as controls in the regression (thus removing the effects of the increased

education enrolments on earnings) to see whether membership of the program group remained significant, beyond the effect attributable to increased education. Unfortunately, the estimated program-control difference on the combined year nine and 10 earnings for any of the three interventions in New Brunswick was not statistically significant with or without the inclusion of the control variable of postsecondary enrolment. Compared to the estimated impacts on earnings due to increased enrolment, the estimated program-control differences were slightly larger for EYH but slightly smaller for LA or EYH+LA. Therefore, this exercise produced no conclusive evidence to support or to reject attributing the entirety of the impacts on earnings to the marginal students. It is possible that a portion of the observed impacts on earnings was due to improved educational program choice among participants who would have gone on to PSE regardless of FTD interventions (especially EYH) and partly due to the increased participation in PSE.

The next sections present the best estimates of labour market returns to marginal students under several different scenarios:

- Scenario 1: All participants who were offered an FTD intervention received the same labour market returns as long as they enrolled in PSE.
- Scenario 2: All participants who were offered an FTD intervention received the same labour market returns as long as they graduated from PSE.
- Scenario 3: Only marginal participants who were induced to enrol in PSE received the labour market returns.
- Scenario 4: Only marginal participants who were induced to graduate from PSE received the labour market returns.

Scenarios 1 and 2 likely understate the labour market returns while Scenarios 3 and 4 may overstate the labour market returns. Since the available measures of PSE participation may underestimate graduation, Scenarios 1 and 3 are expected to be more reliable (because the calculations are based on enrolment instead of graduation). Scenarios 2 and 4 are included for reference. Scenario 3 is expected to provide the best estimates if all estimated increases in earnings are the result of increased access to PSE.

The labour market return is presented in three different forms. The first form is the yearly earnings premium as estimated as the average of the yearly earnings impact in years nine and ten. This indicator is traditionally labelled “return to education” in the literature. The second form is to present the net present value (NPV) as the sum of the present values of the projected earnings premium (based on impacts on earnings of years nine and 10) estimated through to the age of 55 less the present value of the foregone earnings (based on impacts on earnings from year four to year eight). This provides one way to measure the long-term (lifetime) impact of PSE on the labour market productivity of the participant. The third form compares the present value of the projected earnings premium of the marginal student (taken out to age 55) to the present value of foregone earnings to obtain the rate of labour market return. This rate of labour market return does not take into account other important costs of education such as tuition, fees, textbooks and accommodation nor the cost of the FTD intervention. It is not a true measure of the rate of return, but it provides an alternate measure of net change in labour market productivity due to the intervention, over the long run.

There have been several studies examining the return to postsecondary education in Canada, though most of them focus on log earnings and they made use of cross-sectional data to estimate the earnings profile for individuals through various ages. For example, Boudarbat, Lemieux and Riddell (2010) found that the wage differential between bachelor’s degree holders and high school graduates was 40 percentage points for men

in 2005, and 52 percentage points for women. They also found that the wage premium of non-university postsecondary diplomas was 14 percentage points for men and 15 percentage points for women. If these estimated premiums were applied to the FTD sample, the return to PSE would be about \$12,000 a year (or a present value of \$124,000 to the age of 55) for the overall sample and about \$10,000 (or a present value of \$106,000 to the age of 55) for the low-income sample.<sup>13</sup> Frenette (2014) found that on average, bachelor’s degree holders made \$36,600 per year (for men) and \$22,412 per year (for women) more than their counterparts with a high school diploma, while the annual earnings premium from college certification was \$12,351 per year for men and \$8,960 per year for women. If Frenette’s estimates were applied to the FTD sample, then the return to PSE would be about \$22,000 a year (or a present value of \$225,000 to the age of 55) for the overall sample and about \$19,000 (or a present value of \$195,000 to the age of 55) for the lower-income sample.

