



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

Marianne Laurin, Derek Messacar and Pierre-Carl Michaud



Delivering insight through data for a better Canada



Disclaimer

The results of this study are preliminary and subject to change. The views and opinions expressed herein are those of the authors and do not necessarily reflect the views of Statistics Canada or the Government of Canada.

Motivation

- Tax advantage is the main policy tool available to governments to stimulate private saving (Feldman '10).
- Contributions are made with pre-tax income and taxation is back-loaded to the time when funds are withdrawn, typically in retirement when marginal tax rates are otherwise low (Veall '01).
- Designed to encourage savings through a price/substitution effect.
- A large literature devoted to understanding whether the tax deduction reduces savings through an income effect (Bernheim '02).

Motivation (2)

- How tax-deductible savings plans are actually used is more complex.
 - Tax incentives only work for people who are aware of them and understand how to take advantage (Attanasio et al. '04).
 - Inertia, passive decision-making, mental accounting, loss aversion, etc.
- Strong emphasis on understanding what induces people to contribute to savings plans, but less emphasis on how to help keep savings intact until retirement.
- A better understanding of the interaction between financial literacy and wealth accumulation has implications for the optimal design of pension systems.

Research Questions

1. Do pre-retirement savings withdrawals respond to changes in the net-of-tax benefit of withdrawing?
 - We estimate the extent to which withdrawals depend on variation over time in marginal effective tax rates
2. To what extent does such behavior depends on the saver's financial literacy?
 - Use a novel linked dataset to answer this question.



Outline

- Institutional Details
- Financial Literacy in Canada
- Data and Sample
- Methodology
- Results and Robustness Checks
- Conclusion

Institutional Details

- Canada has a “three-tier” retirement income system.
 - Tier 1: Old Age Security is a demogrant benefit of roughly \$600 CAD monthly.
 - Tier 2: Canada Pension Plan is a means-tested public pension of (maximum) roughly \$1,200 CAD monthly starting at age 65.
 - Tier 3: Private tax-preferred savings accounts
- To maintain an adequate standard of living in retirement, middle- and higher-income Canadians are reliant on private savings

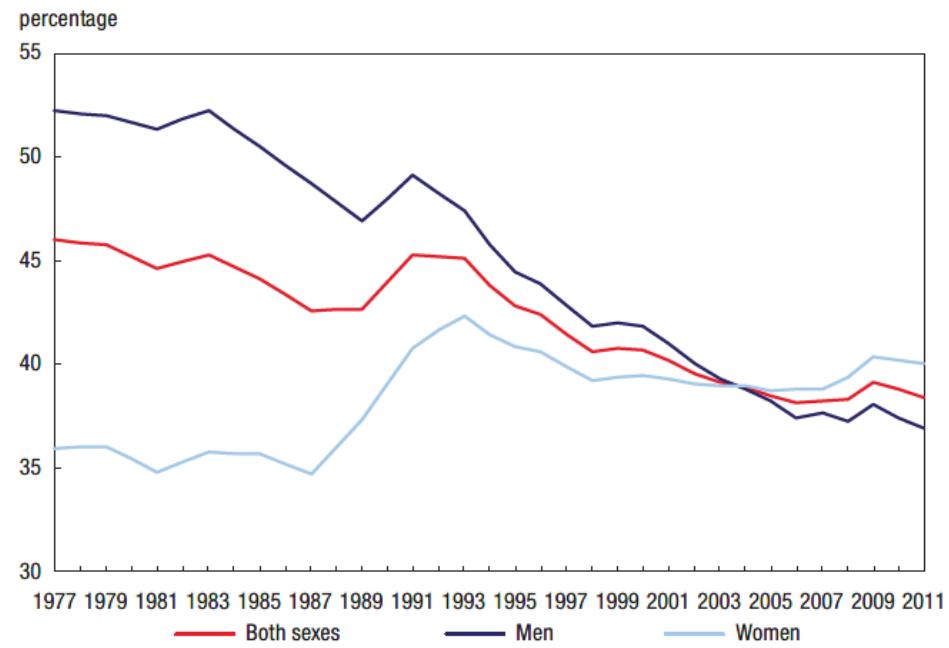
Institutional Details (2)

