

Experimental estimates of the returns to education attributable to enhanced career education and early-promise grants

Reuben Ford¹ and Taylor Shek-wai Hui²:

¹Social Research and Demonstration Corporation, Vancouver, British Columbia

²Social Research and Demonstration Corporation, Ottawa, Ontario

Abstract

Background/Context: Finding ways for young people to achieve their full potential is a common political objective, whether the ultimate goal is economic growth, innovation and competitiveness, or promoting social inclusion and reducing social inequalities. Many from disadvantaged groups will need to pursue postsecondary education (PSE) to thrive in the global knowledge economy yet will face barriers to including PSE in their career pathway. This study examines how to increase PSE access among underrepresented groups. The project tests two interventions independently and in parallel that are intended to overcome limitations faced relatively early in high school due to lack of financial resources or lack of information about the available pathways through PSE and their relative costs and benefits.

Purpose/Objective/Research Question: Two ‘early’ interventions are tested as practical but different means by which governments could increase attainment in secondary and postsecondary education—by improving the efficiency and timeliness of student decision making—with approximately similar costs per student. The project tests the approaches independently and combined against a ‘business as usual’ counterfactual.

‘Early’ interventions are hypothesized to provide an incentive for participants who are traditionally considered not destined for PSE to alter their high school behaviour to make PSE enrolment and completion more likely. Operationally this group was identified as students from families with below-median income and where neither parent held a credential from two or more years PSE study. Changes in the personal career awareness and PSE planning of students from such “low-income, low education” (LILE) families would be expected to result in altered behaviour with respect to educational choices and labour market outcomes. Increased participation in PSE and improved earnings are hypothesized.

Setting: Participants were recruited from 30 high schools in New Brunswick, Canada in two cohorts: enrolled in 9th Grade in 2003-4 and 2004-5 when they were aged 14/15 years.

Population/Participants/Subjects: The project drew a random sample of 9th grade students from school records among whom 4,359 students (78 per cent) signed up to participate in the research. Of these students, 2,045 were identified as from LILE families. Since two of the four treatment arms of the experiment were income-dependent, those among the 4,359 with family incomes below median were enrolled in a four-way randomized experiment. Those with higher incomes were enrolled in a two-way randomized experiment.

Intervention/Program/Practice: Specifically, the project tested separately and in combination, impacts of two interventions:

- **Enhanced career education:** a program with several workshop components with the broad aim of improving all high school students' knowledge of the role PSE can play in their career decisions and how they might access it. The components were designed to help high school students identify their career goals, to navigate educational program choices and financial decisions they needed to make and to engage their parents more actively in the process. Students were offered 40 hours of after-school classes (spread over three years) in 30 New Brunswick high schools. Parents were invited to 12 hours of these classes.
- **Learning Accounts:** a financial incentive offered to high school students with family incomes below median. It provides an early guarantee of a grant worth \$8,000 CDN, conditional only upon high school completion and subsequent participation in PSE (for up to two years). Students are reminded of the accumulation of funds annually from 10th through 12th grade.

Research Design: Students and parents completed baseline surveys prior to randomization. Follow up surveys took place in the third and sixth years following randomization: there was no systematic variation in non-response between groups. Key outcomes are captured from administrative data with very minimal attrition. Analysis compares the outcomes from the experimental groups over time and uses various controls for chance variations between groups introduced by randomization and to account for modest clustering of participants within high schools.

Data Collection and Analysis: The baseline survey commenced with a telephone survey and was completed in-home to allow for family income verification against tax returns and completion of paper consent and survey forms. Follow up surveys were conducted by telephone with periodic tracking contacts to secure updated contact information. All participants consented to 10 years of longitudinal linking of education and tax records. Analysis compared estimates of outcomes taking advantage of the experimental framework.

Ten-year Findings/Results: Both interventions were implemented with high fidelity and produced impacts on educational attainment. Differences in enrollment rates, types of credentials pursued, completion rates and patterns of earnings varied over time with the interventions offered. Impacts also varied by subgroup. For example, Table 1 presents impacts on PSE enrollment and graduation for the target group of students from lower-income, lower-education families. PSE impacts were significant, estimated at a similar magnitude for all three interventions, except that the enhanced career education has not yielded impacts on PSE graduation. This intervention encouraged take up of 4-year programs and 11 per cent of those offered it were still enrolled in PSE at the close of the observation period.

Table 2 extrapolates returns to participation in education for the marginal student from labour market outcomes including seven years of annual earnings and other income sources. The estimates are derived as the net present value of lifetime labour market impacts from the interventions assuming the differential in participant incomes at ages 23 and 24 extends 30 more years. The results are premature but informative — given the interventions differential impacts on program choice — about processes through which youth acquire and enhance their skills to meet future labour market requirements.

Conclusions: Both enhanced career education and early-promise grants can work to increase PSE access. There are likely to be substantial returns to the additional education such interventions cause. Thus, endeavours to increase access for students who do not currently attend can be worthwhile. Importantly, youth are surprisingly sensitive to modest intervention: different approaches to increase PSE participation yield different PSE choices and thus different labour market outcomes for ostensibly the same population. Also, the impacts of effective interventions are not necessarily additive. Livelihoods of marginal students may be improved by honing their choices within PSE as much as by switching non-PSE attendees to become PSE attendees or even PSE completers.

References

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Table 1: Estimated Impacts of tested interventions on PSE outcomes

New Brunswick Students from Lower-education, lower-income families				
Intervention	Control	Program	Impact (s.e.)	Significance
Enrollment in 2-year or longer PSE programs				
Enhanced career education	41.9	53.8	11.9 (3.3)	***
Learning Accounts	42.8	53.4	10.7 (3.3)	***
Enhanced career education + Learning Accounts	41.3	52.0	10.7 (3.2)	***
Graduation from 2-year or longer PSE programs				
Enhanced career education	27.7	25.1	2.6 (2.7)	n.s.
Learning Accounts	25.0	34.5	9.5 (2.8)	***
Enhanced career education + Learning Accounts	24.3	31.7	7.4 (2.8)	***

Table 2: Estimates of Returns to Education from Different Interventions (in 2018 Canadian dollars)

New Brunswick				
	All	Lower-income families		
	Career Education	Career Education	Learning Accounts	Combined
Impact on Earnings (P-C at ages 23–24) (per year)	1,530	1,669	660	1,062
Present value of Impact on Earnings (projected 30 years)	14,435	15,753	6,226	10,019
Allocation of returns				
Lower bound:				
If all who participate in PSE receive earnings gains				
Annual gain in earnings	2,355	3,078	1,190	1,969
Net present value	23,383	31,217	7,954	13,699
Upper bound:				
If only new PSE goers receive earnings gains				
Annual gain in earnings	50,316	29,649	10,133	17,994
Net present value	499,664	300,748	67,709	125,171