### Labour Market Returns from Offering Explore Your Horizons in New Brunswick

Table 76 presents best estimates of labour market returns (in 2018 dollars) from offering EYH. Regardless of the sample or subgroups, EYH was associated with an average increase in earnings of between \$1,500 and \$2,600 (in 2018 dollars) per year in years nine and 10. If all of the earnings impacts were the results of increased enrolment to PSE (Scenario 3), the estimated financial returns to education range from \$22,533 per year for members of the LILE subgroup to \$50,316 per year for the overall sample. The net present values of lifetime earnings were substantial, ranging from \$210,453 for members of the LILE subgroup to \$499,664 in the overall sample (these values are discounted to the start of the project and converted to 2018 dollars). Since the estimated foregone earnings were virtually zero, the rate of labour market return was impossible to calculate (approaching infinite, at 9,658% in the LILE subgroup for example). The labour market returns would appear to be in line with the finding that the main postsecondary impact of EYH was on university enrolment (even though there was no corresponding impact on university graduation).

The figures in Scenarios 1 and 2 were substantially smaller when impacts on earnings were attributed to all participants. The lack of graduation impacts inflates the estimates in Scenario 4 to doubtfully high values. As a result, Scenario 3 figures remain most plausible as the best estimates of labour market returns.

**Table 76: Labour Market Returns of Offering Explore Your Horizons**

	EYH			
	All	Lower-income students	FGF	LILE
PSE enrolment (%)				
Control group	61.92	48.61	43.85	42.40
Impact	<b>3.04</b>	<b>5.63</b>	5.30	<b>11.42</b>
PSE graduation (%)				
Control group	40.46	28.69	27.29	26.24
Impact	0.12	0.21	1.89	2.55

13 These figures were imputed using the wage premium figures of Boudarbat, Lemieux, and Riddell (2010), gender and PSE attendance composition of the FTD samples, as well as the inferred annual earnings of high school graduates at \$48,766 for men and \$26,231 for women from Frenette (2014).

	EYH			
	All	Lower-income students	FGF	LILE
Impact on average earnings in years 9 and 10 (\$)	1,530	1,669	1,516	2,573
Present value of foregone earnings (\$)	754	1,179	1,893	-251
Present value of projected earnings premium to the age of 55 (\$)	14,435	15,753	14,305	24,285
Scenario 1:				
Returns to FTD – per year (\$)	2,355	3,078	3,084	4,781
NPV (\$)	23,383	31,217	32,956	44,656
Scenario 2:				
Returns to FTD – per year (\$)	3,769	5,776	5,195	8,938
NPV (\$)	37,432	58,589	55,511	83,479
Scenario 3:				
Returns to PSE – per year (\$)	<b>50,316</b>	<b>29,649</b>	<b>28,601</b>	<b>22,533</b>
NPV (\$)	<b>499,664</b>	<b>300,748</b>	<b>305,623</b>	<b>210,453</b>
Scenario 4:				
Returns to PSE – per year (\$)	1,274,676	794,889	80,203	100,914
NPV (\$)	12,658,158	8,062,908	857,039	942,498
Rate of labour market return (%)	NA	NA	NA	9,658.49

Sources: SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

Note: Impacts with statistical significance of 10% and important results are bolded.

### Labour Market Returns from Offering Learning Accounts in New Brunswick

Table 77 presents the best estimates of labour market returns (in 2018 dollars) from offering LA. Regardless of the sample or subgroups, LA was associated with an average increase between \$596 and \$958 in earnings per year in years nine or ten. If all of the earnings impacts were the result of increased enrolment in PSE (Scenario 3), the estimated financial returns to education were small: \$5,600 per year for members of the LILE subgroup, \$6,376 per year for the FGF subgroup, and \$10,133 per year for the marginal lower-income student. The net present values of lifetime earnings ranged from \$28,971 for members of the LILE subgroup to \$67,709 in the lower-income student sample. Despite the low financial returns to education in terms of dollar amounts, due to small foregone earnings the rates of labour market return were large: 196% for the FGF subgroup, 221% for the LILE subgroup, and 343% for the overall lower-income student sample. The labour market returns seemed to align with the finding that the main postsecondary impact of LA was on college enrolment.