- Several types of tax-preferred savings accounts in Canada:
 1. Tax-deductible defined-contribution plans that individuals set up through financial institutions (similar to IRAs) ← Focus of our study
 2. Occupational pension plans
 3. Tax-postpaid savings accounts (similar to Roth IRAs).
- Contributions to occupational pension plans typically lock in after a short vesting period, and withdrawals from tax-postpaid accounts are not subject to tax.
- Unlike IRAs, **no explicit penalty** on early withdrawals from tax-deductible plans
 - These plans are often used for precautionary saving and income smoothing purposes (Mawani and Paquette 2011)

Institutional Details (3)

- Occupational pension plans have not risen in popularity in Canada to the same extent as they did in the United States due to the 401(k).
- Defined-benefit plans remain relatively common in Canada.
- Non-workplace savings accounts are increasingly important for maintaining an adequate standard of living in retirement.

Percentage of employees with a registered pension plan (RPP) through their job, by gender, 1977 to 2011



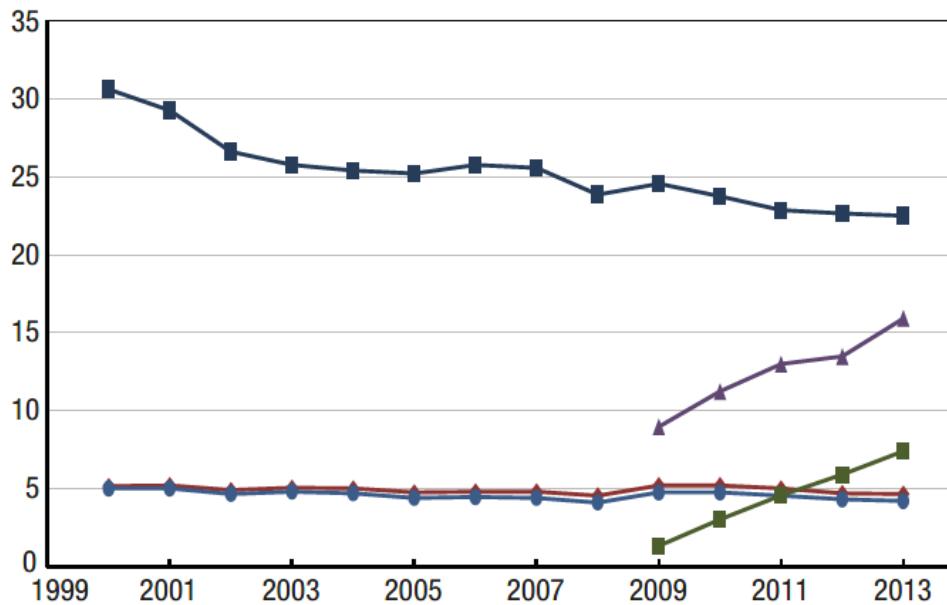
Sources: Statistics Canada, Pension Plans in Canada and Labour Force Survey, 1977 to 2011.

Institutional Details (4)

- Approximately \$1 is withdrawn every year from retirement savings accounts (RRSPs) for every \$5 contributed in the same year, among 25 to 54 year olds.

Estimated contributions to and withdrawals from RRSPs and TFSAs among 25- to 54-year-olds, 2000 to 2013

billions of 2013 constant dollars



Financial Literacy in Canada

- The Canadian Financial Capability Survey (CFCs) asks respondents 14 questions about inflation, types of investment products, the stock market, interest rates and related topics on personal finance.
- There is **substantial heterogeneity** in the number of correct responses.

