Financial Literacy and the Timing of Tax-Preferred Savings Account Withdrawals

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Introduction

- Registered Retirement Savings Plans (RRSPs) allow taxpayers to make savings contributions with before-tax income and defer paying tax until these funds are withdrawn. However, these funds do not lock in and there are no early withdrawal penalties imposed by the tax system. As a result, pre-retirement withdrawals are very common.

- Given the tax treatment of RRSP withdrawals, individuals should opt to withdraw when their marginal effective tax rate (METR) is the lowest in order to minimize the tax that they pay.

- Depending on the difference between the METRs in the contribution and withdrawal years, making a withdrawal at the wrong time can have considerable relative costs.

- In this study, we investigate the extent to which RRSP withdrawals respond to changes in the net-of-tax benefit of withdrawing and whether financial literacy is a relevant determinant of such behavior.

Data

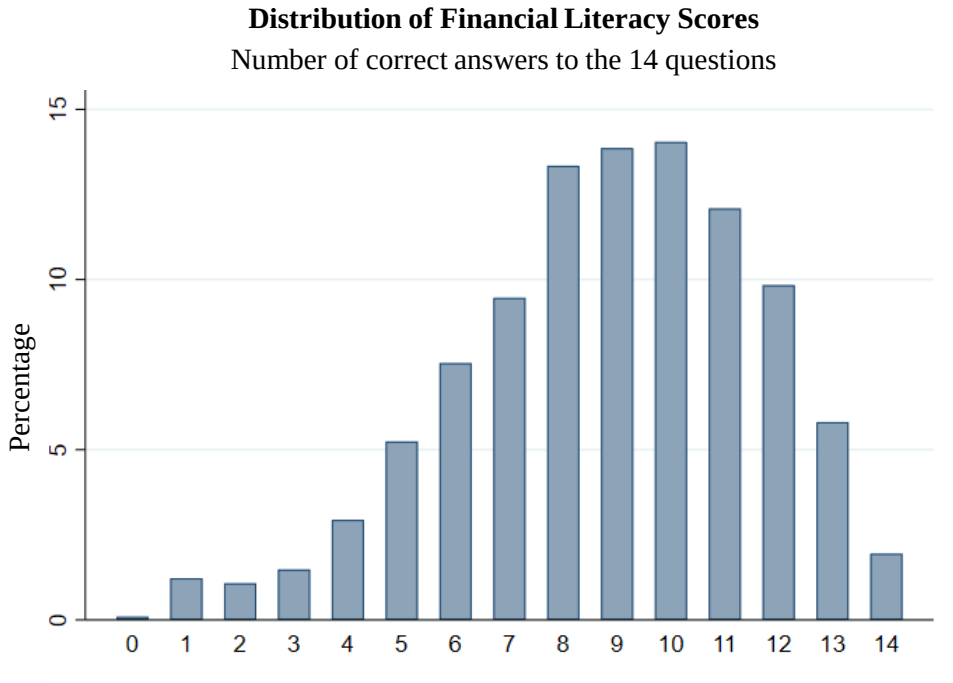
- Financial Capability, Employment and Income Database (FCEID): Contains the Canadian Financial Capability Survey (CFCS) matched with T1 personal income tax records.
- Contains a wide range of information on income, tax credits, deductions, retirement savings and taxes.
- The final sample consist of a total of 5,994 respondents and 69,228 tax-year observations between the years 2000 and 2016.
- We estimate for each respondent and tax year, the annual METR using the Canadian Tax and Credit Simulator (CTaCS). The METR is defined as follows:

$$METR_{i,t} = 1 - \frac{\pi_n(Y_{i,t}, w) - \pi_n(Y_{i,t}, 0)}{w}$$

where π_n is the disposable income, $Y_{i,t}$ all annual tax variables entered into CTaCS and w the RRSP withdrawal.

Measuring Financial Literacy

- Respondents in the CFCS were asked a set of 14 questions to objectively assess their knowledge level of financial concepts
- Grouped into 2 categories: **low financial literacy** (9/14 or less) and **high financial literacy** (10/14 or more)
- Overall, 3,484 individuals fall into the low financial literacy group and 2,296 individuals in the high financial literacy group.