The figures in Scenarios 1 and 2 were substantially smaller when impacts on earnings were attributed to all participants. Since LA's impacts on graduation rates were similar to those on the enrolment rates, Scenario 4 produced very similar estimates to those of Scenario 3.



**Table 77: Labour Market Returns of Offering Learning Accounts**

	LA		
	Lower-income students	FGF	LILE
PSE enrolment (%)			
Control group	48.91	37.60	42.76
Impact	<b>6.51</b>	<b>15.02</b>	<b>10.65</b>
PSE graduation (%)			
Control group	29.31	20.17	24.97
Impact	<b>6.75</b>	<b>13.13</b>	<b>9.54</b>
Impact on average earnings in years 9 and 10 (\$)	660	958	596
Present value of foregone earnings (\$)	-1,818	-4,619	-2,543
Present value of projected earnings premium to the age of 55 (\$)	6,226	9,038	5,628
Scenario 1:			
Returns to FTD – per year (\$)	1,190	1,820	1,117
NPV (\$)	7,954	8,397	5,777
Scenario 2:			
Returns to FTD – per year (\$)	1,829	2,876	1,728
NPV (\$)	12,224	13,268	8,941
Scenario 3:			
Returns to PSE – per year (\$)	<b>10,133</b>	<b>6,376</b>	<b>5,600</b>
NPV (\$)	<b>67,709</b>	<b>29,416</b>	<b>28,971</b>
Scenario 4:			
Returns to PSE – per year (\$)	9,773	7,294	6,252
NPV (\$)	65,302	33,650	32,342
<i>Rate of labour market return (%)</i>	<i>342.51</i>	<i>195.65</i>	<i>221.33</i>

**Sources:** SRDC's estimation using FTD administrative data and Statistics Canada's T1 Family File.

**Note:** Impacts with statistical significance of 10% and important results are bolded.

### Labour market Returns from Offering EYH+LA in New Brunswick

Table 78 presents the best estimates of labour market returns (in 2018 dollars) from offering a combination of EYH+LA to students in New Brunswick. Regardless of the sample or subgroups, EYH+LA was associated with an average increase in earnings of between \$1,062 and \$1,790 per year in years nine or 10 and the impacts on earnings seemed to be increasing with PSE enrolment impacts. If all of the earnings impacts were the result of increased enrolment in PSE (Scenario 3), the estimated financial returns to education averaged \$12,230 per year for members of the LILE subgroup, \$21,442 per year for the FGF subgroup, and \$17,994 in the lower-income student sample. The net present values of lifetime earnings were substantial, ranging from \$92,144 for members of the LILE subgroup to \$180,473 for members of the FGF subgroup. Given the middle-level return to education and modest-but-not-trivial foregone earnings, the rates of labour market return were comparable to those for LA: 925% for the FGF subgroup, 496% for the LILE subgroup, and 380% for the lower-income sample. The labour market returns thus seem to be in line with the ultimate postsecondary impact of EYH+LA being on college graduation, even though EYH+LA also impacted university enrolment.

The figures in Scenarios 1 and 2 were substantially smaller when impacts on earnings were attributed to all participants. Since LA’s impacts on graduation rates were similar to the impacts on enrolment rates, Scenario 4 produced very similar estimates to those of Scenario 3.