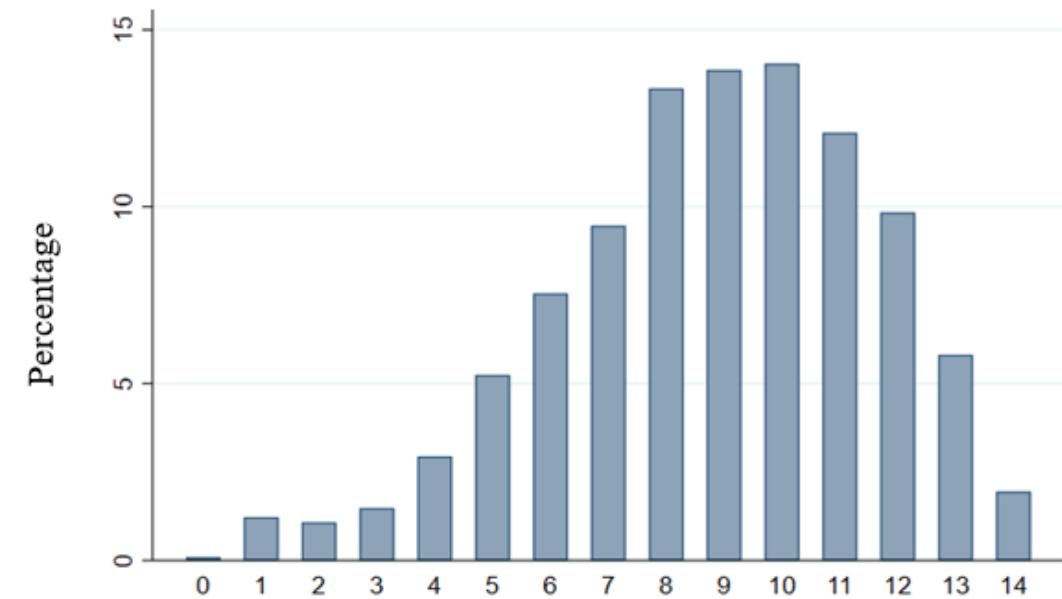


Figure 1 – Distribution of financial literacy score on 14 questions



Financial Literacy in Canada (2)

- Question: If the inflation rate is 5% and the interest you get on your savings is 3%, will your savings have at least as much buying power in a year's time?
 - a. Yes
 - b. No ← 61% correct



Financial Literacy in Canada (3)

- Who insures the stock market?
 - a. National Deposit Insurance Corporation
 - b. Securities and Exchange Commission
 - c. Bank of Canada
 - d. No one ← 32% correct

Data and Sample

- We use the Financial Capability, Employment and Income Database (FCEID).
 - Linkage between 2014 Canadian Financial Capability Survey and personal income tax records obtained from the central tax authority.
 - Tax dataset contains detailed information about employment, income, tax liabilities, credits, deductions, savings, etc.
 - Sample consists of 5,994 respondents and 69,228 person-year observations from 2000 to 2016.
 - Simulate tax rates using the Canadian Tax and Credit Simulator (CTaCS).

Table 1 – Descriptive statistics by level of financial literacy

	Low Financial Literacy (1)	High Financial Literacy (2)
Demographics		
Age	44.58	44.30
Female (%)	55.65	46.34
Married (%)	52.32	60.44
Education		
High School Not Completed	15.28	6.75
High School Diploma	22.56	14.45
Some Postsecondary or University Certificate	44.19	42.93
Bachelor Degree	12.83	23.09
Higher than Bachelor Degree	5.14	12.78
Total Income		
Employment Income	28,020	43,428
Self Employment Income	1,011	3,279
Investment/Dividend Income	1,069	2,969
Unemployment Insurance Income	762	564
RRSP Withdrawals		
At Least One Withdrawal Between 2000-2016	43.10	48.02
Amount Withdrawn	387	505
METR	20.4%	26.3%

Methodology

- We assess whether savers respond to the net-of-tax benefit of withdrawing funds from their retirement accounts.
- Specifically, we estimate the following model:

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

where $R_{i,t}$ is retirement savings withdrawals of individual i at time t

$METR_{i,t}$ is the marginal effective tax rate

X_{it} is a vector of controls for age, marital status and income.

- The expectation is $\alpha < 0$, since a higher tax rate reduces the benefit of withdrawing.

Methodology (2)

- In addition, we assess whether responsiveness to the net-of-tax benefit differs based on the level of financial literacy.
- Specifically, we estimate the following *fully interacted* model:

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

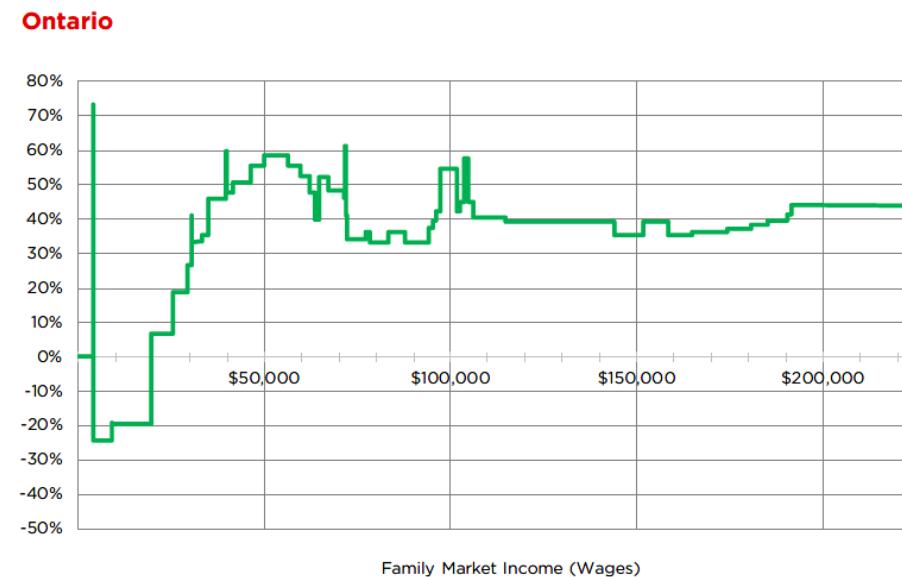
where FL_i is an indicator variable for high financial literacy

- The expectation is $\alpha_1 < \alpha_0$ and $\alpha_1 < 0$, since savers with high financial literacy are the most responsive to the tax incentive.
- This assumes financial literacy \Leftrightarrow tax literacy.

Methodology (3)

- There is significant variation in marginal effective tax rates across individuals and over time due to:
 - Provincial variation
 - Benefits that are based on marital status or dependents
 - Reforms to child benefits, worker's income tax benefit (similar to EITC), top tax bracket expansions, etc.
- This variation is desirable for our empirical approach, and it suggests that knowing one's own marginal effective tax rate can be difficult in practice.

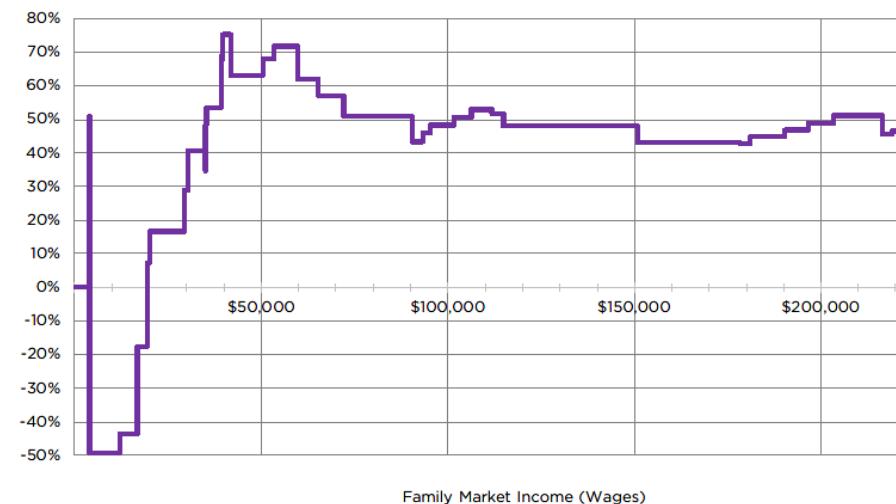
Methodology (4)



Source: Bazel, P. 2019. "Marginal effective tax rates across provinces." Fraser Institute.

Methodology (5)

Quebec



Source: Bazel, P. 2019. "Marginal effective tax rates across provinces." Fraser Institute.