Methodology

The theoretical prediction is that withdrawals should be correlated negatively with the METR at the respondent level over time. We postulate the following **fixed-effect linear regression**:

$$R_{i,t} = \alpha METR_{i,t} + X'_{i,t}\beta + \mu_i + \varepsilon_{i,t}$$

We then estimate a **fully interacted model** to determine if the difference between the coefficients obtained for the high and low financial literacy groups is statistically significant:

$$R_{i,t} = \alpha_0 METR_{i,t} + \alpha_1 METR_{i,t} \cdot FL_i + X'_{i,t}\beta_0 + X'_{i,t}\beta_1 \cdot FL_i + \mu_i + \varepsilon_{i,t}$$

Where:
$R_{i,t}$: RRSP withdrawals
$METR_{i,t}$: Marginal effective tax rate
FL_i : High financial literacy dummy
X_{it}: { age dummies, marital status, income controls }

Main Regression Results

- We find that the METR has a significant negative effect on RRSP withdrawals for both financial literacy groups. This effect persists with the addition of various control variables.
- The coefficient for the METR variable is larger in absolute value for those with high financial literacy.
- The relationship between RRSP withdrawals and total income is U shaped and statistically significant for both financial literacy groups. All income controls and statistically significant with only one exception.

Fixed Effect Regression on RRSP Withdrawals						
	Low Financial Literacy			High Financial Literacy		
	(1)	(2)	(3)	(1)	(2)	(3)
METR	-18.258*** (2.484)	-9.911*** (2.101)	-7.119*** (2.085)	-30.096*** (3.624)	-27.249*** (3.560)	-23.108*** (3.489)
Income variables						
Total income		-115.007*** (23.031)			-24.9556*** (9.001)	
Total income ^2		1.339e-04*** (3.153e-05)			3.139e-6*** (1.259e-6)	
Various income controls	no	no	yes	no	no	yes
Marital Status	yes	yes	yes	yes	yes	yes
Age Fixed Effect	yes	yes	yes	yes	yes	yes
Number of observations	36.244	36.178	36.244	28.907	28.818	28.907

Fully Interacted Model

- The interaction term METR · FL is negative and statistically significant at the 1% confidence level across all specifications.
- Results are consistent with the hypothesis that taxpayers with low financial literacy are not as informed about how the tax system works.
- The difference in the effect of total income, employment income and unemployment insurance income between the groups is statistically significant at the 5% threshold.

Fully Interacted Regression with Fixed Effects on RRSP Withdrawals

	(1)	(2)	(3)
METR * FL	-11.838***	-17.338***	-15.989***
	(4.393)	(4.133)	(4.064)
Income variables * FL			
Total income * FL		90.051***	
		(24.726)	
Total income ^2 * FL		-1.31e-04***	
		(3.16e-05)	
Employment income * FL			80.653***
			(25.157)
Employment income ^2 * FL			-1.62e-04**
			(7.68e-05)
Investment income * FL			63.560*
			(35.838)
Investment income ^2 * FL			-7.3e-05*
			(4.17e-05)
Net self employment income * FL			109.525
			(76.114)
Net self employment income ^2 * FL			-1.38e-05
			(1.09e-04)
Unemployment insurance income * FL			182.330**
			(92.899)
Social assistance income * FL			-114.827
			(108.455)
Intercept	335.001***	260.472***	221.502**
	(90.564)	(90.834)	(90.762)
Number of observations	65,131	65,131	65,131

Robustness Tests

1. The first robustness test aims to estimate the impact of a change in the METR at the extensive margin, i.e. the decision to withdraw funds from RRSPs rather than the total amount. We estimate a linear probability model with fixed effect.

2. For the second robustness test, we estimate the fully interacted model on a limited sample consisting only of individuals who made at least one RRSP withdrawal between 2000 and 2016.

Robustness Tests						
	Dummy Dependent Variable			Conditional on having at least one RRSP Withdrawal between 2000-2016		
	(1)	(2)	(3)	(1)	(2)	(3)
METR * FL	-0.0005 (0.0003)	-0.0009*** (0.0003)	-0.001*** (0.0004)	-16.32* (8.498)	-13.557* (7.726)	-17.978** (7.722)
METR	-0.0015*** (0.0002)	-0.0008*** (0.0002)	-0.0004 (0.0002)	-39.901*** (5.344)	-21.167*** (4.79)	-16.353*** (4.532)
Number of observations	65.207	65.207	65.207	29.408	29.408	29.408

Conclusion

- Most taxpayers recognize the tax costs when they make decisions about how much to withdraw.
- Individuals with high financial literacy are more responsive to changes in their METRs when making withdrawal decisions. This findings suggests financial literacy helps improve savers' understanding of the tax system and the effect of the METR on their net-of-tax benefit of withdrawals.
- Our results also indicate that there is a significant connection between withdrawals and income shocks.
- The findings of this study have implications for public policy insofar as they indicate efforts to increase financial literacy among the population can help many taxfilers improve their financial situations during working years and into retirement, most notably for those with low incomes.

Thank you!