**Table 78: Labour Market Returns of Offering EYH+LA**

	EYH+LA		
	Lower-income students	FGF	LILE
PSE enrolment (%)			
Control group	48.01	37.63	41.33
Impact	<b>5.90</b>	<b>8.35</b>	<b>10.65</b>
PSE graduation (%)			
Control group	28.81	21.80	24.29
Impact	4.30	<b>5.25</b>	<b>7.41</b>
Impact on average earnings in years 9 and 10 (\$)	1,062	1,790	1,302
Present value of foregone earnings (\$)	-2,634	-1,827	-2,479
Present value of projected earnings premium to the age of 55 (\$)	10,019	16,897	12,292
Scenario 1:			
Returns to FTD – per year (\$)	1,969	3,894	2,506
NPV (\$)	13,699	32,774	18,879
Scenario 2:			
Returns to FTD – per year (\$)	3,206	6,619	4,109
NPV (\$)	22,305	55,710	30,957
Scenario 3:			
Returns to PSE – per year (\$)	<b>17,994</b>	<b>21,442</b>	<b>12,230</b>
NPV (\$)	<b>125,171</b>	<b>180,473</b>	<b>92,144</b>
Scenario 4:			
Returns to PSE – per year (\$)	24,690	34,103	17,577
NPV (\$)	171,746	287,039	132,434
<i>Rate of labour market return (%)</i>	<i>380.35</i>	<i>924.71</i>	<i>495.94</i>

**Sources:** SRDC’s estimation using FTD administrative data and Statistics Canada’s T1 Family File.

**Note:** Impacts with statistical significance of 10% and important results are bolded.

## Summary of Long-term Findings from the Future to Discover Pilot Project

Table 80 summarizes all the statistically significant results identified in the overall sample as well as the subgroups of interest, by intervention and province. In general, evidence from participants' tax returns confirmed findings from administrative data for New Brunswick that FTD interventions – either of enhanced career education in EYH or an early-promise grant in LA, or both – increased PSE participation: encouraging high school students who would not otherwise have accessed PSE to enrol in PSE. There was also evidence of impacts on participants' earnings in New Brunswick. Furthermore, it was also apparent that FTD produced no substantial and conclusive long-term positive impact on PSE participation or employment for Manitoba students, where program group members were offered the EYH intervention. Therefore, the discussion of labour market returns of FTD focuses solely on the interventions in New Brunswick.

In terms of labour market outcomes for FTD participants in New Brunswick, there were several important patterns:

- FTD interventions had no substantial impact on the proportion of students who reported employment earnings in each of the seven years of the postsecondary period, suggesting that most students did not withdraw from the labour market completely despite their increased participation in postsecondary studies. Also, the impacts on earnings in the first five years after high school were not large. Estimates of earnings forgone due to PSE study were less than half the earnings they would have had, had they not participated in PSE.
- Regardless of the intervention received, impacts on earnings were small or negative in the first few years after high school but changed to positive in later years. Although there were only a few statistically significant impacts on yearly earnings, the pattern of changing incomes adhered to the theoretically presumed effects of PSE participation on earnings.
- FTD interventions' impacts on self-employment were small and inconsequential.
- There was some evidence of increased use of employment insurance benefits, though these could reflect side effects of the recession beginning 2008–09. Taken as a whole, there were no long-term impacts on take up of employment insurance. The short-term impacts were inconsequential in magnitude.

Based on the labour market and postsecondary outcomes of FTD in New Brunswick, this study found that all three interventions provided strong labour market returns to marginal students. Table 79 summarizes the potential upper bounds of financial returns (in 2018 dollars) to PSE as well as the net present value of lifetime labour market impacts for a marginal student who participated in PSE because of a FTD intervention. In terms of labour market returns, EYH might provide the best returns, followed by EYH+LA and LA alone providing the lowest returns. The results were not surprising since LA's impacts on PSE were driven by college enrolment and graduation while the impacts of interventions EYH were driven by the higher return university education. Regardless, all interventions provided good labour market returns. A marginal student from a lower-income, lower parental education family could make an additional \$22,533 per year if offered the opportunity to participate in EYH, \$12,230 more per year from being offered EYH+LA, and \$5,600 more per year with LA alone. These are estimated upper bounds of returns for the marginal student and suggest a lifetime payoff that would very likely be more than sufficient to cover the net costs of

PSE. However, because of the low statistical power attributable to the earnings variable, the analysis is insufficiently precise to pinpoint actual labour market returns which may be lower than these values.