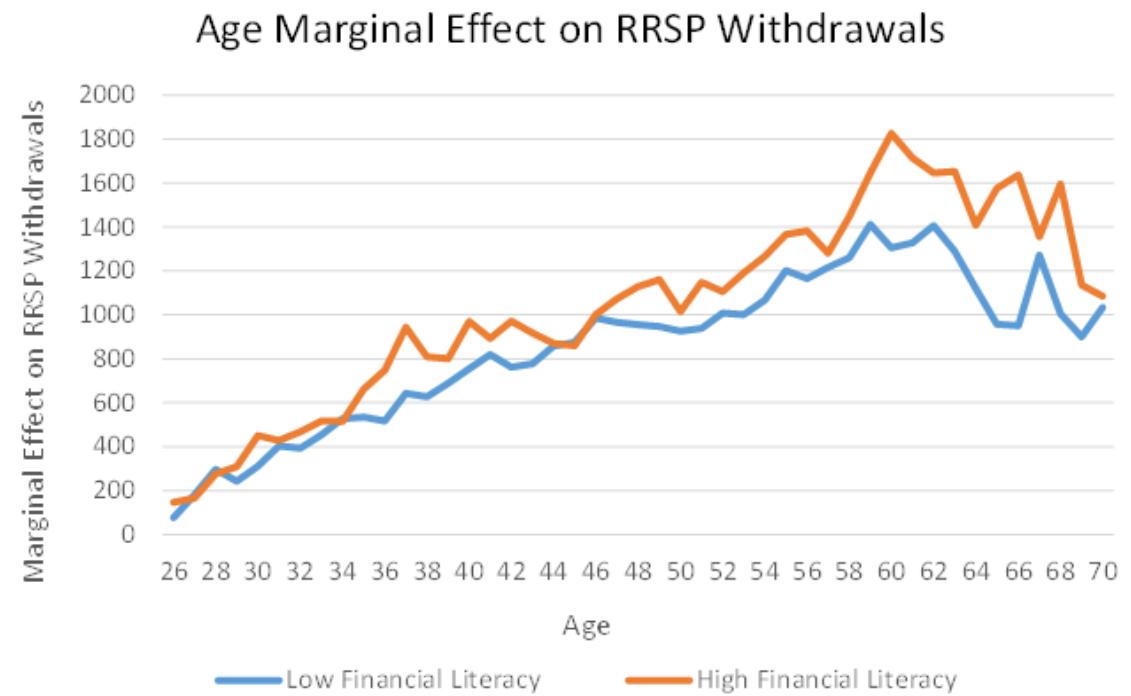
Results

- METR has a significant effect on RRSP withdrawals for both financial literacy groups.
- Effect holds after controlling for negative shocks, such as divorce or job loss.
- Effect is driven by savers with high financial literacy, as expected.

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

Results (2)

- Withdrawals increase with age.
- The age gradient is slightly steeper for savers with high financial literacy.



Results (3)

- The interaction term is negative and statistically significant at the 1% confidence level across all specifications.
- Results suggest that taxpayers with low financial literacy may not be as informed about how the tax system works or the effect of taxation on the after-tax value of withdrawn funds.

Fully Interacted Regression with Fixed Effects on RRSP Withdrawals

	(1)	(2)	(3)
METR * FL	-11.838*** (4.393)	-17.338*** (4.133)	-15.989*** (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*** (90.564)	260.472*** (90.834)	221.502** (90.762)
Number of observations	65,131	65,131	65,131

Robustness Checks

- We perform three robustness checks of the main findings:
 - Estimate the impact of a change in the METR at the extensive margin, i.e. the binary decision of whether to withdraw funds at all.
 - Estimate the model on a limited sample consisting of individuals who made at least one withdrawal between 2000 and 2016.
 - Assess whether the results are robust across various demographic groups. We divide our sample by sex, province and mother tongue.
- We use the most flexible specification with demographic and income controls.

Robustness Checks (2)

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



Robustness Checks (3)

Robustness Tests - Demographic Groups						
	Males	Females	Quebec	Ontario	Native Language - English	Native Language - French
METR * FL	-16.865** (6.935)	-8.868* (5.024)	-11.931 (10.253)	-22.904** (9.353)	-16.481*** (4.837)	-8.953 (8.983)
METR	-13.639*** (4.343)	-3.104 (2.336)	-7.033 (4.996)	0.605 (5.053)	-7.247*** (2.534)	-9.588** (4.834)
Number of observations	30,971	34,152	11,852	12,008	44,192	14,856

Conclusion

- Most taxpayers recognize tax costs when they make savings withdrawals.
- Individuals with high financial literacy are more responsive to changes in their taxes when making withdrawal decisions.
 - This suggests there is a direct link between financial and tax literacy.
- Our findings have implications for public policy insofar as they indicate efforts to increase financial literacy may help taxfilers improve their financial situations during working years and into retirement, notably for those with lower incomes.



Thank You!

Derek Messacar

Research Analyst, Statistics Canada

Adjunct Professor, Memorial University of Newfoundland

Research Fellow, Retirement and Savings Institute, HEC Montréal

Telephone: (709) 351-1018

E-mail: derek.Messacar@canada.ca