**Table 79: Upper Bounds of Labour Market Returns of Future to Discover in New Brunswick**

	New Brunswick			
	All	Lower-income	FGF	LILE
Upper bounds of financial returns to PSE for a marginal student (\$/year)				
Explore Your Horizons	<b>50,316</b>	<b>29,649</b>	<b>28,601</b>	<b>22,533</b>
Learning Accounts		<b>10,133</b>	<b>6,376</b>	<b>5,600</b>
Explore Your Horizons with Learning Accounts		<b>17,994</b>	<b>21,442</b>	<b>12,230</b>
Net present value of lifetime labour market outcome for a marginal student (\$)				
Explore Your Horizons	<b>499,664</b>	<b>300,748</b>	<b>305,623</b>	<b>210,453</b>
Learning Accounts		<b>67,709</b>	<b>29,416</b>	<b>28,971</b>
Explore Your Horizons with Learning Accounts		<b>125,171</b>	<b>180,473</b>	<b>92,144</b>

**Table 80: Summary of Long-term Impact Results for Future to Discover, Including by Subgroups**

	New Brunswick										Manitoba – Explore Your Horizons				
	Explore Your Horizons				Learning Accounts			EYH+LA			ALL	Lower-income	FGF	LILE	Aboriginal students
	ALL	Lower-income	FGF	LILE	Lower-income	FGF	LILE	Lower-income	FGF	LILE					
<b>Education Tax Credits</b>															
Reported tuition fees paid in each tax year (percentage points)		+5 (yr 6)		+5 (yr 5), +7 (yr 6)	+6 (yr 4), +7 (yr 5), +6 (yr 6)	+7 (yr 4), +7 (yr 5), +7 (yr 6)	+7 (yr 4), +9 (yr 5), +8 (yr 6)	+8 (yr 4), +8 (yr 5)	+10 (yr 4), +10 (yr 5)	+9 (yr 4), +11 (yr 5)		-11 (yr 4), +7 (yr 9)			-15 (yr 4)
Reported tuition fees paid over seven years (percentage points)								+8	+8	+10				-9	
Reported education and textbook amounts in each tax year (percentage points)		+6 (yr 6)		+8 (yr 6)	+4 (yr 4), +8 (yr 5), +8 (yr 6)	+7 (yr 5), +8 (yr 6), +7 (yr 7)	+9 (yr 5), +10 (yr 6)	+8 (yr 4), +9 (yr 5), +5 (yr 6)	+9 (yr 4), +9 (yr 5)	+8 (yr 4), +11 (yr 5), +6 (yr 6)		-11 (yr 4), +8 (yr 9)			
Reported education and textbook amounts over seven years (percentage points)								+8	+8	+9					
Claimed educational tax credit in each tax year (percentage points)	+1 (YR4), +6 (YR6), +4 (YR9)	+5 (yr 6)	+7 (yr 6)	+6 (yr 6)	+2 (yr 4), +9 (yr 6)	+7 (yr 9)	+7 (yr 6)	+2 (yr 4), +4 (yr 5), +6 (yr 7), +8	+5 (yr 5), +7 (yr 7), +9 (yr 9)	+4 (yr 5), +6 (yr 7), +5 (yr 8), +6 (yr 9)		-11 (yr 4), +8 (yr 9)			

	New Brunswick										Manitoba – Explore Your Horizons				
	Explore Your Horizons				Learning Accounts			EYH+LA			ALL	Lower-income	FGF	LILE	Aboriginal students
	ALL	Lower-income	FGF	LILE	Lower-income	FGF	LILE	Lower-income	FGF	LILE					
								(yr 8), +6 (yr 9)							
Claimed educational tax credit over seven years (percentage points)					+5			+7		+8					
Reported withdrawing RESP (percentage points)															
<b>Employment and Income</b>															
Reported employment earnings in each tax year (percentage points)											-4 (yr 8), -4 (yr 10)	-9 (yr 4), -7 (yr 5), -7 (yr 10)		-10 (yr 4), -11 (yr 5), -10 (yr 10)	
Employment earnings in each tax year (\$)	+356 (yr 4), +1,407 (yr 9)			+2,920 (yr 10)		-915 (yr 4), -1,520 (yr 6)	-625 (yr 4)	-584 (yr 4), -1,249 (yr 6)	-1,035 (yr 4)	-692 (yr 4)	-2,154 (yr 8)				-2,396 (yr 4)
Cumulative employment earnings (\$)											-7,345				
Reported self-employment earnings in each tax year (percentage points)		-1 (yr 5)	+2 (yr 10)	-1 (yr 5)							-3 (yr 5)	-3 (yr 5)	-4 (yr 5)		
Self-employment earnings in each tax year (\$)															

	New Brunswick										Manitoba – Explore Your Horizons				
	Explore Your Horizons				Learning Accounts			EYH+LA			ALL	Lower-income	FGF	LILE	Aboriginal students
	ALL	Lower-income	FGF	LILE	Lower-income	FGF	LILE	Lower-income	FGF	LILE					
Cumulative self-employment earnings (\$)															
Before-tax income in each tax year (\$)				+2,592 (yr 10)		-892 (yr 4)	-704 (yr 4)	-603 (yr 4)	-1,335 (yr 4)	-717 (yr 4)	-1,947 (yr 8)				-2,511 (yr 4)
Cumulative before-tax income (\$)											-7,223				
<b>Government Benefits</b>															
Receipt of employment insurance benefits in each tax year (percentage points)	+4 (yr 6)		+7 (yr 6)	+6 (yr 6)	+6 (yr 6), +4 (yr 7)	+8 (yr 6)	-4 (yr 5), +5 (yr 6)	-4 (yr 5)	-8 (yr 9)	-2 (yr 4), -5 (yr 5), -5 (yr 9)	+2 (yr 4)	+3 (yr 4), +4 (yr 5), +6 (yr 8)	+4 (yr 4)	+4 (yr 4), +6 (yr 5)	-15 (yr 9)
Receipt of employment insurance benefits over seven years (percentage points)												+8			
Employment insurance benefits in each tax year (\$)	+310 (yr 6)	+486 (yr 6)	+494 (yr 6)	+576 (yr 6)	-199 (yr 5), +404 (yr 6), +454 (yr 7)	-344 (yr 5), +547 (yr 6), +607 (yr 7)	-281 (yr 5), +369 (yr 6)	-208 (yr 5), -413 (yr 9)	-599 (yr 10)	-108 (yr 4), -271 (yr 5), -467 (yr 9)				+378 (yr 7)	-1,324 (yr 9)
Cumulative employment insurance benefits (\$)															
Receipt of social assistance benefits in each										-4 (yr 7),			-5 (yr 8), -5		+9 (yr 5), +10 (yr 6)

	New Brunswick										Manitoba – Explore Your Horizons				
	Explore Your Horizons				Learning Accounts			EYH+LA			ALL	Lower-income	FGF	LILE	Aboriginal students
	ALL	Lower-income	FGF	LILE	Lower-income	FGF	LILE	Lower-income	FGF	LILE					
tax year (percentage points)										-4 (yr 8)			(yr 9), -4 (yr 10)		
Receipt of social assistance benefits over seven years (percentage points)										-5					
Social assistance benefits in each tax year (\$)										-228 (yr 7)			-469 (yr 8), -448 (yr 9), -357 (yr 10)		
Cumulative social assistance benefits (\$)													- 2,123		
<b>Postsecondary Participation</b>															
Enrolled in PSE	+3	+6		+11	+7	+15	+11	+6	+8	+11					
Enrolled in college					+7	+10	+9						+11	+11	
Enrolled in university		+6		+9		+6		+6	+8	+7					
Graduated from PSE					+7	+13	+10		+5	+7					
Graduated from college					+8	+12	+10	+4	+5	+7					
Graduated from university															



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